

**Report of commission for the inspection of the methods of application by  
the Germans of flamethrowers in combat on November 9 in the region of  
the Skrobowa Stream**

November 12, 1916. We the undersigned, Commission Chairman the Chief of Staff of the 9th Army Corps, Major-General Iskritskiy; members Professor Boguski; Staff Officer for the Commissions with the Inspection of the Artillery of the Army of the Western Front, Colonel Enden; General Staff Lieutenant-Colonel Novikov; and Military Engineer Captain Antonov, as a result of the order the Chief of Staff of the Armies of the Western Front from 5/6 this November for Order No. 2879/1958[b], arrived at the 35th Army Corps for the detailed inspection of the methods of application of flamethrowers in combat on October 27, the circumstances in which they are applied, and also to determine the range of countermeasures that can be taken against their harmful effects.

The Chairman and members of the commission visited all those participating in the battle: The 55th Infantry Division, 266th and 267th Infantry Regiments, 67th Infantry Division, 321st and 322nd Regiments of the 81st Infantry Division, and also the staffs of the 35th Army Corps, the 55th, 67th, and 81st Infantry Divisions, and of those artillery units that experienced the action of flamethrowers. By questioning the participants in the battle--officers, lower ranks, and doctors--the following was determined:

By the morning of October 27 our units that had advanced to the west bank of Skrobowa Stream and occupied the position were: the 218th Gorbatovsky Infantry Regiment, from the height to  $3/4$  verst [*1 verst = 3500 feet*] north of the village of Dlonoe-Skrobovo including Folvarka, which was  $1/2$  verst west of the southern outskirts of the village of Gorny Skrobov; south of the stream that flows through the village of Perevoloki was the 217th Kovrov Infantry Regiment; and finally from the stream to the so-called Triangular Grove,  $1/2$  verst west of Mark 97.5, one verst south of the Skrobov-Colony group, the 1st and 2nd battalions of the 322nd Soligalichskiy Infantry Regiment occupied the position. The divisional reserves of the Corps and the Army, along with artillery, were arranged east of Skrobowa Stream.

The position located on the west bank of Skrobowa Stream consisted of several lines of trenches, connected by communication trenches. The distance between the trenches of our first line and the enemy trenches ranged from 200-300 paces to several tens of paces, and in some places wire entanglements were widespread; generally each side had

its wire entanglement, although there were small sections (at the 217th Regiment) where wire entanglements were not yet in place.

On the night of October 26-27 the troops were alerted that on the following day, October 27, the Germans would attack with flamethrowers; in some sectors this warning was passed by word of mouth, and company commanders warned the lower ranks of the forthcoming attack with flamethrowers, explaining the device and its effects (according to information from newspapers and drawings from periodicals). In one company of the 322nd Infantry Regiment some were even given supplies of water to extinguish large flames that arose, and the lower ranks were told to take off clothing lit by flamethrowers. In other parts of the company those occupying the first line knew nothing about the forthcoming attack and they did not have information about the flamethrowers. Since nobody saw to intelligently explaining flamethrowers and their actions, as well as measures to combat them, this warning on the whole was hardly beneficial, and likely somewhat increased the nervous state of the men.

From 0600 hours on October 27 the enemy opened artillery fire on the location of the troop housing, directing it predominantly along the eastern bank of Skrobowa Stream, on the artillery positions, and from approximately 1000 hours fire was concentrated mostly on our position located on the western bank of the stream.

The enemy systematically destroyed our trenches, gradually increasing fire to the level of a hurricane. All trenches were simultaneously destroyed, and in the contiguous sections of the first-line trenches, shelters and communication trenches were destroyed mostly by concentrated mortar fire.

From 1200 to 1400 hours the enemy tried three times to leave some sections of his trenches and advance against our position, but each time he was forced back by our rifle, machine-gun, and artillery fire. After each unsuccessful attempt the enemy fire (predominantly mortar) was renewed with the previous force along the first line of our trenches.

At 1500 hours the first line of our trenches and the wire entanglements in front of them were for the most part destroyed. Many defenders of this line (officers and lower ranks) were by this time pulverized or had taken to the surviving refuges and dugouts; surveillance of the enemy was weakened considerably.

Using these developments, the enemy between 1400 and 1500 hours began a new attack on the entire section; during this attack they used flamethrowers for the first time.

The initial outflow of flamethrower operators from the enemy trenches and their initial motion differed in no way from the usual start of infantry into the attack, so that it was not always possible to distinguish between flamethrower operators and grenadiers from a distance. Against some contiguous sections the flamethrower operators immediately showed themselves, emerging directly from their trenches. Thus, against the section of the 6th Company of the 217th Regiment, where the distance between the trenches was 30 paces, German flamethrower operators stood on the parapet of their trench and from there they attempted to pour flame on our trenches, but the jets did not enter; several drops fell through only one loophole, which burned one lower rank. In 2-3 minutes the flamethrower operators were driven away by our fire. Similarly several Germans left their trenches and went against the 3rd Company of the 218th Gorbatsky Regiment, where the distance between the trenches was about 25 paces; one was in front with the lance, from which the flame directly reached our trench and set it ablaze.

For further offensives the flamethrower operators were usually gathered in groups of 5, 7, or 10 men; each such group was apparently composed in some organizational way around one flamethrower. From the statements of some witnesses, in these groups there were grenadiers and men with light machine guns or automatic rifles. Sometimes grenadiers advanced in front, sometimes beside the flamethrower operators, or sometimes behind them. Infantry came after the flamethrower operators (but in some sections of the 217th Infantry Regiment, the enemy infantry did not).

Within 150 paces from our trenches, and sometimes where the distance between the trenches was less, flamethrower operators created a smoke screen in front of themselves immediately after they left their trenches. For this purpose they directed jets from the apparatus toward the earth, the consequence of which was thick smoke, the greater part black and in some places bluish, which almost completely hid the flamethrower operators from the sight of the defenders: using this curtain, the flamethrower operators moved several paces and then again repeated the same action, until they reached our trenches. Some witnesses noted in this case that the flamethrower operators seemed to

circumvent the recently doused places, since their motion was not linear. Many lower ranks (217th Regiment) mistook the smoke screen for the discharge of gas and hurried to put on masks; only after a time did they consider that the wind blew toward the enemy, and they tore away their masks. Obviously, the flamethrower operators managed to advance considerably while our troops were putting on and removing their masks.

Having reached our trenches, flamethrower operators usually ran along them, dousing the entrenchments and the remaining defenders. The presence of flamethrower operators was observed throughout the area attacked; however, a continuous skirmish line of them, evenly distributed along entire front, was not observed. They were seen carrying out frontal attacks only against the 9th, 11th, 12th and 14th Companies of the 218th Gorbatov Regiment; the 1st, 2nd, 6th, 14th and 16th Companies of the 217th Kovrov Regiment; and against the 7th and 8th Companies of the 322nd Soligalich Regiment. Other witnesses saw flamethrower operators only after they had already broken into our positions and moved along the trenches. To determine the precise number of flamethrowers in action is impossible; the majority of the responding witnesses noted no more than one or two flamethrowers used against their own positions, while some indicated that they saw groups of four flamethrowers. In any case, it can be assumed with some degree of probability that the total number of flamethrowers did not exceed 50-60.

Flamethrowers used by the Germans during the attack on October 27--according to the results of the harmful jets sprayed by them and the actual sight of them--were not uniformly present along the entire front of attack.

According to the properties of the jets the apparatuses are clearly divided into two forms: a) apparatuses that spray flame; b) apparatuses that spray jets of caustic liquid.

The first type of apparatus was used against the 218th Infantry Regiment, against the right flank of the 217th Regiment, and against the 322nd Regiment; the second type of apparatus was used on the remaining front of the 217th Regiment.

The flame jet sprayed by the apparatuses of the first type was observed by many witnesses; its length did not exceed 10-20 paces (the wind during the day's fighting was from the east), and only a few people indicated that it reached 50 and even 70 paces in length. This jet caught fire, for the most part, immediately upon departing from the

apparatus, but sometimes nearly one pace from the start it took the form of fiery undulating lines, gradually increasing toward the end and hardly smoking; in several cases a non-continuous stream of fire as well as a number of separate fiery sprays were observed escaping from the apparatus. In falling to the ground the jet created a cloud of thick black smoke. Some of the witnesses in this case assert that when falling on people, trenches, or the earth it continued to burn, frequently igniting these objects and becoming a quite strong and bright fire; for example, they saw people whose overcoats were on fire in the burning trenches.

The commander of the Second Battery of the 55th Artillery Brigade even said that the whole of Ferdinand's Nose (the height on the right flank of the 217th Regiment) was in flames. Others indicated that the sprayed liquid fire burned only as long as it had sufficient substances as fuel, in some places burning out and in the areas where it burned the fire not spreading. And a third group of witnesses said that because of the smoke they could not determine if it was burning liquid on the ground or not. Seriously burned men affected by the actions of German flamethrowers passed through the medical facilities in groups of five. In the Gorbatovskiy Regiment there were 20-25 lightly burned men; in the Kovrov four; in the remaining regiments there were no burn casualties. All of the burnt had been evacuated by the time the commission members arrived on the scene.

From the statements of witnesses the burns on the face and other body parts were yellow (as if they were thickly smeared with iodine); sometimes the skin cracked, bled visibly, and gave off the smell of burnt flesh. Three lower ranks of the 4th Company of the 217th Regiment spoke with a burnt private of the 218th Regiment whose face was blackened, whose eyes were intact, and who spoke with difficulty.

The jet of caustic liquid sprayed from the apparatuses of the second kind did not burn but fell to the earth, creating abundant bluish smoke; the color of the jet itself could not be determined. Falling on overcoats and other pieces of equipment, this liquid burnt them where it fell but did not spread further. The skin was blackened, but noticeably there was no blood on the faces; the length of the jets of caustic liquid also did not exceed 15-20 paces.

From the indications of eyewitnesses, there were considerably more apparatuses of the first type than the second.

It is impossible to give a precise description of the apparatuses which spray flame and liquid based on the statements of participants in the battle, due to the heavy smoke and the dust over the positions which prevented the apparatuses from being examined well; furthermore the witnesses rarely saw the devices from closer than 50-70 paces.

However, from the statements of eyewitnesses it is possible to conclude that the apparatuses (both spraying flame and caustic liquid) were of three types:

- a) Small - carried by one person on his back, the same person holding in one hand (for the most part the left) the tip of the spraying tube;
- b) Medium - carried by two or three men, in this case the tip of the spraying tube was born by one man;
- c) Large - operated directly from the trenches, in which case the hose of the apparatus, heavy and long, was carried by two or three men. Finally, some men claimed that they saw an apparatus in the form of a large hose, with a length of 6-7 feet and a diameter of approximately 4 inches, carried by four to five men. Some men could carry these devices and operate them, always grouped with several men with burdens on their backs; it is possible to assume that they bore spare reservoirs or part of the flamethrowers.

In general these characteristics were rarely derived from eyewitnesses who could examine the flamethrower devices in painful detail. In this regard these are statements only of individual persons.

Judging by these indications, the small apparatuses are arranged thus: on the back of the flamethrower operator are placed two cylinders, one under another, the first about 23 inches tall and 8 inches in diameter, the second under it and somewhat smaller, with a length of 20 inches and a diameter of 4 inches. The first cylinder is behind the shoulders and the second against the waist. It is possible to assume that large vessel contains flammable liquid, and the smaller compressed gas for the spraying of the liquid from the large vessel. It is also very probable that each of the vessels contains both liquid and compressed gas, but that in each of the vessels there is another liquid, namely: In the small, lower reserve tank liquid a liquid for the formation of smoke screens, while in the large a liquid that smokes less but produces a large, long flame or a jet of caustic liquid. Formation of smoke clouds and the spraying of flame are confirmed

by many testimonials, indicating that the flamethrower operators have available two liquids of different compositions. Hoses for the spraying of liquid came from under the left arm of the flamethrower operator, and he worked it like a fire hose, moving it from side to side. Some witnesses saw that with the spraying of the jet, the flamethrower operators made some action with their right hands, as if pumping air into the tank that contained liquid. If this observation is accurate, and if the pressure that actually sprays the liquid is produced by the flamethrower operator himself during the spraying of the jet, then this device, by decreasing the weight of the tank, makes it possible to carry a larger supply of liquid.

The apparatus of medium size is probably arranged along the same system, but apparently the reservoir for the liquid is considerably larger, since the individual who carried it was bent under the weight of the cylinder. The hose that sprays liquid was borne by one man; the nozzle of the hose is located on the right side, close to the position of the hand. Behind these men were a few men, also with cylinders on their backs. On their left sides these flamethrower operators had voluminous bags, which lay against the thigh. The duration of the action of flamethrower could not be described. There were indications that the jet ceased after 20-30 seconds, and sometimes from one minute through two or three. It is possible that the headwind had an effect on the duration of the action of flamethrowers and the length of jet, in consequence of which the jet sometimes scattered into drops, and sometimes gusts of wind gust pushed back the flame and the jet ceased.

There was testimony by individuals that the jet sprayed by the flamethrowers did not burn completely, and it was necessary to specially ignite it.

It is not known if or how the used cylinders were replaced.

Nobody could examine the mechanisms of the other flamethrowers.

From some indications the flamethrower operators were wearing masks, but for the most part these men could not be examined closely because of the smoke. They were dressed in black jackets; on their backs some had short rifles hanging from their belts. It is very difficult in combat to distinguish flamethrower operators from other troops or from grenadiers at a distance. Only at close range is it possible to distinguish which one carries a hose.

The commission did not succeed in determining the composition of the burning and corrosive liquids, since all victims were already evacuated, their clothing had been returned to them, and the battlefield and trenches which had been subjected to flamethrowers remained in the hands of enemy. The commission was able to obtain for study only one fur hat and one jacket doused by the Germans (the results of chemical analysis will be represented additionally).

Some witnesses of the 218th Regiment showed that the flamethrowers used petroleum residue or crude oil. Spots which remained from the liquid sprayed from the flamethrower and which had not caught fire on the sleeve of the overcoat of Ivan Volochenko, a private of the 14th Company, 218th Regiment, and a trench commander of the same regiment, Vasiliy Dorofeev, were examined by Professor Boguski, who said the stains could have been made with oil or resinous liquid similar to it.

The caustic liquid used against the 217th Regiment was most likely nitric or sulfuric acid, either of which is powerful enough to produce burns and to smoke when falling on trees and clothing.

From the statements of participants in the battle the impression made by flamethrowers is negligible in comparison with artillery, mortar, machine-gun and rifle fire, especially after everyone ascertained that the jet reached altogether only 15, 20, or 25 paces and that the flamethrower operators could move only at a walk. They did not have a decisive influence on the success of the German attack. Artillery and mortar preparation did everything. However, it is undeniable that flamethrowers had a significant negative effect on the degree of perseverance of the surviving defenders of the attacked trenches, and also on the immediate reserves. The wounded of the 218th Gorbatsky Infantry Regiment departing to the rear shouted that "The Germans are spraying fire," "All the trenches are burning," and they made the remaining men extremely nervous with these exclamations.

From questioning participants in the battle it became clear that there were no specific methods to combat flamethrowers. In the 218th and 217th Regiments the men shot their rifles and machine guns and threw hand grenades; however, they could not force the flamethrower operators into flight.

In this case a small number of the surviving defenders in the first line of our trenches (even the nearest reserves were not always able to provide support) were unable to



produce a heavy volume of fire, and furthermore many of them were denied their rifles at the necessary moment of action, since the arms were buried by earth and sand. Some defenders exchanged two rifles, selecting a serviceable weapon from wounded and dead comrades.

In the 217th Regiment there were instances in which the rifles failed in action, leading the defenders of the trenches to launch a counterattack against the line of flamethrower operators who had not yet used their apparatuses, but having advanced not even 30 paces to their goal the Russians were met by jets of fire or corrosive liquid and retreated back into their trenches without having stopped the flamethrower operators.

How much of the trenches were burned, and whether measures were taken to extinguish the fires, none of the defenders of the trenches could say.

Some witnesses indicated that among those burnt by the fiery jet, the ones who escaped were those who knew enough to throw off their burning overcoats or fur hats. Some flung themselves on the ground and rolled on it; those supposedly died. The commission could not question any of the survivors mentioned above, since none were present among the troops interrogated.

Sometimes flamethrower operators were surprised by our artillery, but this defeat was completely random in nature, according to witnesses. However, there was no special artillery shooting at the flamethrower operators, due to the close range at which the flamethrower operators went into action.

During the counterattacks carried out by the reserves after the battle, the use of flamethrowers was discovered only in two cases:

1) On the morning of October 26 two companies of the 219th Regiment launched an offensive toward the height of "Bovo" (the last four letters in the name Dolna Skrobovo); they were met by heavy rifle and machine-gun fire and one fiery jet that sprayed 15-20 paces. The jet was sprayed directly from the trench in intervals; the duration of the jet varied from several seconds to one minute. It could not be determined if there was one flamethrower or several;

2) At 0600 hours on October 28 the Oka Battalion of the 321st Infantry Regiment launched a counterattack on the so-called "Lori and Austro-Hungarian trenches"; in the area held by the Soligalichskiy Regiment and occupied by the Germans on October 27,

two or three flamethrowers were discovered. In the remaining fronts the use of flamethrowers on October 28 was not observed.

Based on a detailed study of the application in combat on October 27 this year, of the attacking enemy's apparatuses that emit fiery jets or streams of caustic liquid, the commission reached the following conclusions:

1. The flamethrowers and the apparatuses which project caustic liquid are means of close combat at a distance not more than 30-40 paces; consequently, they can present a direct danger only to the defenders of trenches located at this distance from the enemy trenches. In all other cases the flamethrowers must be preliminarily delivered to within this distance, and only then they can be used for battle.
2. Flamethrowers as a result of their insignificant range cannot completely replace either artillery preparation, or machine-gun and rifle fire, or even hand grenades. They are only an auxiliary means used under the indispensable condition of the application of all other kinds of fire.
3. The effect produced by flamethrowers on defenders of trenches and the impression and spillover effect of their use are considerably inferior to all other kinds of fire and poisonous gases.
4. The successful application of flamethrowers is possible only for completing the defeat of the enemy who is shaken and demoralized by the previous battle, when his resistance is to a considerable degree broken, and when the number of flamethrower operators is significant.
5. Flamethrower operators can begin only under the smoke screen.
6. Without the support of grenadiers, machine guns, and the infantry, flamethrower operators are unable to engage the enemy and hold that which they have seized.
7. Fire of all types is the most reliable means of protection against flamethrowers. Where trenches are sufficiently far apart, barrages of artillery fire should be opened on enemy trenches without any notice given by the Corps, as soon as a reduction of enemy fire on the section is observed or an enemy smoke screen appears. Batteries to prevent a flank attack should be stationed in the contiguous areas of the barrage, and some

defenders must be transferred into the second line of trenches. This is followed by machine-gun fire, for which all necessary measures must be taken to preserve some machine guns before the infantry assault. At the same time rifles can be fired. To avoid the failure of either, it is necessary to see that sufficient water is supplied for the machine guns and that rifles are cleaned during the artillery preparation. Machine-gun and rifle fire are the principal means of preventing flamethrower operators from reaching the trenches. If flamethrower operators succeed in approaching to within 30-40 paces, troops must throw hand grenades without letting up on machine-gun and rifle fire. Grenadiers are effective at 35-40 paces, but flamethrower operators are not. Therefore hand grenades are the principle means of combat.

8. Counterattacking against flamethrower operators is dangerous, since by leaving the trenches and advancing we voluntarily approach to within a distance advantageous to their action.

9. The lower ranks must absolutely be familiarized with the appearance of flamethrower operators and the methods of their approach.

10. In the trenches it is necessary to monitor of the approach of flamethrower operators.

11. In the event of a breakthrough of the first line and the advance of flamethrower operators into the rear, the closest reserves must occupy the second line of trenches with a strong line of shooters instead of huddling together in large shelters with limited number of exits, since in the latter case one or two flamethrowers can cut off the exits (almost half of the 4th Company of the 217th Regiment was captured in such a shelter in the third line of trenches).

12. If the burning liquid falls on clothing and continues to burn, then the clothing should be thrown off.

13. To extinguish fires caused by flamethrowers, supplies of sand or loose earth should be kept in the trenches to smother burning wood, and water should also be stored.

Signed:

Chairman of the Commission: Major General Iskritskiy

Councilor of State: Professor Boguski

Staff officer for the Commissions with the Inspection of the Artillery of the Army  
of the Western Front: Colonel Enden

General Staff: Lieutenant Colonel Novikov

Military engineer: Captain Antonov