Shelling of the town of Makeyevka with the use of 9K51 Grad multiple launch rocket systems on August 19, 2014

PUBLIC INVESTIGATION

Donetsk 18.06.2021

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CONTENT

ACKNOWLEDGEMENTS

I express my sincere gratitude to all the caring people who made this investigation possible owing to their donations.

I also thank Nikolay Dovgal for his help in searching for information

I am grateful to Victoria Bilousova for her help in the design of illustrations

I ask all those who will read this investigation report to help continue this work.

All our investigations require any additional information. Therefore, by adding any information you know about the case in the comments, you are already helping.

We need volunteers to search for and analyze information. Take a few hours and contribute in finding the key evidence.

This will help quickly and more completely investigate all the war crimes committed in the Donbass.

ABBREVIATIONS

UAF - Ukrainian Armed Forces

IMBr - Independent Mechanized Brigade

RAB - Rocket Artillery Battalion

RB - Rocket Battery

BTGr - Battalion Tactical Group

MLRS - Multiple Launch Rocket System

PREAMBLE

On August 19, 2014, the town of Makeyevka was subjected to several artillery attacks, which resulted in damages to the municipal preschool educational institutions: Childcare Center No. 119 of the general development type and Childcare Center No. 122 of the combined type, the Central Polyclinic and the Children's Clinical Center, Public Library named after A.N. Bezhenova, Young Naturalists' Station, municipal educational institution School No. 15. The buildings of the Yasinovsky Coke-Chemical Plant and residential buildings of the Kirovsky and Tsentralno-Gorodsky districts were also damaged. In total, 72 residential buildings were destroyed[1].

This investigation will consider the episode of that day, resulting in damages to the Cheryomushki residential area, not far from the Makeyevka railway station. Here, as a result of a massive artillery shelling that occurred at about 13:00, five civilians were killed[2], several people were wounded[3].

INCIDENT LOCATION

Studies of the photo and video materials published in the media and on the Internet, interviews of the witnesses and the victims of the artillery shelling of

1 Parliamentarians honored the memory of the residents of Makeyevka who died as a result of shelling from the UAF. Official website of the People's Council of the DPR. URL: https://dnrsovet.su/parlamentarii-pochtili-pamyat-makeevchan-pogibshih-v-rezultate-obstrelov-so-storony-vfu/ (published on 19.08.2019).

2 Five civilians killed in the shelling of Makeyevka. RIA News. URL: https://ria.ru/20140819/1020588002.html (published on 19.08.2019).

3 Makeyevka commemorated the civilians killed on August 19, 2014. DNR-PRAVDA.RU URL: https://dnr-pravda.ru/v-makeevke-pochtili-pamyat-pogibshih-mirnyh-zhitelej-19-avgusta-2014-goda/ (published on 17.08.2018).

Makeyevka at 13:00 on August 19, 2014, visits and examinations of the incident scene enabled us to establish ten locations of artillery shell hits, It is worth noting that there were much more hits. This investigation considers only those shell hits that can be analyzed based on available sources.

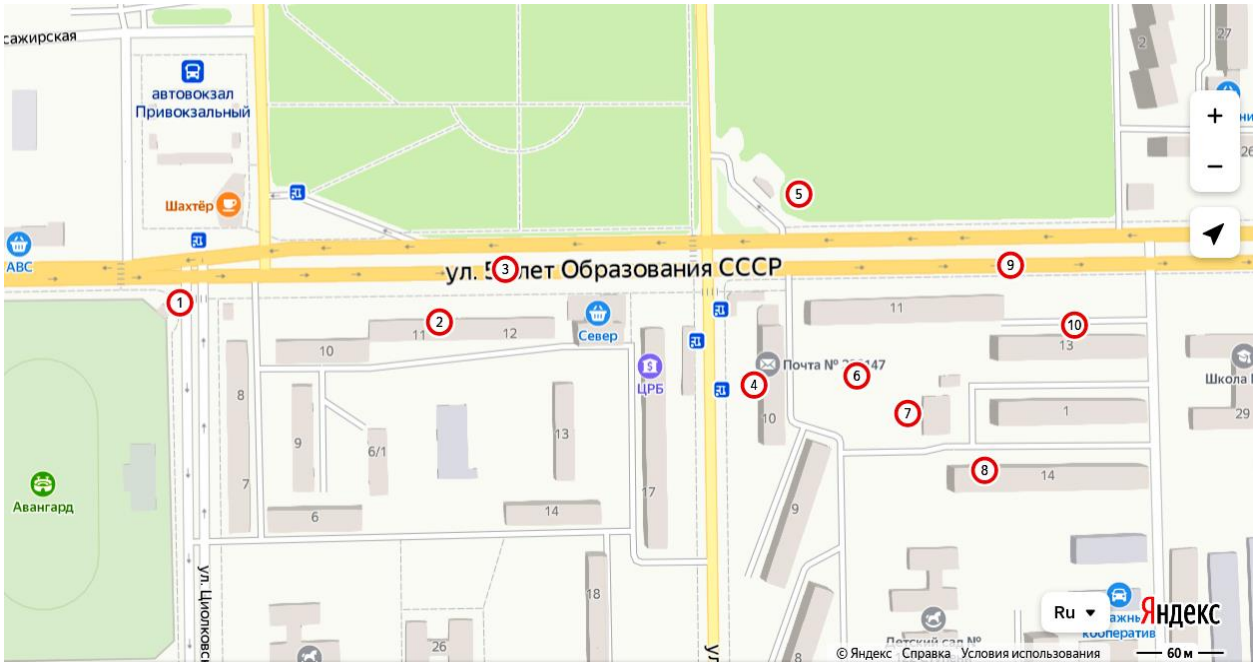

Fig. 1 - Scheme of the analyzed shell hits, Makeyevka, 19.08.2014.

Shell hit 1. It was the first and, perhaps, the most terrible hit. A shell exploded on a curb near the “Kosheliok” food store, claiming the lives of five civilians. Unfortunately, the very the site of the shell hit was trampled when the wounded and the bodies of the dead were taken away. Still, the very location of the shell crater is clearly defined.

Fig. 2 - Shell hit (No.1) on the curb near the "Kosheliok" food store, Makeyevka[4].

Shell hits 2 and 8. The roofs of residential houses No. 11 in the Severny quarter and No. 20 in the Gvardeisky quarter were damaged. In both cases, shells hit the north slope of the roofs. These hits are clearly visible even in the satellite images.

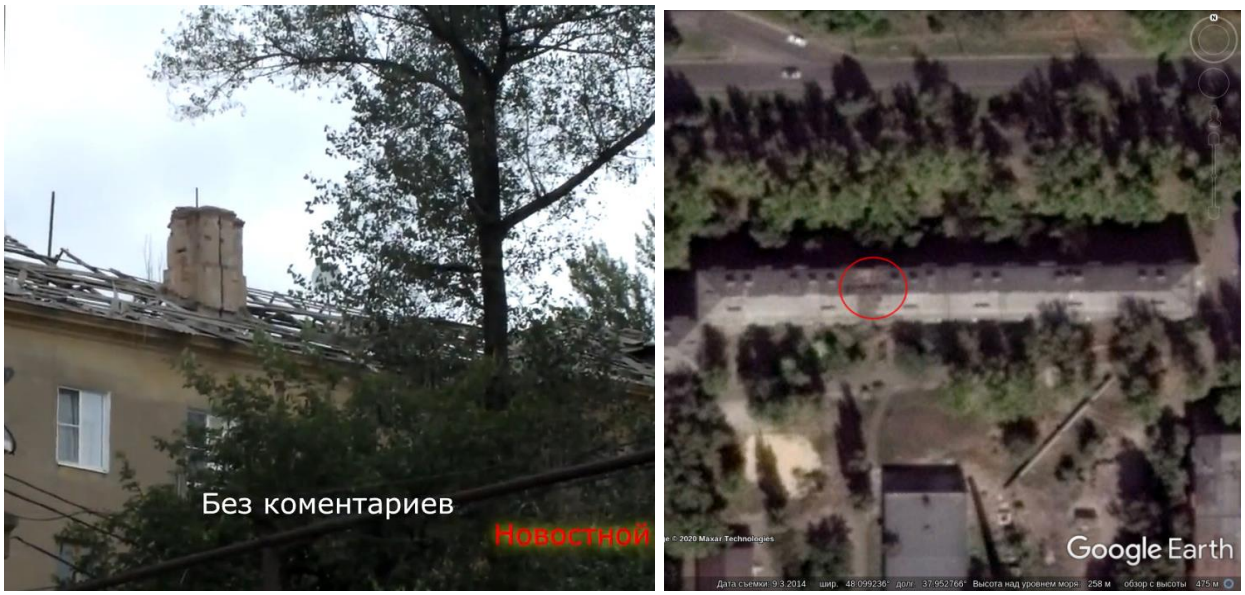

Fig. 3 - Shell hit (No.2) on the roof of the residential building at 11 Severny quarter: left — a screenshot from the video found on the Internet[5]; right — a satellite image of 03.09.2014.

4 Makeyevka. August 21, 2014. Effects of shellfire on August 19. VKontakte Social Network. URL: https://vk.com/video-121569101_456247022 (published on 20.08.2017).

5 Victims of Makeyevka shelling on 19 04 2014. YouTube Video hosting. URL: https://youtu.be/gxSo9XkRl9I (published on 17.08.2020).

Fig. 4 - Shell hit (No.8) on the roof of the residential building at 14, Gvardeisky quarter: left — a screenshot from the video found on the Internet[6]; right — a satellite image of 03.09.2014.

Shell hits 3 and 9. In these cases, both shells hit the road pavement, leaving a clear mark on the asphalt, suggesting that the shelling was conducted from the Northwest - North. Also, the remnants of the rocket part of the 9K51 Grad MLRS projectile were found in these places. We shell discuss these shell craters in more detail below.

Fig. 5 - Shell hit (No.9) on the road pavement opposite the Northwest corner of the residential building at 11, Gvardeisky quarter[7];

6 19.08.2014. Makeyevka. Consequences of the shelling of the Gvardeisky residential quarter. YouTube Video hosting. URL: https://youtu.be/IdCEaBOZQsA (published on 19.08.2014).

7 Donetsk and Макеевка again underwent massive shelling. YouTube Video hosting. URL: https://youtu.be/tjfo7-9BVko (published on 19.08.2014).

Fig. 6 - Shell hit (No.3) on the road pavement opposite the residential building at Severny quarter, 12[8].

Shell hits 4 and 7. In these cases, the shells fell beside the buildings, damaging them with the lateral part of the fragment spray plane. Note that in case No. 7, there was a hole in the ground, indicating the Northwest-North fire direction.

Fig. 7 - Shell hit (No.4) near the entrance to the "Chubchik" hairdressing salon at 10, Gvardeisky quarter[9].

8 Consequences of the shelling of Cheryomushki residential quarter, Makeyevka, on 19.08.2014. YouTube Video hosting. URL: https://youtu.be/qPUU2Db0aew (published on 20.08.2014); Victims of Makeyevka shelling on 19 04 2014. YouTube Video hosting. URL: https://youtu.be/gxSo9XkRl9I (published on 17.08.2020).

9 Victims of Makeyevka shelling on 19 04 2014. YouTube Video hosting. URL: https://youtu.be/gxSo9XkRl9I (published on 17.08.2020).

Fig. 8 - Shell hit (No.7) near the Northwest corner of the building of the Housing and Utility Management Office, Gvardeisky quarter[10].

Shell hit 5. The shell exploded on the ground next to a gas tank at a LUKOIL gas station.

Fig. 9 - Shell hit (No.5) on the ground next to a gas tank at a LUKOIL gas station[11].

Shell hit 6 The shell hit the playground near residential houses Nos. 10 and 11 in the Gvardeisky quarter.

10 Makeyevka, Cheryomushki: shelling the area nearby school 53, August 2014. VKontakte Social Network. URL: https://vk.com/video-5158073_456242774 ((published on 19.08.2017).

11 Consequences of the shelling of Cheryomushki residential quarter, Makeyevka, on 19.08.2014. YouTube Video hosting. URL: https://youtu.be/qPUU2Db0aew (published on 20.08.2014).

Fig. 10 - Shell hit (No.6) on the playground near residential buildings Nos. 10 and 11 in the Gvardeisky quarter.[12].

Shell hit 10 The shell hit the northern wall of the residential house at 13, Gvardeisky quarter at the ground floor level, destroying a small extension.

Fig. 11 - Shell hit (No.10) on the northern wall of the residential building at 13, Gvardeisky quarter at the ground floor level[13].

12 Consequences of the shelling of Cheryomushki residential quarter, Makeyevka, on 19.08.2014. YouTube Video hosting. URL: https://youtu.be/qPUU2Db0aew (published on 20.08.2014).

13 Makeyevka. August 21, 2014. Effects of shellfire on August 19. VKontakte Social Network. URL: https://vk.com/video-121569101_456247022 (published on 20.08.2017).

WEAPON TYPE

EVIDENCE OF USING ROCKET ARTILLERY

The remains of the rocket part of the 9K51 Grad MLRS shell were found in craters from shell explosions located on the road pavement asphalt along the 50 years of USSR formation Street (see shell hits 3 and 9).

Fig. 12 – The remnants of the rocket part of the 9K51 Grad MLRS shell[14].

Also, the video[15] recorded the fall of several shells with an interval of 1-2 seconds, and the particular sound[16] ("rustle") of passing shells, which is typical for the use of MLRS.

There were holes of a specific shape on the remnants of the rocket part of the MLRS projectile found at the site of the shell hit No. 9. These holes located at the point of fin attachment to the body. Such holes are characteristic precisely of 9K51

14 Donetsk and Makeyevka again underwent massive shelling. YouTube Video hosting. URL: https://youtu.be/tjfo7-9BVko (accessed on 19.08.2014); Consequences of the shelling of Cheryomushki residential quarter, Makeyevka, on 19.08.2014. YouTube Video hosting. URL: https://youtu.be/qPUU2Db0aew (published on 20.08.2014).

15 Makeyevka, Cheryomushki: shelling the area nearby school 53, August 2014. VKontakte Social Network.URL: https://vk.com/video-5158073_456242774 (published on 19.08.2017); Makeyevka: shelling of the North. YouTube Video hosting URL: https://youtu.be/0kDR3hkK9rc (published on 19.08.2014).

16 Donetsk, Makeyevka. Shelling a bus with passengers on 19.08.14. Odnoklassniki Social Network. URL: https://ok.ru/video/5697766715 (published on 19.08.2014).

Grad MLRS shells. Let us consider the dummy stabilizer control units for MLRS shells used in the war in Donbass to confirm this thesis: 300-mm 9K58 Smerch (Windspout), 220-mm 9K57 Uragan (Hurricane) and 122-mm 9K51 Grad (Hail).

As Figures 13 and 14 show, three identical rectangular holes located at the same distance from each other are typical for attaching fins to the rocket part of the Smerch MLRS projectiles.

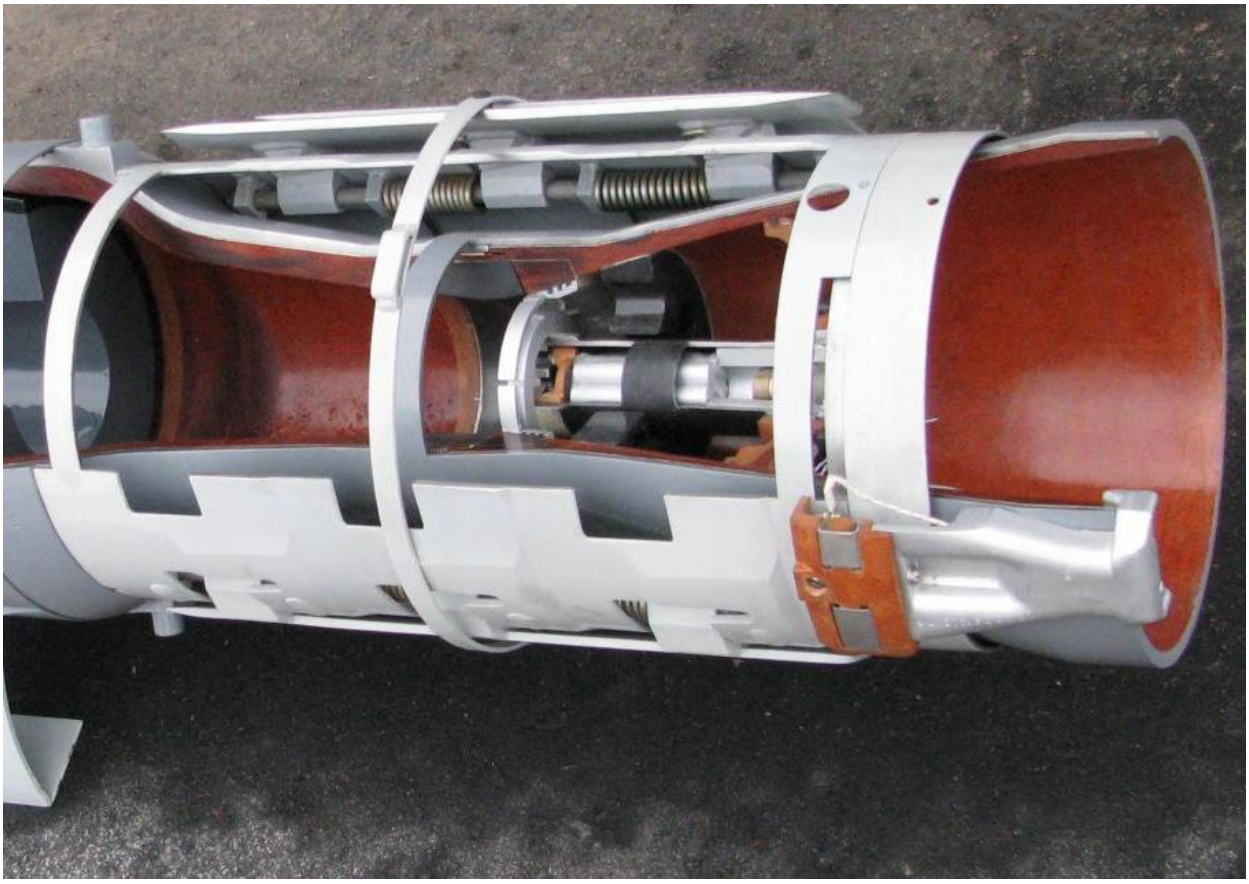

Fig. 13 - View of the tail assembly of the cutaway model of the Smerch MLRS projectile[17]

[17] View of the tail assembly of the cutaway model of the Smerch MLRS projectile (Russia). Missilery. URL: https://missilery.info/files/m/s.gurov/Russia/Smerch/rockets/Tail_assembly/img_7745redcopy.jpg

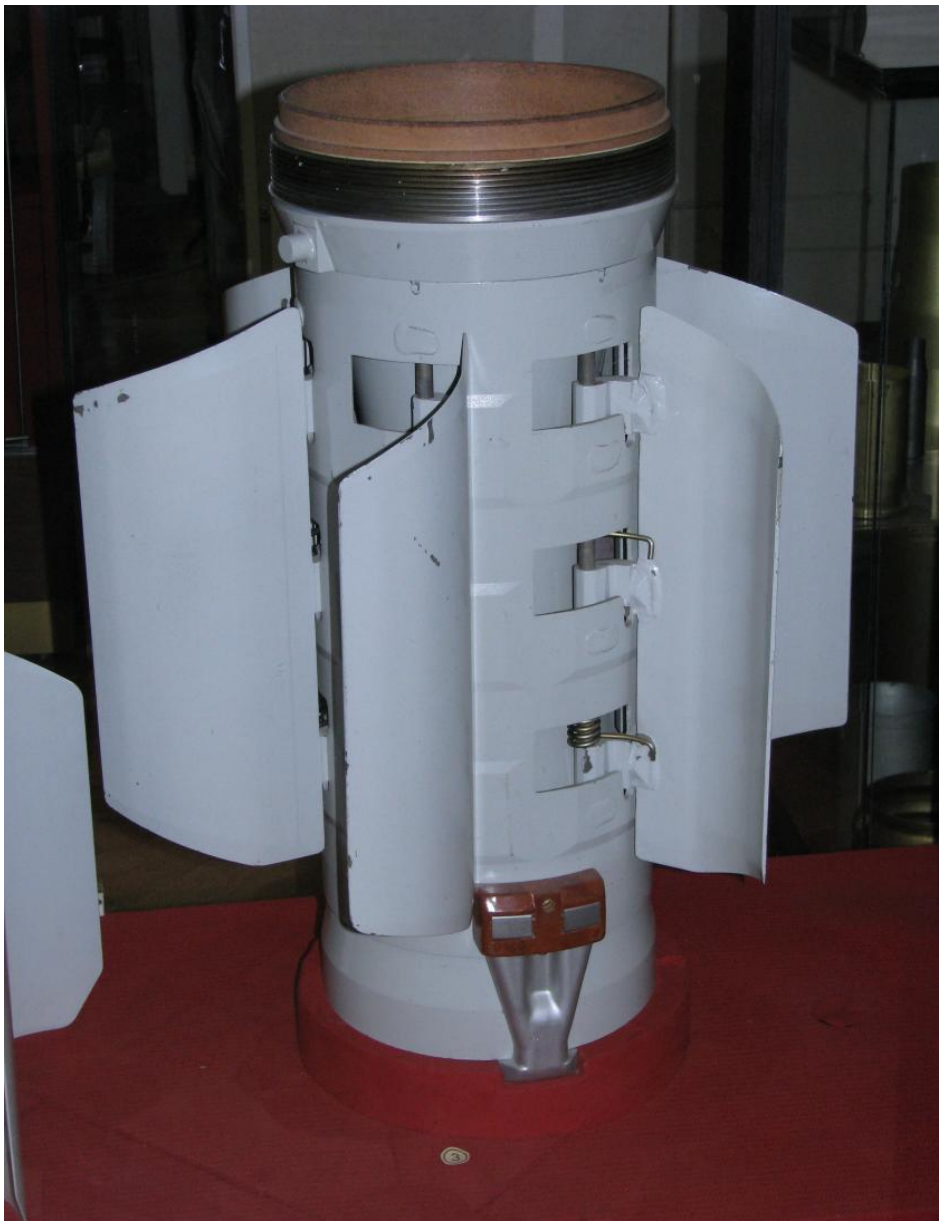

Fig. 14 - A dummy stabilizer control unit for the Smerch MLRS projectile[18].

In turn, the stabilizer control unit of the Uragan MLRS projectile also has three identical rectangular holes. However, they are located at different distances on these shells. And one of the holes (located in the middle) is smaller than the other two (Fig. 15 and 16)

[18] A dummy stabilizer control unit for the Smerch MLRS rocket projectile. Missilery. URL: https://missilery.info/files/m/s.gurov/Russia/Smerch/rockets/Tail_assembly/16._blok_stabilizatora_krs_dlya_rszo_smerchc_s.v.gurov_.jpg

Fig. 15 – A dummy stabilizer control unit for the Uragan MLRS projectile[19]

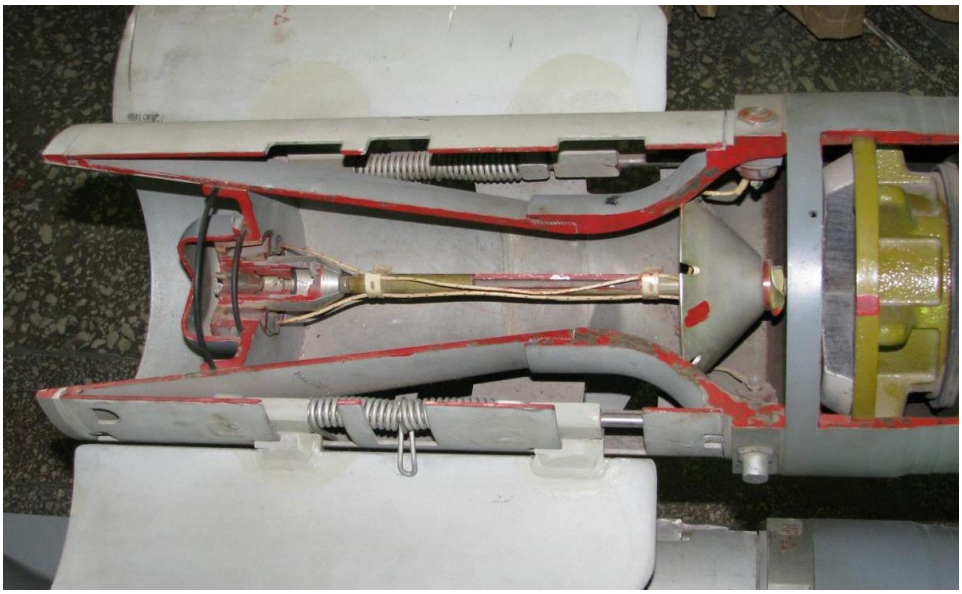

Fig. 16 – View of the tail assembly of the cutaway model of the Uragan MLRS projectile[20].

Proceeding from the above illustrations of the dummy stabilizer control unit

[19] A dummy stabilizer control unit for the unguided Uragan MLRS projectile. Missilery URL: https://missilery.info/files/m/s.gurov/Russia/Uragan/rockets/10._maket_bloka_stabilizatora_nurs_rszo_uragan_c_s.v.gurov_.jpg

[20] View of the tail assembly of the cutaway model of the Uragan MLRS projectile (with a nozzle cluster view). Missilery URL: https://missilery.info/files/m/s.gurov/Russia/Uragan/rockets/tail_assembly_uragan.jpg

for the Smerch and Uragan MLRS projectiles, we can argue that the remnants of the projectile rocket part found at the site of shell hit No. 9 were not fired from the Smerch or Uragan MLRSs.

Moreover, the same holes can be seen on the remains of the unexploded Grad projectile found near Krasnogorovka (Fig. 17) and on the drawing of the 9K51 Grad MLRS projectile stabilizer unit (Fig. 18).

Fig. 17 – The remains of the 9K51 Grad MLRS projectile found near Krasnogorovka on 28.08.2016.[21]

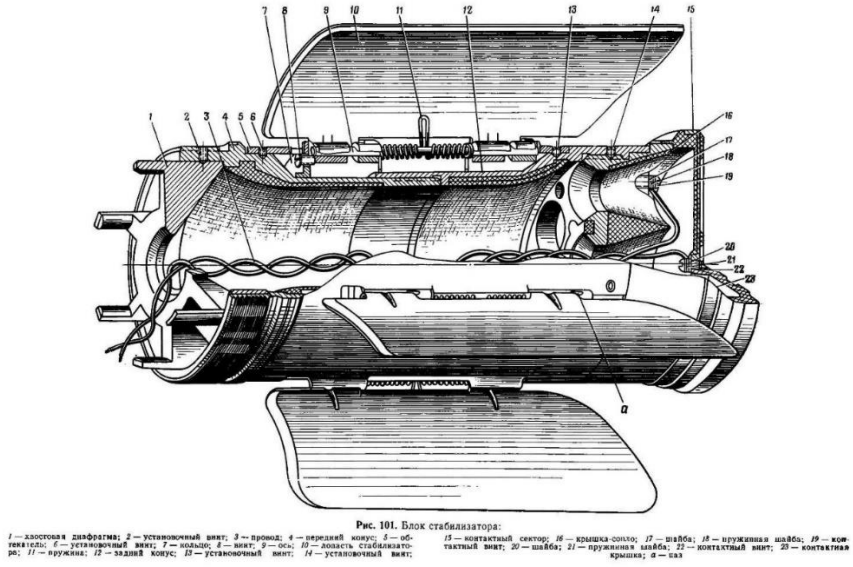

Рис. 101. Блок стабилизатора:

Fig. 18 - The drawing of the 9K51 Grad MLRS projectile stabilizer unit from the book BM-21 GRAD[22].

[21] Militants fired Krasnogorovka with Grad MLRSs in the Donetsk Region – Joint Centre for Control and Coordination. Public TV. URL: https://hromadske.ua/posts/boiovyky-obstrilialy-z-hradiv-krasnohorivku-na-donechchyni-stskk (published on 28.08.2016).

[22] Gun in Russia – BM-21 GRAD. Russian motor books 2002. 37 p.

Now let us discuss in more detail the shell hit (No. 3) on the road pavement in the 50 Years of the USSR Formation Street opposite the residential building at 12, Severny quarter (Fig. 6). The remnants of the rocket part of the 9K51 Grad MLRS projectile were also found at the site of this shell hit about 20 centimeters away from the curb. Having data on the height and width of the curb, it is possible to determine the width of the remaining part of the projectile and confirm the assertion that the artillery shelling was carried out precisely with the 9K51 Grad MLRS.

We visited the incident location at 50 Years of the USSR Formation Street (next to the 12, Severny quarter). A trail from seven years ago was found at the scene of the incident- a section of the curb, damaged as a result of the explosion of a shell that fell next to it.

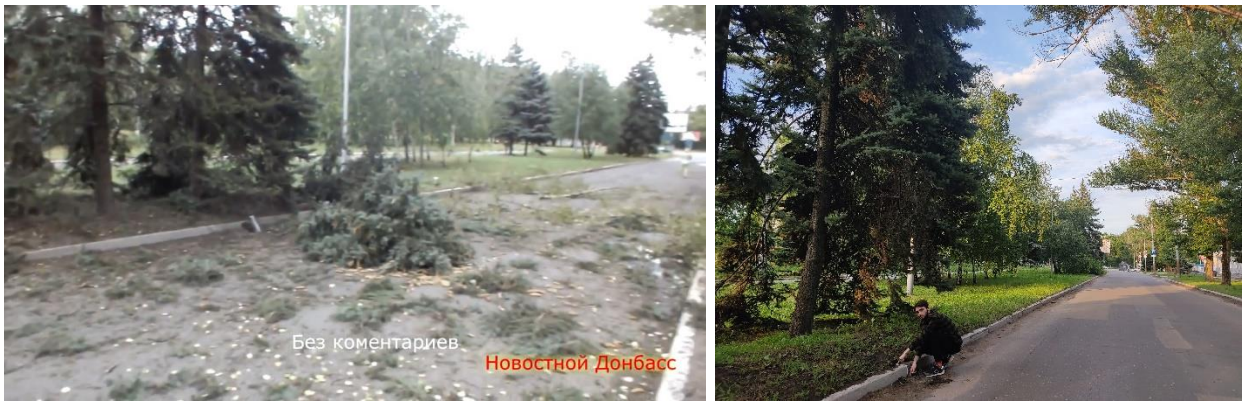

Fig. 19 - left: Shell hit (No.3) on the road pavement on August 19, 2014[23]; right: the same place as of July 7, 2021.

Fig. 20 - The damaged section of the curb in 50 Years of the USSR Formation Street[24].

[23] Victims of Makeyevka shelling on 19 04 2014. YouTube Video hosting. URL: https://youtu.be/gxSo9XkRl9I (published on 17.08.2020).

[24] Consequences of the shelling of Cheryomushki residential quarter, Makeyevka, on 19.08.2014. YouTube Video hosting. URL: https://youtu.be/qPUU2Db0aew (published on 20.08.2014).

The length, width and height of the visible part of the curb next to its damaged area were measured using a flexible tape rule: the length was 300 cm (3000 mm), the width was 15 cm (150 mm), and the height was 13 cm (130 mm).

Fig. 21 - Measurement of the width and height of the visible part of the curb; to the right of the flexible tape - the same section of the curb damaged as a result of the shell explosion.

It was found that only one type of curb has such parameters – curbs of the BR 300.30.15 type, intended for the improvement of urban areas and roads[25]**.** The main characteristics of the straight ordinary curb element BR 300.30.15: BR is a type of a construction element, straight ordinary curb 3000 mm long, 150 mm wide and 300 mm high; geometric dimensions: 3000x150x300 mm.

[25] Ordinary curb BR 300-30-15 under the state standard: GOST 6665-91. PRECAST CONCRETE PRODUCTS - Novosibirsk. URL: http://nsk.tdajbi.ru/category-106537/category-106503/category-98855/product-98859.html (published on 14.07.2021).

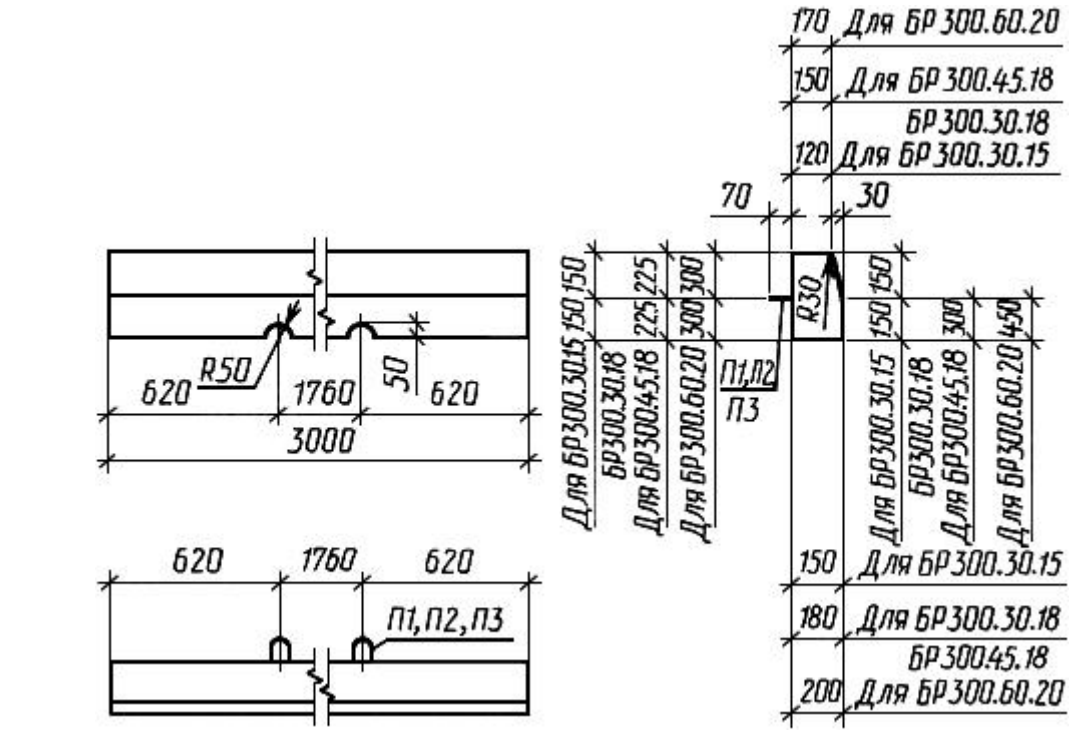

Таблица 1

НОМЕНКЛАТУРА БОРТОВЫХ КАМНЕЙ

Марки	Форма	Размеры, мм												Радиус кривизны R, м	Справочная масса т	Назначение камней
		h	h_1	h_2	h_3	h_4	h_5	b	b_1	b_2	b_3	Длина				
1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16
БР 100.30.15		300	150	150	—	—	—	150	30	120	—	1000		—	0,10	Для отделения проезжей части внутриквартальных проездов от тротуаров, газонов
БР 300.30.15		300	150	150	—	—	—	150	30	120	—	3000		—	0,32	
БР 100.30.18		300	150	150	—	—	—	180	30	150	—	1000		—	0,12	Для отделения проезжей части магистральных улиц от тротуаров, газонов, площадок — остановок общественного транспорта и обособленного полотна трамвайных путей
БР 300.30.18		300	150	150	—	—	—	180	30	150	—	3000		—	0,38	

Fig. 22 - Curb drawing and nomenclature[26].

Note that curb is installed on the principle of equality of the buried and aboveground parts. Thus, the measured height (with an error of about 2 cm, since over time the border could settle) and the width of the curb allow us to determine the curb type, and therefore, to obtain its dimensions in accordance with the GOST.

By overlaying the forensic ruler on the photo, it is possible to determine the width of the missile part of the 9K51 Grad MLRS projectile with an error of 10%.

[26] Ogurtsov V.P, Prusakova V.N., Greenwald N.M. Concrete and reinforced concrete curbs. Reprint (September 1985) Moscow: “Badge of Honor” Order Standards Publishing House, 1985. 44 p.

In our case, it was about 12 cm. Taking into account the error and possible deformation of the rocket part, it can be argued that the photo shows the remnants of a 122mm projectile used for firing from the 9K51 Grad MLRS.

Fig. 23 – Measurement of the height of the curb located next to the shell explosion traces in the 50 Years of the USSR Formation Street opposite the residential building at 12, Severny quarter.

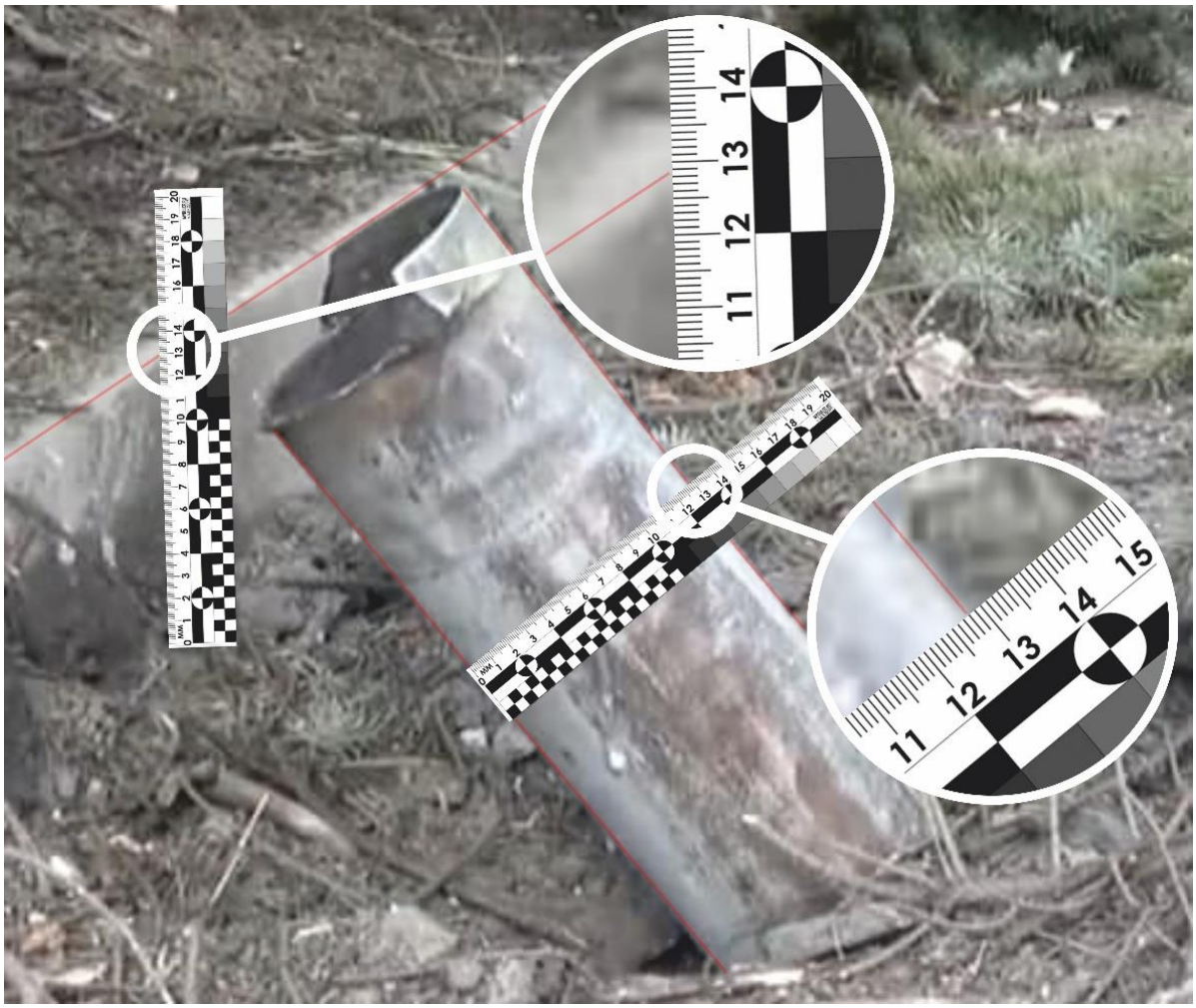

Fig. 24 – Measurements with the virtual forensic ruler - shell hit (No.3) in the 50 Years of the USSR Formation Street opposite the residential building at 12, Severny quarter.

All of the above facts allow us to assert that on August 19, 2014, the Cheryomushki residential area underwent artillery fire with the 9K51 Grad MLRS.

9K51 GRAD MULTIPLE LAUNCH ROCKET SYSTEM

The projectile for firing from 9K51 Grad MLRS consists of a fuze, head and rocket parts. As a result of contact with an obstacle, the detonator initiates an explosion of the shell head, which scatters into fragments.

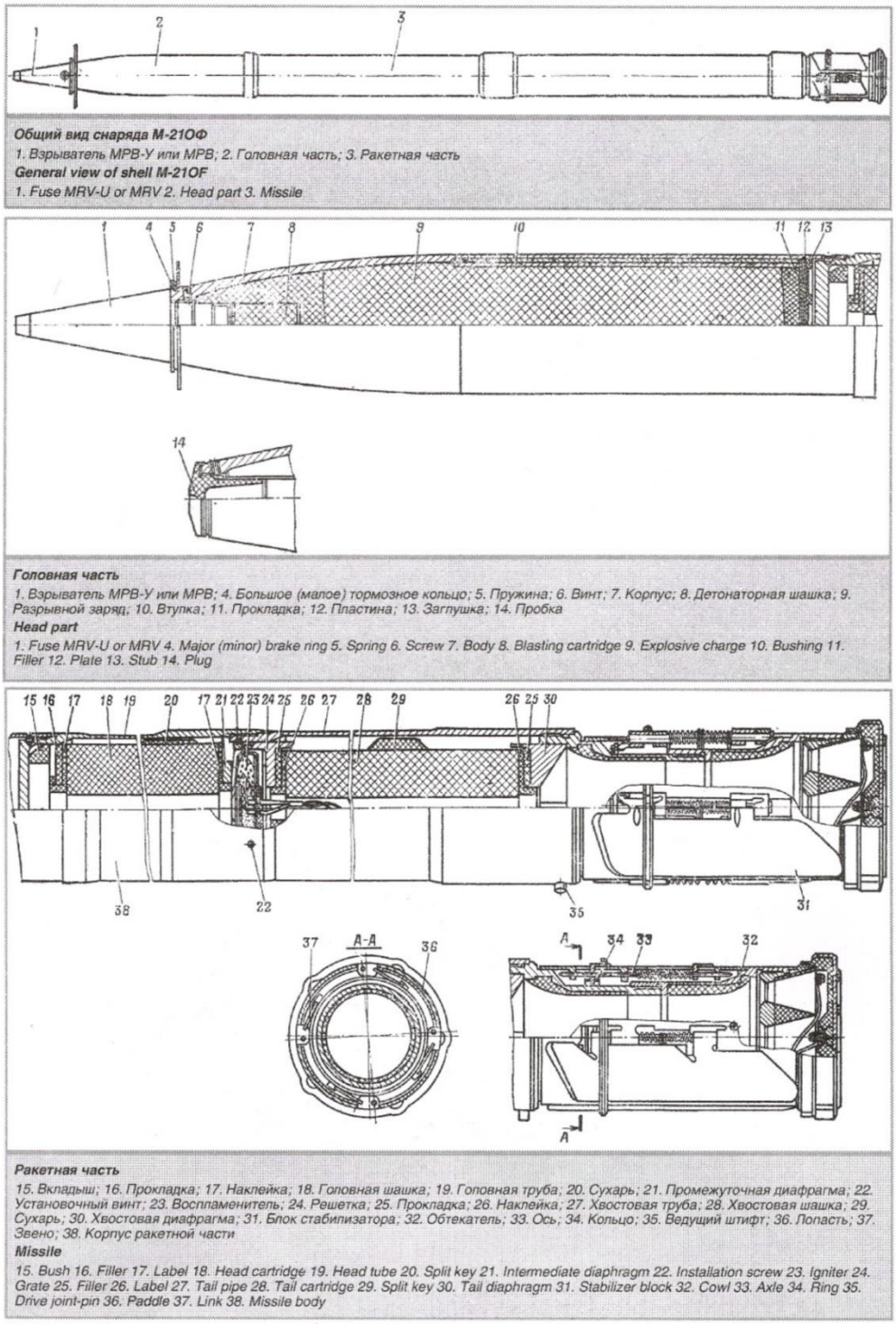

Fig. 25 - M-21OF projectile design (a high explosive fragmentation projectile, used for firing from 9K51 Grad MLRS[27]*.*

27 Gun in Russia – BM-21 GRAD. Russian motor books. 2002. 37 p.

The rocket often remains more or less intact, though deformed. It is usually found either inside the shell crater, or in the immediate vicinity of it. For clarity, we present the design and technical characteristics of the most common projectile used for firing from the 9K51 Grad MLRS.

Калибр, мм	122
Длина снаряда со взрывателем, мм	2870
Тип головной части	осколочно-фугасная
Вес , кг: - окончательно снаряженного снаряда - снаряда в укупорке - головной части - взрывчатого вещества в головной части - порохового заряда	 66 100 18.4 6.4 20.45
Наибольшая скорость снаряда при нормальных условиях, м/с	690
Дальность стрельбы, м : - максимальная - с большим тормозным кольцом - с малым тормозным кольцом	 20400 до 12000 от 12000 до 16000
Температурный диапазон применения снаряда, °С	−40 – +50
Габаритные размеры укупорки, мм	2810x290x254

Fig. 26 - Technical characteristics of the unguided M-21OF rocket projectile[28].

28 Mechanized combat vehicle BM-21. Technical description. Book 1. Moscow: Voenizdat, 1971. Pp. 7, 8, 91; Mechanized combat vehicle BM-21. Technical description and operating instructions manual. 3rd edn., stereotyped. Moscow: Armament. Politics. Conversion, 2002. Pp. 5-6.

PROBABLE SECTOR OF SHELLING

As for the direction from which the artillery shelling of Makeyevka was carried out, it can be argued that the shells flew from the north-west - north to the south - south-east.

This is supported by the following facts:

Firstly, the gable roofs of the buildings were damaged by shells on the north side (see shell hits No. 2 and No. 8).

Secondly, physical traces left by hits on the road in the 50 Years of the USSR Formation Street clearly indicate the above direction (see shell hits No. 3 and No..9).

Thus, in the case of shell hit No. 3, fragmentation grooves can be observed on the asphalt, they form traces typical for the crater of the second type (from shells hit at a large striking angle))[29].

Fig. 27 - Scheme of a crater from a projectile hit at a large striking angle to the surface (left) and a real crater from a projectile hitting the road pavement opposite the north-east corner of the residential building at 11, Gvardeisky quarter (right)[30].

In the case of shell hit No. 9, the rocket part casing of the 9K51 Grad MLRS projectile was stuck in the asphalt; the main slope of this casing is oriented in the

29 Kopyl I.A. Analysis of craters from high-explosive fragmentation shells: guidelines for military correspondents and members of the public. Edited by Moiseev A.M. Donetsk: Public Commission for Recording War Crimes, 2015.

30 Donetsk and Makeyevka again underwent massive shelling. YouTube Video hosting. URL: https://youtu.be/tjfo7-9BVko (published on 19.08.2014).

north-west-north direction (see Fig. 6).

Thirdly, the analysis of the physical traces left by the projectile in the case of shell hit No. 1 gives an azimuth of 335 degrees.

The analysis was carried out as follows:

The photo of the Kosheliok food store, taken after the shelling, clearly shows a line of damage on the wall of the store, left by the main stream of scattered fragments. The point of contact of this line with the ground surface is located in the central part of the store. Having found a trace from a shell hit on a satellite image and connected it with the central part of the store, we obtain the line of intersection of the plane of the main scatter of fragments with the plane of the ground surface. This line is always perpendicular to the direction of the projectile flight.

Fig. 28 - The trace from the main scatter of fragments on the wall of the Kosheliok food store.

Thus, the facts indicate that the shelling in question was carried out from positions in the north – north-west in the direction to the south – south-east. The azimuth is 335 degrees.

In addition, the line of damage on the wall of the Kosheliok food store allows us to determine the grazing angle of the projectile. Thus, the main stream of fragments left a clear mark on the wall, which is located at an angle of about 30 degrees to the surface of the earth (see Fig. 26). Knowing that the main stream of fragments is always perpendicular to the tangent to the projectile trajectory[31] it is possible to calculate the angle of contact, which is about 60 degrees.

Fig. 29 – Scheme of fire direction determination using satellite imagery.

The grazing angle of 60 degrees for unguided projectiles is typical when firing at maximum distances. In this case, the projectile flies out of the gun at an angle of

31 Artillery. Edited by Marshal of the Artillery M.N. Chistyakov. 5th edn, revised and enlarged. Moscow: Voenizdat, 1953.

45 degrees and comes into contact with the surface at an angle of 60 degrees[32].

According to its technical characteristics, the M-21OF projectile has three maximum ranges (depending on the use of various brake rings), which are 12,000, 16,000 and 20,400 m.

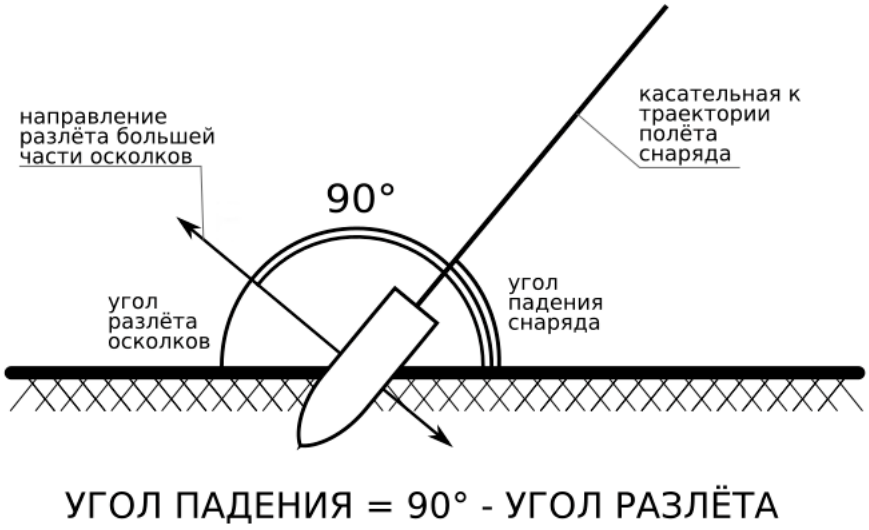

Fig. 30 - Determination of the projectile grazing angle.

Summarizing the above information, it can be argued that the shelling of the Cheryomushki residential area in the town of Makeyevka on August 19, 2014 was conducted in the direction from north – north-west to south – south-east in an azimuth of 335 degrees (measurement error makes plus/minus 15 degrees). The firing range could be from 12,000 m to 20,400 m.

It can be seen on the map with the drawn demarcation line[33] and the probable sector of shelling Makeyevka on 08.19.2014 that the above-mentioned sector is

32 TS-74G Excerpts. VKontakte Social Network. URL: https://vk.com/doc12087859_412622814?hash=349049e5d3de6d4cd9&dl=f164618dbbed713920 (published on 18.08.2020).

33 Novorossiya. Status report from the frontline as of August 19, 2014. LiveJournal Online Journal Service. URL: https://alex-leshy.livejournal.com/133428.html (published on 19.08.2014).

under the control of the Armed Forces of Ukraine. The terrain in the immediate vicinity of the demarcation line can be ignored, because artillery work from there is too risky.

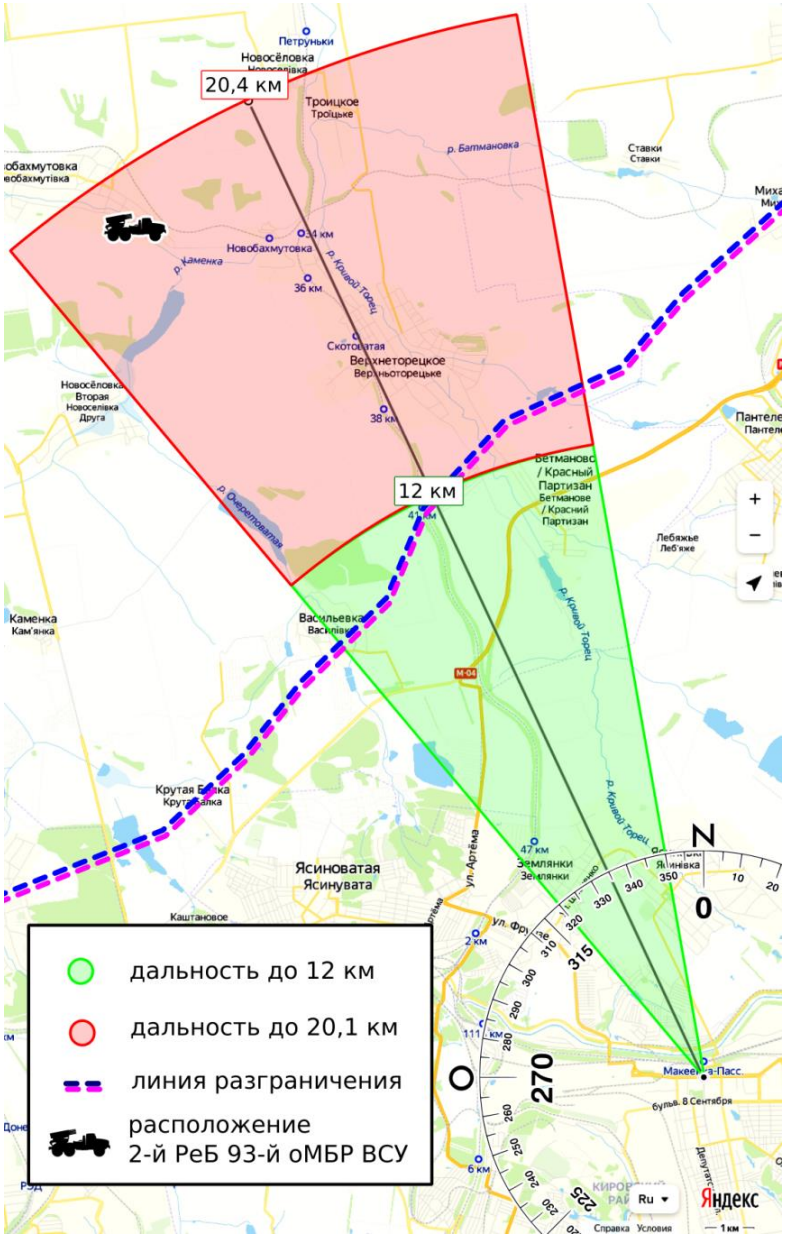

Fig. 31 - A probable sector of shelling Makeyevka on 19.08.2014 with the use of the 9K51 Grad MLRS.

MILITARY PRESENCE

In the news feeds dated August 20, 2014, there is a message stating that "in the Novobakhmutovka-Rozovka area (west of Gorlovka), a dislocation of a Ukrainian battery was noticed in the fields on both sides of the road"[34].

The analysis of the losses among members of the Ukrainian armed formations enabled to find out that in 2014, only servicemen of the 93rd Independent Mechanized Brigade perished near the village of Novobakhmutovka[35].

The 93rd IMBr includes a rocket artillery battalion, armed with 9K51 Grad MLRS[36].

Fig. 32 - A segment of the documentary film "93: Battle for Ukraine"[37].

Further search revealed that on August 7, the 3rd battalion tactical group of the 93rd IMBr attacked in the direction of the Krasny Partisan settlement, capturing it and blocking the road to Gorlovka.

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34 The site of deployment of Ukrainian punitive squads in Novobakhmutovka-Rozovka. News Agency "Novorossiya" URL: https://novorosinform.org/306609 (published on 18.08.2020).

35 Kostrichenko O. V. Memory book for the perished. URL: http://memorybook.org.ua/14/kostruchenko.htm (published on 18.08.2020).

36 93rd Mechanized Brigade of Ukrainian Ground Forces fighting in Donbass. LiveJournal Online Journal Service. URL: https://colonelcassad.livejournal.com/3759796.html (published on 23.10.2017).

37 93: Battle for Ukraine - the battle route of the 93rd IMB, 1 series. YouTube Video hosting. URL: https://youtu.be/XcdiLz4KUPw (published on 07.05.2018).

Fig. 33 - Traffic diagram of the 3rd BTGr in August 2014 (a segment of the documentary film "93: Battle for Ukraine")[38].

In addition, the *Tyzhden* e-journal reported that the 2nd Rocket Battery was relocated to the village of Novobakhmutovka, where they stayed until the end of autumn 2014[39]. In confirmation of this information, the positions of this unit are clearly visible on the satellite images.

All the above facts allow us to assert that on February 19, the sector of shelling of the Cheryomushki residential area, Makeyevka, was under the UAF control. Moreover, the 2nd RB was deployed in this sector, and it was armed with 9K51 Grad MLRS.

Fig. 34 - Positions of the UAF near the village of Novobakhmutovka in a satellite image.

38 93: Battle for Ukraine - the battle route of the 93rd IMB, 1 series. YouTube Video hosting. URL: https://youtu.be/XcdiLz4KUPw (published on 07.05.2018).

39 Brothers of Grad. Guards of the multiple launcher rocket system battalion of the 93 IMBr. Tyzhden e-journal. URL: https://tyzhden.ua/Society/159974 (published on 03.03.2016).

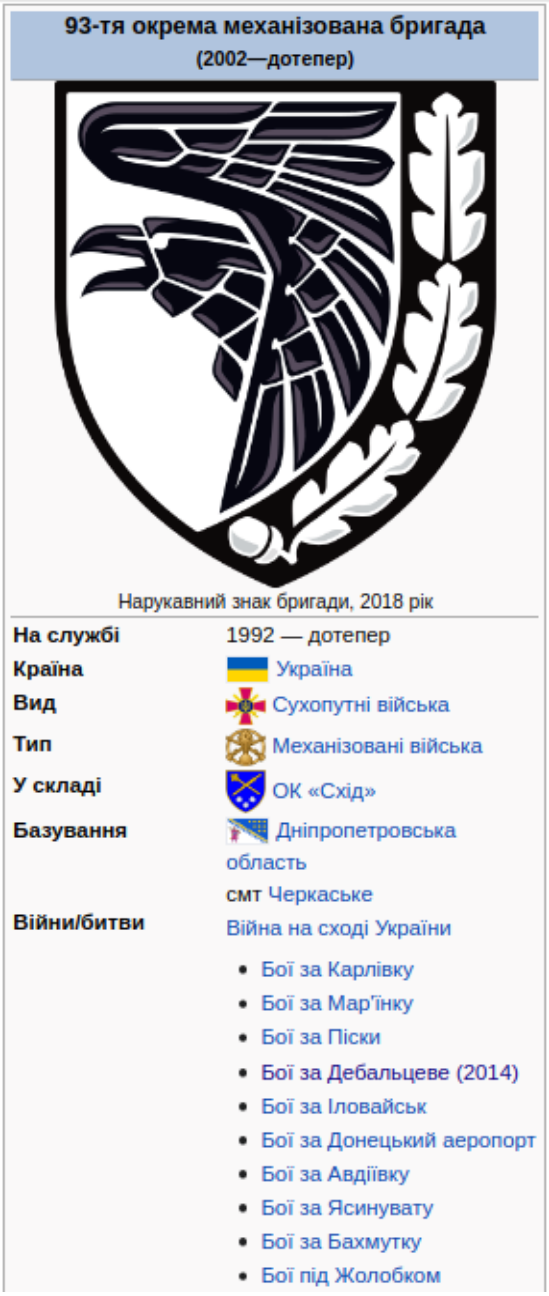

Fig. 35 - Brief information about 93-rd IMBr from the Ukrainian version of Wikipedia[41].

93RD IMBR

The 93rd Independent Kholodny YarMechanized Brigade (93rd IMBr, military unit A1302, military post V-2830) is the formation of mechanized troops as part of the Ground Forces of the Ukraine Armed Forces. It was formed on the basis of the 93rd mechanized division. The site of deployment is Cherkasskoye urban-type settlement (Novomoskovsky District, Dnepropetrovsk Region).

In March 2014, the brigade was one of the first to go to Donbass, moving to the settlements of Melovoe and Troitskoe, Luhansk Region.

On July 24, the soldiers of the 93rd brigade, together with the forces of the Dnepr-1, VUC Right Sector, Donbass and Shakhtersk battalions, participated in the battles for the settlement of Peski, taking control over the Dnepropetrovsk-Donetsk highway.[40]

40 Official website of the 93rd Independent Kholodnyi Yar Mechanized Brigade. Facebook social Network. URL: https://www.facebook.com/93OMBr/?__tn__=HHH-R

41 93rd Independent Kholodnyi Yar Mechanized Brigade (Ukraine). Wikipedia Free Encyclopaedia (Ukrainian version) URL: https://uk.wikipedia.org/wiki/93-тя_окрема_механізована_бригада_«Холодний_Яр» (published on 18.08.2020).

Unfortunately, we could not find out who was the commander of the Rocket Artillery Battalion, and so far, we failed to find information about the commander of the 2nd Rocket Battery. However, we have a photo of the military personnel of the battalion of interest to us. In addition, there is a lot of information about the commander of the 93rd IMBr, who is responsible for the actions of his subordinates.

Fig. 36 - The military personnel of the Rocket Artillery Battalion, 93rd IMBr[42].

Colonel of the Armed Forces of Ukraine Oleg Mikats was the commander of the 93rd IMBr in 2014.[43] He became known as one of the leaders of the attack on Donetsk airport.

In the early parliamentary elections in 2014, O.M. Mikats was the number three person in the list of the Ukrainian Nationalist Party "Right Sector".[44]

42 Brothers of Grad. Guards of the multiple launcher rocket system battalion of the 93 IMBr. Tyzhden e-journal. URL: https://tyzhden.ua/Society/159974 (published on 03.03.2016).

43 93rd Independent Kholodnyi Yar Mechanized Brigade (Ukraine). Wikipedia Free Encyclopaedia (Ukrainian version) URL: https://uk.wikipedia.org/wiki/93-тя_окрема_механізована_бригада_«Холодний_Яр» (published on 02.07.2019)

44 The "Right Sector" unveiled the top ten list, Yarosh is on the majority vote. 112.Ua website. URL: https://112.ua/politika/pravyy-sektor-obnarodoval-pervuyu-desyatku-spiska-yarosh-idet-po-mazhoritarke-115140.html (published on 15.09.2014)

He was removed from command of the brigade due to an incident during which Mikats beat badly several people.[45]

Fig. 37 - Commander of the 93rd IMBr Colonel O.M Mikats (a segment of the documentary film "93: Battle for Ukraine"[46].

45 A scandal erupted around the commander of the "Desna" center - he is accused of beating four people. The colonel denies. Prestupnosti Net website. URL: https://news.pn/ru/criminal/134174 (published on 27.05.2015)

46 93: Battle for Ukraine - the battle route of the 93rd IMB, 1 series. YouTube Video hosting. URL: https://youtu.be/XcdiLz4KUPw (published on 07.05.2018).

CONCLUSION

It follows from the above that on August 19, 2014, at about 13:00, the Cheryomushki residential area in the town of Makeyevka underwent artillery fire from the 9K51 Grad MLRS. The shells flew in a direction from north-north-west to south-south-east (azimuth 335 degrees).

As a result of the analysis of news videos and information from the Internet, it was found that the 2nd Rocket Battery of the Armed Forces of Ukraine could be located in the sector from which the shelling was carried out. This unit is part of the 93rd Independent Mechanized Brigade of the UGF[47] under the command of Colonel Oleg Mikhaylovich Mikats.

47 Kirovohrad Region: the first special brigade of territorial defense will be created on the basis of the 34th battalion. Grechka Information portal of Kirovohrad Region. URL: URL: https://gre4ka.info/suspilstvo/11255-kirovohradshchyna-na-bazi-34-ho-batalionu-bude-stvoreno-pershu-spetsialnu-bryhadu-terytorialnoi-oborony (published on 17.06.2014).

LEGAL QUALIFICATIONS

Indiscriminate shelling of a densely populated residential area inthe town of Makeyevka, in which civilians were killed and injured, is a crime for which responsibility is provided by the norms of national legislation of Ukraine and by the norms of international law.

In compliance with **Art. 438 of the Criminal Code of Ukraine**, for "... use of methods of the warfare prohibited by international instruments, or any other violations of rules of the warfare recognized by international instruments consented to be binding by the Verkhovna Rada (Parliament) of Ukraine, and also giving an order to commit any such actions", shall be punishable by imprisonment for a term of eight to twelve years., and if he same acts accompanied with an intended murder, shall be punishable by imprisonment for a term of ten to fifteen years, or life imprisonment.

In compliance with **Art. 13 of Additional Protocol II to the Geneva Conventions** of 12 August 1949, concerning the protection of victims of armed conflicts of a non-international character, dated 8 June 1977: "The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited".

In compliance with **Rule 71 of Customary International Humanitarian Law** (Volume 1, ICRC, 2006): "States must never make civilians the object of attack and must consequently never use weapons that are incapable of distinguishing between civilian and military targets"

"The use of weapons which are by nature indiscriminate is prohibited".

In compliance with part **2 (c), (e) of Art. 8 of the Rome Statute,** war crimes also include acts committed in the event of an armed conflict not of an international character and which constitute a serious violation of Art. 3, which is common to the four Geneva Conventions of August 12, 1949, namely, any of the following acts

committed against persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and those placed hors de combat by sickness, wounds, detention or any other cause:

Part 2 (c) i) violence to life and person, in particular murder of all kinds, mutilation, cruel treatment and torture;

Part 2 (e) i) intentionally directing attacks against the civilian population as such or against individual civilians not taking direct part in hostilities;

Part 2 (e) iv) intentionally directing attacks against buildings dedicated to religion, education, art, science or charitable purposes, historic monuments, hospitals and places where the sick and wounded are collected, provided they are not military objectives.

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