

Wartime Explosions in Archangel, 1916-1917: “Bakaritsa is Burning”; “Ekonomiia is Now a Wasteland”

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Research Note

Les 9 novembre 1916 et 13 janvier 1917, Bakaritsa et Ekonomiia, deux avant-ports d'Arkhangel en Russie nordique, ont souffert une catastrophe dans des incidents séparés mais semblables de façon inquiétante quand des navires chargés de munitions ont explosé. Dans les deux cas les explosions initiales ont causé d'autres détonations et incendies faisant rage au milieu de dizaines de milliers de tonnes de munitions stockées dans les facilités portuaires. Les pertes humaines et les dommages matériels étaient sur l'échelle de l'explosion célèbre d'un navire de munitions à Halifax, Nouvelle-Écosse, en décembre 1917, mais ces désastres russes sont pratiquement inconnus. La présente étude rassemble les événements des deux désastres à partir de sources contemporaines en langue russe et des comptes-rendus des dirigeants et des fonctionnaires britanniques qui étaient présents.

So far as I know, [wrote David Masters in 1935], there has never been a single line in print concerning one of the greatest disasters of the war, the appalling disaster in Archangel in the autumn of 1916, which killed thousands of people. Yet we in England have never heard of it, so off the map is Archangel and so necessary was it at that time to hush up anything that was likely to depress the spirit of the Allies ... It occurred too long ago and too far away for anyone to unravel the mystery.¹

Captain Gwatkin-Williams, a British naval officer of the White Sea Station, was in Archangel within a day of the Bakaritsa explosion; he has written, “never before probably has there been such an explosion as this one in Archangel. The death toll must have numbered several thousands, although, for official purposes, the Russian authorities gave out the number to be only one hundred and thirty. Whatever it was, approximately *thirty thousand tons* of munitions had gone up into the air”.² Another writer has observed that the “few puny tons of high explosive which went up at Silvertown [in the United Kingdom] on the 19th January, 1917 ... [were] ... a mere cracker compared with the terrific explosion at Archangel.”³

¹ “ID” [David Masters], *New Tales of the Submarine War* (London: Eyre and Spottiswoode, 1935), 158-159.

² R.S. Gwatkin-Williams, *Under the Black Ensign* (London: Hutchison & Co., 1922), 113.

³ “GRIFF” (A.S.G.), *Surrendered. Some Naval Secrets* (Cross Deep, Twickenham, UK: the

Catastrophic, yet little known to the outside world. In its time the explosion was almost as little known throughout Russia itself, save to the inhabitants of Archangel and its hinterland. The imperatives of war-time censorship precluded any public broadcasting of the event. And then, on the heels of the war came the two revolutions of 1917, followed by a malevolent civil war, foreign interventions, the brutal Russo-Polish war, and socio-economic and political upheavals which visited upon Russian lands unseen suffering and ruin. Against the backdrop of these new horrors, incalculably grander in their sweep across Russia and in the tally of human lives taken, the historical memory of the Archangel explosion receded, and faded away.⁴ I cannot promise to bring back the story of the Archangel explosion in all its amplitude, to unravel its “mysteries”, as David Masters puts it. I can, however, offer far more information on the Archangel explosion than was available in the mid-1920s and 1930s, when Masters and Gwatkin and “GRIFF” wrote their works. In doing so, I will in fact give you the story of *two* explosions which ripped apart outlying port districts of Archangel. Given the general dearth of knowledge about them, in some broad and general sense when people spoke of the Archangel “explosion”, they often conflated the two explosions into one – but there were two very distinct catastrophes which took place in fairly rapid succession. The first occurred at Bakaritsa, five-to-six kilometres upriver from Archangel centre; the second eventuated at Ekonomiiia, the city’s fore-port, located some twenty-five kilometres downriver.

This paper will address both explosions. For each explosion there will be commentary on the port and ship – more correctly the ships – concerned, and on their cargoes. Further, I will attempt to tease out of the evidence the anatomy of the explosions, and present both what could be called the “hard” and the “impressionistic” evidence on the nature and extent of these explosions. Then will come a tally of human lives lost and a description of destruction done, with some final closing comments. This paper strives towards a very simple end – to make these explosions known as historical phenomena. Secondary source materials in English on these catastrophes are very few, and also very sketchy. In Russian, source materials are more abundant, but also occasionally in conflict over timing, sequencing and severity of events, and over details of all sorts. Moreover, Russian memoir sources are at times at odds with each other. Hence the real import and purpose of this paper – adhering to the fundamental von Rankian imperative, to simply fill in the glaring blanks, to paint in the large white spots in western awareness of several signal events in Russian history, and “to tell it like it was” about the tragedies at both Bakaritsa and Ekonomiiia.

There will be no attempt at a “comparison” with the Halifax explosion, and the reasons for this will become patently manifest in the closing pages of this article. But my hope is that, precisely because of the Halifax explosion, Canadians will find this paper of interest.

author, [1926]),155.

⁴ L. Skriagin, “Vzryvy na Severnoi Dvine [Explosions on the Northern Dvina],” <http://lib.rus.ec/b/52345/read>.

I. BAKARITSA: The *Baron Driesen*⁵

The Port and the Ship

The massive inflow of war cargo and munitions into Archangel city harbour occasioned by the First World War threatened to overwhelm the existing port facilities. Hence Russia's Ministry of Trade and Commerce, with the participation of the Naval Ministry, began to build a complex of wharves at Bakaritsa, about five kilometres upstream from Archangel proper, on the left (west) bank of the Northern Dvina, and had them operational for the 1915 navigation season. Here, on this bank, the wharves linked directly with the Archangel-Vologda Railway terminus, through which war cargo moved into the heart of Russia. The port stretched along the river bank with a berthing line of more than two kilometres, berths for 20 ships. It was served by floating and railed cranes, a shoreline railway, a fire station, and so on. Eight covered storehouses were erected here with an area of 6,800 square metres, and a large open storage area just in from the wharves proper received and held mounds of war materiel. The receiving capacity of the port reached 260,000 tons monthly.⁶

To this port, on 23 October 1916, came the *Baron Driesen*.⁷ The inhabitants of Archangel were well-acquainted with this older but still durable freighter, which had made a number of such munitions runs before. Flying the flag of the Northern Steam Shipping Co, she reached Archangel Harbour on the morning of 17 October, direct from New York.⁸

⁵ The reader will note two variants of the ship's name, *Baron Driesen* and *Baron Drizen*. The first is common to English-language texts, and predominates in this paper; the second is the proper transliteration from Russian-language sources. Both forms are used as appropriate, depending on the language of the source material used. The default version is *Baron Driesen*.

⁶ M.E. Mironov, *Istoriia stroitel'nogo dela: Morskie porty i vodnye puti Rossii. Tekst lektsii* [A History of Engineering: Sea Ports and Water Ways of Russia. Lecture Text] (St. Petersburg, 2002), 86, <http://www.unilib.neva.re/dl/074.pdf>. The wharves were not permanent. It was necessary to take them down for the winter, because of the danger of their destruction by ice coming down the Northern Dvina during the spring break-up.

⁷ "Ramzes," Kortic [a forum], <http://kortic.borda.ru/?1-7-60-00000040-000-30-0>. The *Driesen* was a single-screw freighter, built in 1901 by Irvine Shipbuilding and Dry Dock Co. Ltd, at Harbour Dock, England (Yard / Hull No. 119). She had been turned over in July 1901 to her Russian owner, P. Morch, of the Northern SS Co., Ltd., and her port of registry was Odessa. She was 4,815 registered tons, with a load capacity of 6,727 tons. Her call sign was ZGB. Steel-hulled and double-hulled, two-decked, with one steam engine (vertical, triple expansion), she was 105.21 metres in length, 14.60 metres in breadth, and had a draft of 2.59 metres empty and 7.93 metres fully laden. The depth of her holds was 8.41 metres, of which she had four. Her engines produced 1,500 horsepower, giving her a speed of 9 knots.

⁸ All sources agree that she came direct from New York; but one adds that, before loading at New York, she had taken on part of her cargo at Baltimore, at the warehouses of German Lloyds. A French vessel had loaded there as well, standing right alongside *Driesen* as it took on cargo. Both vessels exploded on reaching their ports of destination, which has led some to suggest that German operatives secreted "infernal machines" onto both vessels, which led to their demise. (Mironov, *Istoriia stroitel'nogo dela*, 87).

N° 115 — ARKHANGELSK ET LES BOUCHES DE LA DVINA.

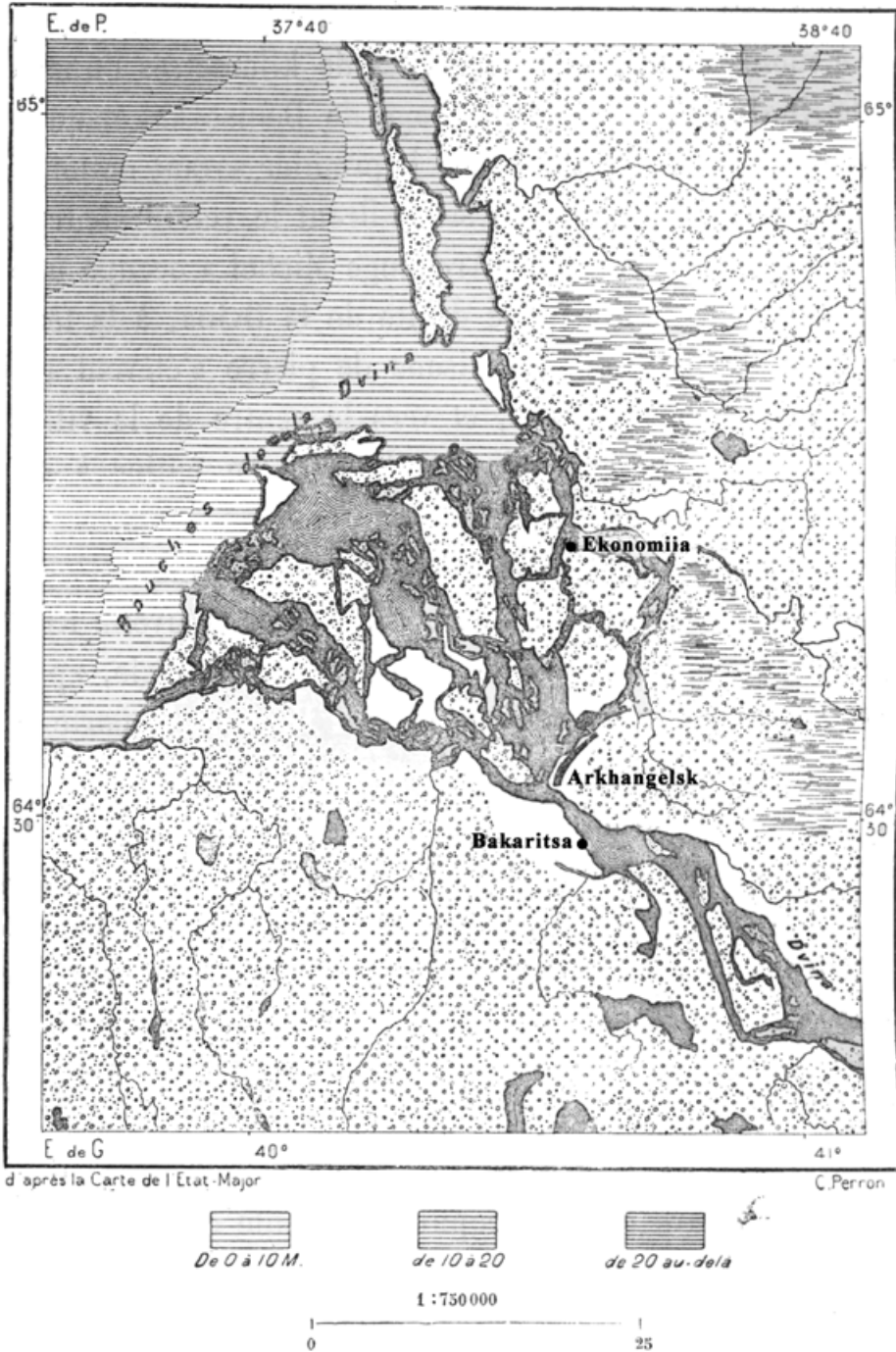


Illustration 1 : The Dvina estuary and Archangel region; adapted from E. Reclus, " Nouvelle Géographie Universelle," Vol. V (Paris, 1885) by the Archives and Collections Society

One of Russia’s largest transports, she was “a veritable floating arsenal.”⁹ Given her dangerous load, town authorities forbade her from docking at city centre wharf (although inexplicably they did allow her to drop anchor just off city harbour, right across from the great cathedral, and stand there for almost a week!). On 23 October *Driesen* received instructions to go upriver to Bakaritsa, where she made fast at Berth No. 20, the last in line.¹⁰

The Cargo

Baron Driesen’s Cargo

Source	Total	TNT	Smokeless Powder	Black Powder	Melinite	H. E. Shells	Artillery Detonators	Liquid Chlorine	Shrapnel Shells	Picric Acid
Shoigu	3,700T of which 1,600 explosive	300T	300T	100T	30T	100,000	26000			
Melekhov		338T	420T	110T		50,000	25000	548 containers		
Skriagin	3,700T of which 600T explosive	300T	300T	100T	30T	100,000	26,000 and more “other stuff”			
Kortic-“EFK”	4,000T of which 1,600 explosive			Yes				Yes	914T	[aluminum sulphate]
Kortic-“Nord” *		330T	420T	110T			40T	52T		36T
Khimanych		338T	420T	110T		50,000 or 280T	25000	548 cylinders	900T	
Troshina	4,000T									
Kortic-“Ramzes”		340T	420T	110T		50,000 or 280T	25000	548 cylinders	914T	36T
Parakhody	1,600T	300T	300T	>100T	300T	100,000**	26000		100,000**	

T = tons

*gives additionally, 486 tons of rails, 352 tons locomotives, tooling machinery and other machinery.

** source combines both H.E and shrapnel into one quantity.

Driesen came into Bakaritsa “loaded to the throats of her holds” with war cargo and munitions. Captain Pope, master of the *British Transport* then docked at Bakaritsa, says there were 4,000 tons of explosives aboard.¹¹ That, however, seems unlikely. The

⁹ Oleg Khimanych, “Delo Barona Drizena” [The Matter of the Baron Drizen], *Pravda Severa. Arkanhgelskaia oblastnaia gazeta* [Truth of the North, Archangel Oblast Newspaper], 28 October 2009.

¹⁰ “Pozhar nad Bakaritsej” [Fire at Bakaritsa], Parakhody / Istoriia parakhodstva [Ships/History of Shipping], <http://seasteamships.ru/?p=90>.

¹¹ “ID,” *New Tales*, 160.

accompanying chart on *Driesen's* cargo has been assembled from various sources. What is manifestly evident when viewing the chart is the great degree to which sources differ on *Driesen's* load. At the same time, despite the variations in detail, there is some general over-all agreement about the components of the ship's cargo, and the proportions of the various articles carried. And most sources come in at a figure of about 1,600 tons of explosive material.



Illustration 2: An early image of the *Driesen*. Source: Vladimir Andriendko from a private owner.

The Anatomy of the Explosion

By the morning of 26 October, (9th November New Style), 700 tons had been unloaded off *Driesen*, including 200 tons of chlorine gas. But 1,600 tons of explosives remained in her holds, along with various metals and machinery.¹² On that day fifty stevedores laboured at unloading the vessel; they left the ship for lunch at mid-day, and went to the mess barracks not far distant. All four holds of the ship were left open and, aside from a customs official and a sailor on watch, there was no one else aboard.¹³

“The hands on the town hall clock showed 3 minutes short of 1:00 in the afternoon when, from Bakaritsa-side, there sounded a horrific explosion, such as never heard before on the shores of the river Dvina and, several seconds later – a second one,

¹² T.I. Troshina, *Velikaia voina... Zabytaia voina... Arkhangelsk v gody pervoi mirovoi voiny (1914-1918 gg)* [The Great War...The Forgotten War...Archangel During the Years of the First World War (1914-1918)] (Arkangel: KIRA, 2008),72.

¹³ “Pozhar nad Bakaritsej.”

not in the least any less powerful than the first.”¹⁴ The time and sequencing of events as set out above is attested by Captain Pope’s recollection of the explosion, as recorded later by David Masters. The *British Transport*, Pope’s ship, was berthed some ships back in line from *Driesen*. Standing at his desk by an open port, Pope had started to do some writing. “It was lunch time,” wrote Masters. “Captain Pope glanced at the clock, saw that it was 12:55 and was thinking that in five minutes all the men would be hard at it again, when an appalling explosion occurred. He was flung back across his room. The ship suddenly became a living thing, straining to get away from her moorings. Another explosion followed, and another.”¹⁵

Pope recalls a number of explosions during the Bakaritsa catastrophe, and in fact, there were several, as follows:

First explosion — This explosion actually consisted of two explosions in very rapid succession. The first occurred in the bow of *Driesen*, where shells were stored.¹⁶ A point of interest: the few surviving witnesses from the immediate vicinity of the freighter said that “the portent of the explosion was a bang, suggestive of a hunting rifle going off.”¹⁷ Several seconds later, a much more terrific explosion¹⁸ ripped open *Driesen*’s stern, when flames from the first detonation set off the explosives stored there.¹⁹ “From the left bank of the river a fantastic tongue of flame soared into the autumn sky, and a mushroom cloud of black smoke soared over the forests along the river’s banks.”²⁰ Flames cast over the wharf from the explosions easily lit the wooden structures; fanned by the winds, the whole port area began to blaze, and a lava wall of fire rolled down over the wharves.

Second explosion — Forty minutes later, the most powerful of the explosions occurred.²¹ Some commentators suggest that this was the detonation of stores of ammunition stacked up on the wharves, and ignited by fires rising out of *Driesen*’s

¹⁴ Ibid. There is some variance amongst various sources on the time of explosion. Skriagin, for example, says that the Archangel town hall clock showed 12:00 minus 3 minutes when the “horrific explosion the likes of which had never been heard on these shores” occurred (Skriagin, “Vzryvy na Severnoi Dvine”). A.A. Armistead, the Hudson’s Bay Company representative in Archangel, reported to London headquarters that the detonation was heard in Archangel around 1:00 pm (Armistead to London Office, letter no. 23, 10 November 1916, Hudson’s Bay Company Archives, RG 22 (French Government Records), Archangel (AFG 26/4/3), Public Archives of Manitoba).

¹⁵ “ID,” *New Tales*, 151.

¹⁶ Troshina, *Velikaia voina*, 73.

¹⁷ N.A. Cherkashin, “Voennaia Literatura — [Proza] Vzryv korablia” [Military Literature — (Prose) Explosion of a Ship], http://bookz.ru/nikolai-4erka6in/belaa-ka_051.html.

¹⁸ “EFK,” Kortic [a forum], 19, <http://kortic.borda.ru/?1-11-60-00000013-000-0-0>. Others seem to differ. Skriagin, for example, calls it an explosion of equal force as the first (Skriagin, “Vzryvy na Severnoi Dvine”). Armistead terms the second explosion “a very severe one” (Armistead to London Head Office, Letter no. 23, 10 November 1916).

¹⁹ Troshina, *Velikaia voina*, 73.

²⁰ “Pozhar nad Bakaritsej.”

²¹ “EFK,” Kortic, 19.

demise.²² A massive pillar of smoke reared up into the sky, following the orange tongues of flame which strobed into the firmament.²³ But it is far more likely that this detonation marked the fiery end of *Earl of Forfar*, whose cargo of explosives was detonated as a consequence of *Driesen*'s explosion and subsequent wharf fires. Naturally the explosion of the *Earl* intensified the wharf fires underway, and contributed to an endless series of distinct and grouped explosions, as individual piles of munitions went up.²⁴



Illustration 3: Undated image of the Baron Driesen, single-screw freighter, built in 1901 by Irvine Shipbuilding and Dry Dock Co. Ltd, at Harbour Dock, England (Yard / Hull No. 119). Delivered July 1901 to Russian owner, P. Morch, of the Northern SS Co., Ltd., port of registry Odessa. Source of illustration: Vladimir Andriendko, from a private owner.

The Cannonade and Wharf Fires — And then commenced what several commentators call the “cannonade” or “bombardment.” From this time onwards, i.e. from about 1:45 pm until approximately 6:00 pm in the evening, explosions of shell and cartridges stored in the wharf area did not cease.²⁵ According to Armistead, of the Hudson’s Bay Company, “the fire spread with great rapidity, owing to the strong wind that was blowing, and the nature of the goods caused a continuous series of smaller explosions.”²⁶

²² Troshina, *Velikaia voina*, 74.

²³ “EFK,” Kortic, 19. One commentator suggests that this was occasioned by the explosion of the electrical station. More likely it was explosives stored nearby (L. Varfolomeev, “Pamiat o Zhertvakh ne uvekovechena” [The Memory of Sacrifices not Recognized], *Moriak Severa* [Sailor of the North], 25 February 2009, 3.)

²⁴ Skriagin, “Vzryvy na Severnoi Dvine.”

²⁵ Troshina, *Velikaia voina*, 74; “EFK,” Kortic, 19.

²⁶ Armistead to London Head Office, letter no. 23, 10 November 1916.

A Russian sailor, Petr Ivanovich Musikov, on the minesweeper T-17 that came up from Archangel town to assist in fighting the fire, described the scene at Bakaritsa: “It was a ... sea of fire and explosions without end ... Everywhere, the thundering of shells, and the chattering of machine-gun rounds. Like shelled peas being poured into a basket ... Horror ... Every now and then, something horrific booms out, loudly, deafeningly so. At Bakaritsa there remains not a solitary soul.”²⁷

In this inferno, Captain Pope managed to get his crew to safety; immediately after the first two rapid-succession explosions of *Driesen*, he and his men scrambled almost half-a-mile along the port railway track, away to the upper end of the wharf. There they sat, as

a long succession of explosions [continued] for hour after hour as dumps and ships were embroiled. The sky, black with smoke, was shot from time to time with great bursts of flame. Every now and then they were driven to shelter from the rain of metal that fell from the skies. It was red hot and burned its way through wood and set fire to everything that it touched ... Thousands of tons of explosives were around them in the ships and on the shore ... Shattering explosions deafened them. Terrified Russians began to run by, their clothing torn, some bleeding from wounds in head and face. A big bearded fellow with an astrakhan cap on his head dashed past holding a baby in his arms while the blood from a wound across his forehead flowed down on the poor mite.²⁸

The fires were brought under control only towards 10:00 in the evening, according to one source.²⁹ Another suggests that it was only late at night that the fires were doused.³⁰ But Armistead, present at the event, reported that the fires burned all night, and the last flames were extinguished only about noon on the following day, a Thursday.³¹

The Hard Evidence

Baron Driesen — The explosions on the *Driesen* were so powerful that her remains sank immediately.³² The detonations were of such magnitude that in the area of the two points of explosion, bow and stern, craters of forty and sixty metres in diameter resulted, filled with smashed chunks of wharf pilings.³³ Huge parts of the ship’s structure — engine components, steam boilers, deck and plates — as well as the piles, stays, timbers and boards of the wharf “lifted into the sky, hung over the Dvina for some several seconds ... in the grey autumnal sky.”³⁴ Some of the shattered, scattered pieces of the ship weighed tens of tons; a chunk of engine thirteen tons in weight was projected 100 metres

²⁷ Khimanych, “Delo Barona Drizena,” 1.

²⁸ “ID,” *New Tales*, 161-162.

²⁹ Troshina, *Velikaia voina*, 74.

³⁰ “Pozhar nad Bakaritsej.”

³¹ Armistead to London Head Office, letter no. 23, 10 November 1916.

³² “EFK,” Kortic, 24.

³³ Troshina, *Velikaia voina*, 73.

³⁴ Skriagin, “Vzryvy na Severnoi Dvine.”

inland.³⁵ A portion of the steam machinery, thirty tons in weight, was hurled an equal distance.³⁶ Twisted lengths of the ship's plating were thrown as far as the railway station.³⁷ On the morning following, Captain Pope observed, "The *Baron Drizen* had vanished; other vessels were all torn and twisted in the most amazing way, while some with little cargo in them had escaped lightly."³⁸



Illustration 4: Damage in Bakaritsa. Source: Vladimir Andriendko from a private owner.

Earl of Forfar – I have already alluded to the *Earl of Forfar* above, in connection with the second great explosion at Bakaritsa that day. The *Earl* stood next in berthing line to *Driesen*. According to one source, she had been almost emptied of her contents, and the explosive wave from *Driesen* tore away all her superstructure, following which the remains of the ship caught fire.³⁹ However, according to Armistead, the *Earl* contained a considerable load of gunpowder in her holds, which exploded, set fire to the ship and killed 24 members of her crew.⁴⁰ Captain Pope assisted in carrying out the dead from the *Earl of Forfar* the following day. She was just a shell.

³⁵ S.K. Shoigu, general editor, *Rossia v borbe s katastrofami. Kniga 2 XX vek - nachalo XXI veka* [Russia in the Struggle with Catastrophes. Book 2. XXth Century-Beginning of the XXIst Century](Moscow: Delovoi Ekspress, 2007).

³⁶ "Pozhar nad Bakaritsej."

³⁷ Troshina, *Velikaia voina*, 73.

³⁸ "ID," *New Tales*, 163.

³⁹ "EFK," Kortic, 24; Troshina, *Velikaia voina*, 73.

⁴⁰ Armistead to London Head Office, letter no. 23, 10 November 1916.

Her forward deck and upper works were blown completely away, while the great, thick steel plates of her hull at the top drooped over like petals of a flower, as though they were made of putty, or of cardboard that had been soaking in water so long it could no longer support its own weight. Apparently her whole cargo of explosives blew up vertically in the air, while the sides of the ship just folded back under the tremendous forces that were let loose. Judging from the terrible state of the ship, Captain Pope reached the conclusion that the awe-inspiring explosion which mushroomed over the skies was due to the *Earl of Forfar* blowing up.⁴¹

Port Damage — The whole port area, roughly half a kilometre square, was wholly burned over.⁴² What remained of the port holding area was very seriously damaged.⁴³ The 100-ton capacity floating crane, standing right off from *Driesen*, as well as the tug *Rekord*, passing by right at the moment of explosion, were sunk, and two more cranes on wharf rails seriously damaged.⁴⁴ The port electrical station and fire station were destroyed; the port telephone and telegraph offices, all habitations and port warehouses were incinerated; twenty-seven barracks and five auxiliary buildings had disappeared; and berths 19, 20 and 21 were irreparably destroyed.⁴⁵ Armistead, while giving a less depressing assessment of losses, sorely lamented the destruction of all the shore cranes (though they could be repaired), but especially the 100-ton floating crane.⁴⁶ And overall, reported Armistead, luckily the wind had been blowing a westerly, so that a part of Bakaritsa could be saved. Had it been along the north-south axis (along the line of the quays), the destruction of the port might have been complete

Munitions Loss — Much unloaded war cargo had blown up, had been buried by earth from the explosions, and had sunk into the river.⁴⁷ Captain Pope recalled that knowledgeable officials on the spot calculated that 40,000 tons of explosives went up “on that dreadful day.”⁴⁸ According to Gwatkin-William’s calculations (as a senior British Naval officer, he was in a position to know), 30,000 tons of ammunition were lost.⁴⁹ A note of some interest: luckily, the several hundred canisters of chlorine aboard *Driesen* had been removed immediately upon docking, and so had not been set off by the explosion; otherwise the cost in human lives would have been far more frightful.⁵⁰

41 “ID,” *New Tales*, 63; Amazingly, the hulk of the *Earl of Forfar* was raised by a Russian salvage company and towed to Hamburg, where it was repaired in 1919-1920. Briefly she was the *Metter Jensen*, and made her first Hamburg-New York run in 1920. Purchased by Hapag, she was re-christened *Sachsenwald 2*, and for a decade was in North and South American service. In 1931 she was broken up in Genoa for scrap. (http://www.schiffe-maxim.de/sachsenwald_2.htm)

42 “EFK,” Kortic, 20.

43 Troshina, *Velikaia voina*, 74.

44 Mironov, *Istoriia stroitel'nogo dela*, 87; Troshina, *Velikaia voina*, 73.

45 “EFK,” Kortic, 24; Troshina, *Velikaia voina*, 73.

46 Armistead to London Head Office, letter no. 23, 10 November 1916.

47 Troshina, *Velikaia voina*, 73.

48 “ID,” *New Tales*, 163.

49 Gwatkin-Williams, *Under the Black Ensign*, 114.

50 Mironov, *Istoriia stroitel'nogo dela*, 87.

The Impressionistic Evidence

The First Explosion (*Baron Driesen*) — I. S. Melekhov, who as a young boy lived in a small village outside Archangel, recalls the Bakaritsa catastrophe in his memoirs. His class at school had just ended, and his classmates were reciting their closing prayers before departure. “Suddenly there was the deafening sound of glass shattering out of the window frames, we heard explosions, and beyond the river in the direction of Bakaritsa flared bursts of fire.” He raced for home in fear. Upon arriving, he discovered that his father, who had been sitting at tea near a window, had had his face lacerated by blown-out glass fragments from the window pane as it shattered with the force of the shock wave from the port explosion. The village was five or six kilometres from Bakaritsa! And all the villagers, Melekhov recalls, were driven into a mortal terror by the event.⁵¹



Illustration 5: Damage in Bakaritsa. Source: Vladimir Andriendko from a private owner.

On Captain Pope’s *British Transport*, with the first explosions [on the *Driesen*], “the men on deck were thrown about like shuttlecocks, blown from one end of the ship to bring up with a crash against the bulwarks” Luckily for Captain and crew, the *British Transport* was moored around a bend in the river, with port structures between them and *Driesen*, which sheltered them from the fullness of the blast and the accompanying shock wave.⁵²

⁵¹ Melekhov, *O Rodnom severe*.

⁵² “ID,” *New Tales*, 161.

The Second Explosion (*Baron Driesen* or *Earl of Forfar*) — Count Constantine Benckendorf, then a port official at Archangel, records the following in his memoirs: “I saw the explosion from about a mile away — going up to Bakaritsa in a launch: an enormous black column of smoke rose straight into the air, spreading out into a mushroom shape and followed at once by a smaller one. The reverberation of the sound and impact of the air when it reached us in the launch a few seconds later was quite tremendous; it deafened us for some time.” One of Benckendorff’s port officers had a “strange escape.” He had been standing on siding No.3 of the wharf railway; when the ship went up, it “transferred” the officer through the air to siding No.9, “quite unhurt and without even a bruise but stripped of his greatcoat, which was found fifty yards away.”⁵³

Benckendorf does not make clear whether the explosion he witnessed was the *Driesen* or the *Earl*. In all likelihood it was the *Earl*, because his description accords with Captain Pope’s. Pope recorded, referring to the *Earl*:

amid all the other explosions occurred one gigantic detonation that seemed to split the heavens. It drove [the captain and crew] crouching under a railway truck for protection. A great column, black as ink, arose into the skies and spread out at the top until it had assumed the shape of a giant mushroom, hundreds of yards across, with the edges curling over as the hot gases flowed outward from the centre of the disturbance.⁵⁴

Another commentator, L. Skriagin, suggests the same; it was after the second explosion that “over the coastal forest there hung a gigantic mushroom of black smoke.”⁵⁵ As evidence of the Jovian force of this event, a piece of metal approximately one-and-one-half metres in length, was projected so high and with such force that it crossed the Northern Dvina and landed in a garden in Solombala – at a place at least ten kilometres distant.⁵⁶ According to one commentator’s calculations, the force of this explosion, this moment of “elemental fury”, was equal to one-tenth the power of the atomic bomb dropped on Hiroshima.⁵⁷

⁵³ Constantine Benckendorf, *Half a Life: The Reminiscences of a Russian Gentleman* (London: Richards Press, 1954), 165, 166.

⁵⁴ “ID,” *New Tales*, 162.

⁵⁵ Skriagin, “Vzryvy na Severnoi ...”; Another contemporary also suggests that this greatest explosion at Bakaritsa was the *Earl of Forfar*. Leslie Lawes, a shipping agent in Archangel for Martens & Co., heard the original explosion at 12:55 pm, which could only have been the *Baron Driesen*. He put out immediately with a party of men on a tug to reach Bakaritsa, and as they approached the place “a huge mass of flame covered the whole sky in front of us. The flame went at least a hundred yards into the air and was spread out like a huge fan. This instantly turned into black smoke.” This could only have been the *Earl of Forfar*. But as an objective example of how confused at times the sources are on timing and sequence, Lawes gives the time of this explosion as 1:15 pm, long after the *Driesen* went up, and substantially before the *Earl* would explode. (Leslie A. Lawes Papers, private ms collection, Madame Olga-Melikoff Lawes, Montreal.)

⁵⁶ “Vzryv parakhoda ‘Barona Drizena’” [The Explosion of the Steamer ‘Baron Drizen’], <http://vaga-land.livejournal.com229237.html>.

⁵⁷ Cherkashin, “Voennaia Literatura.”



Illustration 6: Damage in Bakaritsa. Source: Vladimir Andriendko from a private owner.

The Port Area – Given the volume of explosives stored at Bakaritsa the port “could not hold out,” as the locals put it, and both the port and nearby settled points were set alight by the flaming debris flung out by this explosion. The shells stored on the wharves continued to detonate and the unfortunates wounded or trapped in the port area to die. “The explosive shock wave surged through the centre of Archangel and the villages and manufactories within a radius of ten kilometres and more, breaking window panes and blowing open doors.”⁵⁸ It is also probably the second explosion, the *Earl of Forfar*, which occasioned the village constable in Kholmogory to telegraph his police chief in Archangel for information regarding a “shaking of the earth” which had frightened him and his fellow-villagers, and to report that glass panes had been blown out of school windows. Kholmogory is approximately fifty kilometres south of Bakaritsa, with much intervening forest in-between!⁵⁹ And to Archangel’s good fortune, the explosion was directed away from the town. While in the southern part of Archangel city the explosive wave blew open doors and windows of houses, in the city proper, the inhabitants experienced only a frightful rumble.⁶⁰

And, as if some crazed pyrotechnologist had choreographed the disaster with baleful irony, it closed with a terrific show. For nearly twelve hours Captain Pope and his

⁵⁸ I.S. Melekhov, *O Rodnom severe* [About My Native North], 65, http://treeb.ru/book_view.jsp?idn=007612&page=64&format=html.

⁵⁹ Khimanych, “Delo Barona Drizena,” 1; Troshina, *Velikaia voina*, 72; Mironov, *Istoriia stroitel'nogo dela*, 87.

⁶⁰ Troshina, *Velikaia voina*, 73.

crew, under shelter at the far end of the port:

endured that succession of concussions, and at last, about midnight, determined to make their way back to their ship to see what had happened to her. Dumps were still blowing up further away in the direction of Archangel as they walked along the track. They had almost reached the ship when a most astonishing sight of all burst upon their gaze. There was a dull boom, and suddenly the heavens were lit by myriads of red and green stars and the intense blue-white lights of star shells. It was a dump of signal shells and rockets that provided a spectacle such as they will never witness again. It left them gasping.⁶¹

The Human Losses — The explosions had commenced at the midday meal, when the stevedores were off the ship. Perhaps this saved some of them from instant death as *Driesen* went up in two explosions in quick succession. But, Armistead reported, “as the workmen’s tearooms [were] unfortunately situated in the middle of the munition area, and were just at that time fully occupied ... it is feared that a great number have perished.”⁶² The mess barracks concentrated the workers — and these barracks turned into “fraternal graves for hundreds of [them].”⁶³ Not only stevedores suffered; other port personnel fared badly as well. “Likewise a considerable number of soldiers were burned alive ... Many tried to save themselves by leaping into the river. Some of these were saved, but large numbers were drowned ... The inspection of the place the next morning was a gruesome sight. Everywhere charred and mutilated bodies were lying about amongst the ruins.”⁶⁴

The first concern of the relief personnel, as they began to fight the fire, was to save whomever possible. Peter Musikov, the sailor mentioned above, was one of these. He recalled the following after his experiences at Bakaritsa.

[It was] frightful, to what extent people have been deformed ... Here’s one, with legs blown away, who regains consciousness, asks for a smoke, they give him a cigarette, he inhales deeply but once – and dies ... Crushed, burned all over, limbless, in burnt clothing ... On T-17 [Musikov’s minesweeper] the decks are wholly covered with the wounded. A terrifying sight. We have now worked five hours straight. No one has come over from the town [to help us].⁶⁵

The number of victims of the explosions and the fires was never fixed with even the slightest of certainty. Police authorities provided an early estimate of 500 killed and 1,200 wounded.⁶⁶ The officially accepted numbers, based on reports of one Veretennikov, chief of Archangel Port, were 650 killed and 839 wounded.⁶⁷ Another investigator gives the same numbers, adding fourteen as missing, and pointing out that the

61 “ID,” *New Tales*, 162-163.

62 Armistead to London Head Office, letter no. 23, 10 November 1916.

63 Troshina, *Velikaia voina*, 74.

64 Armistead to London Head Office, letter no. 23, 10 November 1916.

65 Khimanych, “Delo Barona Drizena,” 2.

66 Armistead to London Head Office, letter no. 23, 10 November 1916.

67 Khimanych, “Delo Barona Drizena,” 3.

number of wounded was officially 1,166 (many who had fled the port re-appeared when the government offered compensation for wounds suffered, for which they had to present themselves and register — hence the increase in the number of wounded).⁶⁸ Of foreigners there were fifty-one killed, of whom twenty-seven were British.⁶⁹

Some commentators believe that the “official” numbers are at least within the right order of magnitude, but others discount them as “manifestly reduced tallies.” One commentator suggests that the fatalities numbered well over 1,000, given that so many disappeared without trace.⁷⁰ And, truth be told, given the lax security at the port, there could have been any number of authorized and unauthorized persons in the port area at the time of explosion — day-workers, from far away, and who would know of them? There certainly were many Chinese here, and other nationalities from central Asia, brought in to build port works and railways — who knew of them, much less paid any attention to their fates?

According to Musikov, when the cadavres were first laid out on the wharf the day following, “they say that more than 2,000 had been killed,” and that official numbers of the dead were intentionally lowered.⁷¹ One present day commentator has observed that the Bakaritsa archival documents that survive are so incomplete that the number of casualties will never be fixed with any degree of certainty.⁷² The likelihood that the numbers killed were far higher than official figure is also attested by Captain Pope, who recalls that Archangel authorities, in urgent messages to St. Petersburg the day following the catastrophe, admitted that 3,800 had been killed; Pope suggests that the dead may have easily been double that number.⁷³ Finally, Gwatkin-Williams concurs. Though the authorities announced only 130 fatalities the day following the catastrophe, they must have numbered, in his estimation, several thousand.⁷⁴

The Day After

Captain Pope commented, on the day after, that “desolation was everywhere. All over the place were to be seen evidences of the freakish nature of the explosions. Ships were riven, cranes flung down, steel plates nearly an inch through were torn as though they were paper.”⁷⁵ And a Russian commentator, drawing on contemporary accounts, records as follows:

On the day following, on 28th October [10th November N.S.], at the ruined wharves, as sailors stand posted in all corners of the port area of Bakaritsa, the Chinese stevedores dig out the corpses from under the rubble, and lay them in ranks along the

68 “EFK,” Kortic, 20.

69 Troshina, *Velikaia voina*, 74.

70 Khimanych, “Delo Barona Drizena,” 3.

71 Varfolomeev, “Pamiat o Zhertvakh”; “EFK,” Kortic, 20.

72 Varfolomeev, “Pamiat o Zhertvakh.”

73 “ID,” *New Tales*, 164.

74 Gwatkin-Williams, *Under the Black Ensign*, 113.

75 “ID,” *New Tales*, 164.

wharf, either singly, or in groups; in one place the corpses numbered 100 ... Everywhere throughout the port area walk the Chinese, equanimous towards death. They move slowly, searching out corpses, they gather up the casings of unexploded shells. They die as shells explode. And the corpses keep on coming and coming. Some of us, more impressionable than others, having taken all this in, cannot eat, cannot drink.⁷⁶

The corpses that the “Chinamen” located and brought out were “not human, but rather what remained of humans. On the wharf, a scene of horror — several hundred corpses, burned over, giving off that odd indescribable smell of burn and decomposition. They let the corpses down on boards from the ship *Sanitarnyi*, wrap them in canvas and drive them away for burial in a common grave on Zelenets Island.”⁷⁷

II. EKONOMIIA: The *Semen Cheliuskin*

Russian officials were only just finalizing the counts of the dead and the losses occasioned by the *Driesen* disaster at Bakaritsa, when on 13 January 1917, on the northern periphery of Archangel in its advance port of Ekonomiiia, occurred an explosion of probably no less force than Bakaritsa, and a catastrophe of greater overall destruction. A Russian commentator has called it Russia’s Nagasaki. The implied parallelism is clear — Bakaritsa had been Russia’s Hiroshima, Ekonomiiia was her Nagasaki!⁷⁸

The Port and The Ship

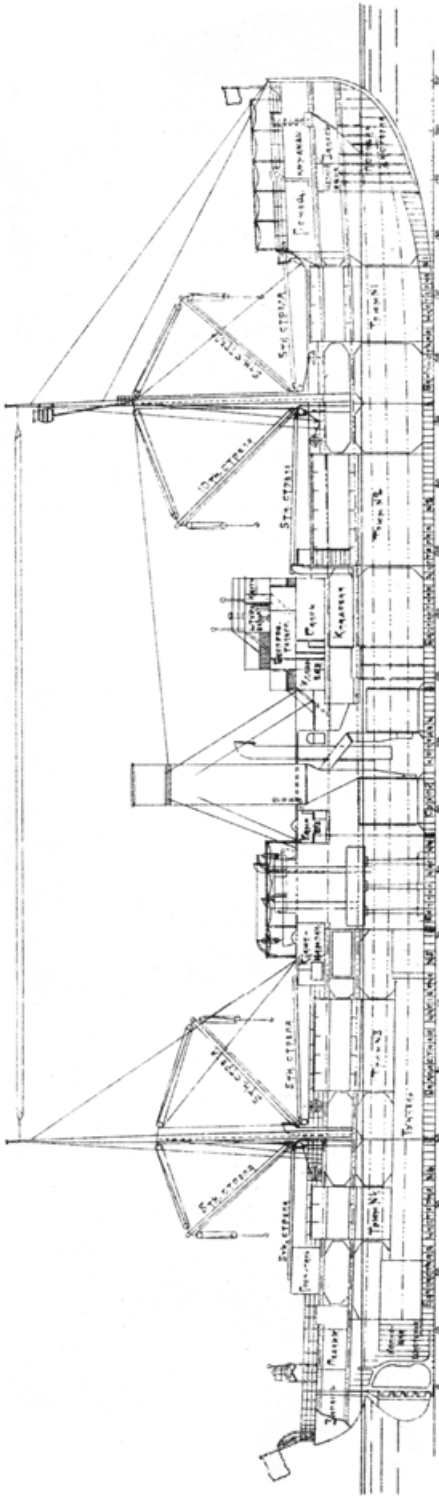
Ekonomiiia was built to relieve Archangel of congestion. It was located almost at the extremity of the Northern Dvina’s delta islands, where the Kuznechikha and Maimaks channels of the delta conjoined. At the sea’s edge, twenty-five kilometres downstream from Archangel, the ice that formed there was far less dense than the riverine ice further upstream, and thus the area was less difficult to traverse by icebreaker in winter. The building of the port had followed a policy decision taken by Russian authorities in the summer of 1916 to relieve the congestion of war goods delivered to both Archangel and Murmansk. Murmansk, then only being built, already had wharves and some storage capacity, but had not yet been linked to the Russian railway network — the last stage of the Murman Railway, linking Murmansk to Petrograd, was still under construction. Thus, cargo delivered to Murmansk had a difficult time reaching Petrograd (it went overland by reindeer sled, either direct or by trans-shipments over completed sections of the Murman Railway, a very laborious and time-consuming process). With the railway unfinished, Murmansk, itself built to relieve the pressure on Archangel, soon choked up with

⁷⁶ Khimanych, “Delo Barona Drizena,” 3.

⁷⁷ Ibid.; “EFK,” Kortic, 20.

⁷⁸ Alebert Aleksandrovich Semin, “Nagasaki na Ekonomii,” appendix I, in Margarita Vladimirovna Lola, *Ot pervogo do poslednogo desiatiletiia XX veka (Kniga ob otse k ego 100 letnemu iubileiu* [From the First to the Last Decade of the XXth Century (A Book About My Father Dedicated to His 100th Anniversary Jubilee)] (Archangel, 1999), http://zhurnal.lib.ru/l/lola_m_w/powestx-1.shtml. Semin was the chief of the Mudiug Memorial Historical-Revolutionary Museum.

ГРУЗОВОЙ ЛЕДКОЛЬНЫЙ ПАРОХОД «JESLAND»



$L = 340'$
 $B = 50' 4''$
 $T = 17' 2''$

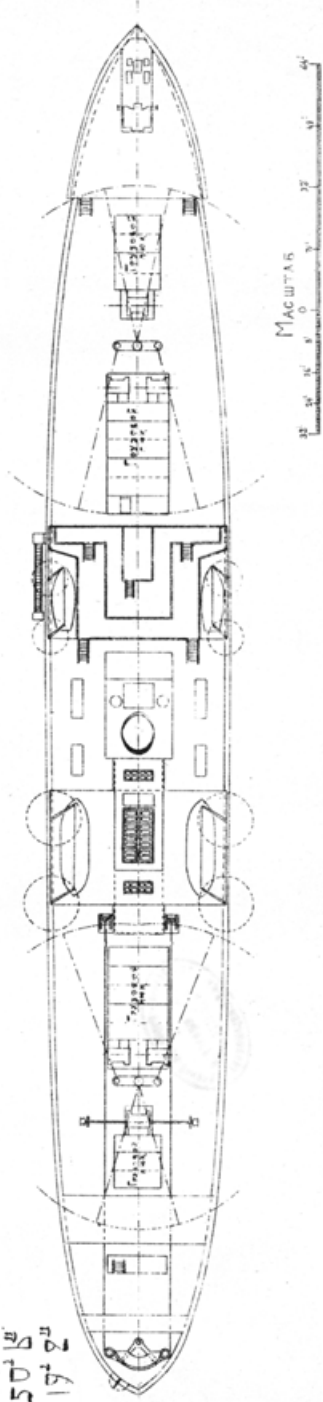


Illustration 7: the icebreaking cargo ship Cheliuskin (ex. Iceland.) Source: Vladimir Andrienko from a private owner.

mountains of war cargo brought in during the summer months of 1916. Hence the plan to re-transport part of the Murmansk backlog by ice-capable steamers during the winter months to Ekonmiia, which had a narrow gauge railway connection to Archangel. Since Archangel was shut down to receipt of fresh cargo during the winter months, and thus less busy, officials believed that in this tortuous manner they could get some of the Murmansk cargo out of Kola Bay to Archangel by way of Ekonomiia, and from there ultimately onto the Archangel-Vologda Railway for either Moscow or Petrograd.⁷⁹

Ekonomiia was developed on the site of a failed lumber mill, from which the new port took its name. Archangel port authorities fixed up the existing quay and added additional warehouses. For the winter period, rails were laid down on the river ice to ease connection with the branch of the narrow-gauge railway linking the port with Archangel, and plans had been prepared for a railcar ice ferry.⁸⁰

It was for this small port under development that *Cheliuskin* made her way in the heart of the January freeze-up, breaking out of Murmansk through the shore ice of the Kola, the rafted pack ice of the Gorlo of the White Sea, and the softer pan ice of the White Sea proper. The ship reached port 12 January 1917 (New Style). On 13 January *Cheliuskin* made fast at berth No. 8, the most distant berth on the quay line. Two-shift unloading of her cargo commenced.

Cheliuskin was a single-screw, ice-capable ship, although it is uncertain whether or not she was armoured with an ice-belt. Interestingly, the ship had at least a nominal Canadian connection. She had been ordered for the sealing trade by Newfoundland interests, and christened *Iceland* on the stocks, but then the order had been cancelled. Whether or not her English owners worked her much in British waters is not at all certain. It seems probable that the Russian government bought the *Iceland* almost immediately from the new British owners for transport purposes in Russia's north. *Iceland* reached Archangel on 4 November 1915, was renamed *Cheliuskin*, and saw a little more than a year of service before her fiery end on 13 January 1917.⁸¹

The Cargo

There are fewer sources on *Cheliuskin*'s cargo than on *Driesen*'s. She had aboard 24,866 pieces of war cargo (cannon, shells, explosives, lorries, autos and so on), according to one source. It amounted to around 2,000 tons of war munitions, according to a contemporary witness, Alexander Bochek.⁸² Another source gives *Cheliuskin*'s cargo as 900 tons of dynamite and sulphuric acid – but this is an incomplete accounting.⁸³ A more

⁷⁹ Skriagin, "Vzryvy na Severnoi Dvine."

⁸⁰ Mironov, *Istoriia stroitel'nogo dela*, 86; Skriagin, "Vzryvy na Severnoi Dvine."

⁸¹ Of 2,568 British registered tons, *Cheliuskin* was 103.8 m in length, 15.5 m in breadth, and had a 7.5 m draft. With her (oversized) 3,200 horsepower machine plant, she could make 13.5 knots. Built by Napier & Miller in Old Kilpatrick (hull no. 198), she was launched in August 1915 as the *Iceland*, and turned over to owners, Murray and Crawford of Glasgow, in October 1915. See "Ramzes," Kortic.

⁸² Troshina, *Velikaia voina*, 78.

⁸³ Doug Gray, *R.M.S. Nascopie: Ship of the North* (Ottawa: Golden Dog Press, 1997), 54.

complete lading gives *Cheliuskin*'s cargo as follows: 900 barrels of melinite, more than 5,000 crates of sincrete (which had one-and-one-half times the explosive power of TNT), 1,000 crates of high explosive shells, barrels of potassium chlorate, and other various supplies (apothecary, light autos, lorries, airplanes).⁸⁴

Anatomy of the Explosion

Prelude to First Explosion (*Cheliuskin*) — While stevedores unloaded the vessel at Ekonomiia during the night shift, lasting from 10:00 p.m. of the previous day to 7:00 a.m. of 13 January 1917, from time to time flickering blue flames darted and danced over some of the barrels in the hold. Supervising officers, in violation of instructions, were absent. Workers, on seeing the flames and very mindful of Bakaritsa, fled the ship.⁸⁵ At 6:30 a.m., a soldier-fireman, one Asheev, then on duty at the fire-tower, sounded the alarm, reporting the flight of workers from the ship. The fire brigade attended with steam engine, fire hoses and other requisite equipment, but did not go down into the hold. Interestingly, two workers had stayed on and continued to unload the barrels of potassium chlorate; when these barrels knocked together, according to them, little sparks had flared.⁸⁶

The stevedores worked on. They noted that as they rolled away the barrels of potassium chlorate, little flames continued to flare up over some of them. The workers would douse the flames by own efforts. When one barrel caught fire completely, the workers threw it overboard onto the ice, and thus extinguished the fire. They did notify the watch, however, and soon representatives of the port commandant and divisional police inspector came by, towards 8:00 a.m. After a brief conference, these officials ordered the workers to continue unloading; in the absence of flames, the workers agreed.⁸⁷

The Explosion (*Cheliuskin*) — There is some uncertainty about the sequence of events leading up to the explosion of the ship, some muddling in the sources. According to Armistead, workers went back after the morning fright and started discharging the cargo; flames came out of the hatch and everyone ran helter-skelter. "A few moments afterwards the ship exploded."⁸⁸ But according to a modern commentator, who bases his contention on the deposition of Lieutenant Liuts, the port commandant at that time, it was approximately half an hour before the explosion that the stevedores stopped working and left the ship, because the coal in the bunkers had grown hot, and had rendered the cargo hold walls disturbingly hot to the touch. Also, as they had continued to roll out the barrels, the blue tongues of flame continued their eerie flickering, sliding silently over the barrel heads. The heat of the holds and the blue flames severely disquieted the stevedores; with the memory of *Driesen* fresh in their minds, and aware of the contents of *Cheliuskin*, they had left the ship, warned the soldiers on duty to flee, and gone pell-mell across the ice to the village on the distant shore.⁸⁹

⁸⁴ Shoigu, *Rossiiia v borbe*, 42.

⁸⁵ Troshina, *Velikaia voina*, 78.

⁸⁶ Semin, "Nagasaki na Ekonomii," 63.

⁸⁷ Shoigu, *Rossiiia v borbe*, 43.

⁸⁸ Armistead to Hudson's Bay Company headquarters, 28 January 1917, AFG 26/3/19.

⁸⁹ Skriagin, "Vzryvy na Severnoi Dvine."



Illustration 8: Judging by the geography, this is probably *Ekonomiia*. Source: Vladimir Andriendko from a private owner.

As with sequence so with time — there is uncertainty in the sources about the time of the explosion. One source writes that about 10:00 a.m. a strong flame flared from one of the barrels, which fell over onto a container standing nearby; then followed a mighty explosion, whereupon “the icebreaker blew to pieces.”⁹⁰ Several commentators, however, agree that the explosion occurred around 9:00 a.m., more precisely at 9:10 in the morning. As the explosion thundered out over *Ekonomiia*, flight from the general port area assumed mass proportions. Workers of neighbouring mills, inhabitants of nearby villages, sailors and soldiers from the dock area — thousands of people — all fled, heedless of the numbing frosts outdoors, making for Archangel. Thus, from the time of the first alarm, when the first flames darted about the barrels, to the explosion, approximately three hours had passed. Given the several forewarnings of impending disaster during these early morning hours, it is safe to say that the port administration had failed in its charge to manage responsibly risk to people, installations, vessels and cargo.⁹¹ As the *Cheliuskin* disintegrated, with a thunderous force never seen nor felt before in the region, it ignited other fires, “commencing a chain reaction of destruction.”⁹²

⁹⁰ Shoigu, *Rossiia v borbe*, 43. The improbability of someone witnessing this sequence so close at hand, and surviving the explosion to speak of it, does not seem to perplex Shoigu as he offers this information.

⁹¹ Troshina, *Velikaia voina*, 78; Semin, “Nagasaki na Ekonomii,” 64.

⁹² Lola, *Ot pervogo do poslednego desiatiletiia XX veka*, 6; Semin, “Nagasaki na Ekonomii,” 62.

The Wharf Area Burns — After this first great explosion, frequent detonations sounded all along the wharf, much quieter than the one that had terminated *Cheliuskin*'s existence; this was the detonation of cases of artillery shells and rifle cartridges stacked along the railway that ran length of the wharf. Barracks, storehouses, sheds and homes, set afire by flaming debris and exploding shell fragments, flared into flame. As the fires began to work their way through some of the 38,000 tons of military stores at *Ekonomiia*,⁹³ “black smoke hung over the port, and the constant thunder of explosions rolled.”⁹⁴ Attempts at firefighting commenced, as did the search for the wounded. In the minus 20 degrees and more of frost, water froze in the hoses, and the men engaged in the effort had to struggle over ice and through water and debris. They were soon caked in ice which adhered to their clothing and skin, they froze to the bone, and by evening were starving and paralyzed with fatigue.

The Second Explosion (*Bayropea*) — In the neighbouring berth, in line just ahead of *Cheliuskin*, stood *Bayropea*, a Hudson's Bay Company ship. She was set alight by *Cheliuskin*'s detonation. According to a contemporary witness, Alexander Bocek, “under a ceaseless hail of shrapnel and shells exploding ashore, the crew [of *Bayropea*] could not save itself. After several minutes a powerful explosion rent the air. Before our eyes a massive fiery ball flew up from the holds, rose high in the sky, followed by a frightful thunder.”⁹⁵ The *Bayropea* “flared like a torch, split into two parts, and sank.”⁹⁶

However, Armistead gives a somewhat different version of the fate of *Bayropea*'s crew. In the early morning, still in Archangel, he had heard the explosion of *Cheliuskin* from the north. Informed by the British naval transport officer that there might be Hudson's Bay Company ships in danger at *Ekonomiia*, he had hurried there. The *Bayropea* was already burning as he reached the port and he was warned that a big explosion was expected, because *Bayropea* had much melinite aboard. Disregarding the warning, he and the captains of *Bayropea* and *Bontnewydd* (another British freighter in port), who had come up with him from Archangel, boarded both these steamers in search of their men. They found only one crewman on *Bayropea*, a “Chinaman” (name unrecorded), who was led out to safety by the captain. Four minutes later, a formidable explosion occurred in the forepart of *Bayropea*, “and shells and pieces of iron were flung broadcast. The explosion was so violent, [wrote Armistead] that Mr. Vilgrain and Mr. Albessard [French officials stationed in Archangel], who were on their way to Economy, and still more than a mile away from it, were also bombarded by the projectiles.”⁹⁷

As with *Cheliuskin*, there is some uncertainty regarding the time of *Bayropea*'s explosion. Some say the ship “flew into pieces into the air” at 12:00 p.m.; others that it was closer to 1:00 p.m. when this second explosion in *Ekonomiia* rolled over Archangel,

93 “EFK,” Kortic, 24.

94 Skriagin, “Vzryvy na Severnoi Dvine.”

95 Troshina, *Velikaia voina*, 78.

96 “Ramzes,” Kortic.

97 Armistead to Hudson's Bay Company headquarters, 28 January 1917.

and it was no less powerful than the first.⁹⁸ When *Bayropea* went up, she had almost 2,000 tons of explosives in her holds.⁹⁹

The Port Fires — The immediate area of berths 8 and 7, where *Cheliuskin* and *Bayropea* had lain, was piled high with pieces of ships' plates and exploded and unexploded shells. Huge hills of coal for bunkering were scythed apart by the explosive waves, the coal ignited, and massive fires began to burn. The ice on the river made access by vessel difficult, the bitter cold froze equipment and men; firefighting was severely compromised by lack of equipment, since the only pump available had been rendered inoperable by *Cheliuskin*'s explosion. Thus it was impossible to localize the fire, as ultimately had been done at Bakaritsa.¹⁰⁰ And there were 3,000 tons of off-loaded explosive cargo lying along the wharves of *Ekonomiia* for the fire to play with.¹⁰¹

This cargo had been stacked haphazardly; there was no record of what was where. Admiral Posohkov, immediately on hearing the explosions to the north, had rushed from Archangel to *Ekonomiia* with a detachment of naval guardsmen. Upon his arrival at the port, he could not receive any intelligent response as to what was stored and where along the wharf. Hence he could not orient operations to fight the fire in its most dangerous places. At the same time, warned by local authorities that there was a massive munitions heap still intact somewhere in this conflagration, he ordered all work to cease, dismissed all souls from the danger area — and awaited the explosion.¹⁰²

The Third Explosion: TNT on the Wharf — Towards five o'clock in the evening¹⁰³ the inferno finally reached the place of danger, the 300 tons of TNT stacked near the station house of the wharf railway. The third great explosion at *Ekonomiia* thundered out over the region. "In the onsetting darkness, this was a terrifying sight. Houses, storehouses, wagons ... all burned, and through the air came the whistle and whine of exploding artillery shells."¹⁰⁴

After this third explosion, firefighting could re-commence. The naval command under Admiral Posohkov suffered grievous casualties. Many of the men were wounded, some killed by exploding fragments, as they strove to extinguish the flames. At nightfall they broke off their dangerous labour to find shelter for the night. On the following day firefighting icebreakers came up to do battle with the fires. The arctic frosts came down

⁹⁸ Shoigu, *Rossiiia v borbe*, 43; Skriagin, "Vzryvy na Severnoi Dvine"; Semin, Nagasaki na *Ekonomii*."

⁹⁹ Ibid.

¹⁰⁰ Troshina, *Velikaia voina*, 79; Armistead to Hudson's Bay Company headquarters, 28 January 1917.

¹⁰¹ Troshina, *Velikaia voina*, 80.

¹⁰² Ibid.

¹⁰³ Ibid.; Skriagin, "Vzryvy na Severnoi ..."; Shoigu, *Rossiiia v borbe*, 43.

¹⁰⁴ Skriagin, "Vzryvy na Severnoi Dvine"; Armistead, very much present at the place at that time, injects some observations which complicate precise reconstruction of explosive events at *Ekonomiia*. In his letter to Company headquarters he speaks of two more "big" explosions at around 5:00 p.m., and then of yet another big explosion in the night. (Armistead to Hudson's Bay Company headquarters, 28 January 1917).

hard from the northeast, powerful freezes of minus 50 degrees which impeded this work. Firefighting was rendered more perilous by burning materials underfoot; strong winds distributed embers to new places yet unburned, new fires sprang up, shells continued to explode and flames swirled on and on.¹⁰⁵

The Hard Evidence

The explosion of *Cheliuskin* left a crater 60 metres in diameter. “Nothing remained of her at all,” reported Armistead, “and parts of the boiler and hull had been hurled one or two versts¹⁰⁶ away.” *Bayropea*’s destruction also left behind a gaping crater; she was a gutted ruin, her forepart wholly blown away.¹⁰⁷ In addition, *Ice Breaker No. 6*, as well as the British *Bontnewydd* and the French *Ste. Adresse* were severely damaged; and another Bay ship, the *Baymano*, as well as the *Consul Horn*, did not escape harm. Three vessels of the Russian Volunteer Fleet standing in the port area — *Kildin*, *Kamenets-Podolsk* and *Krasnoiarsk* — were all scarred in some measure or other.¹⁰⁸ In short, every ship in port paid a price.

In all, Ekonomiiia experienced a series of three great detonations over the span of eight hours or less. As many as 2,000 tons went up on the *Cheliuskin*, followed shortly by possibly more than 2,000 tons on *Bayropea*, followed by 3,000 tons on the wharf. Not all of this cargo was explosives; there were some artillery pieces, airplanes, vehicles and other equipment, but these were a small proportion of the total tonnage.¹⁰⁹

The railway out of Ekonomiiia was ruined over one-and-one-half kilometres of its length, according to one commentator, three kilometres according to another. More than 300 buildings in the port area were destroyed; of those that still stood not one was undamaged. Virtually the whole port to its very perimeters was destroyed, filled with the debris of exploded ships, planes, vehicles and shell fragments.¹¹⁰ Armistead was still at Ekonomiiia the day after; “the fire was still raging, and explosions of munitions were occurring all the time,” he recorded.¹¹¹ In fact the explosions continued over a period of three days, raining debris over a radius of one-and-one-half kilometres. The fires burned on for seven days according to some accounts, but the weight of evidence suggests still longer, ten days. “A primordial fire,” as one observer called it, “raged over almost the whole area of Ekonomiiia.”¹¹²

¹⁰⁵ Troshina, *Velikaia voina*, 80; William Schooling, *The Governor and Company of Adventurers Trading into Hudson’s Bay ... (1670-1920)* (London: Hudson’s Bay Company, 1920), 123.

¹⁰⁶ A verst is a Russian linear measure approximately 3,500 feet in length, i.e. very close in length to a kilometre.

¹⁰⁷ Armistead to Hudson’s Bay Company headquarters, 28 January 1917; Troshina, *Velikaia voina*, 9.

¹⁰⁸ Ibid., 80; Schooling, *Hudson’s Bay*, 122; “EFK,” Kortic, 24.

¹⁰⁹ Troshina, *Velikaia voina*, 80.

¹¹⁰ Ibid.; Shoigu, *Rossiiia v borbe*, 43; Skriagin, “Vzryvy na Severnoi Dvine.”

¹¹¹ Armistead to Hudson’s Bay Company headquarters, 28 January 1917.

¹¹² “EFK,” Kortic, 24; “s.reilly,” ibid., 7; “Ramzes,” Kortic; Lola, *Ot pervogo do poslednego desiatiletiiia XX veka*.

The losses were so staggering to the Treasury that, in contrast to the Bakaritsa explosion, the commission subsequently struck to investigate the Ekonomiiia catastrophe could not even approximate their extent. There was no official release of information to the press, again in contrast to the Bakaritsa disaster. The Gendarmerie, responsible for censorship, went hard to work; all mail leaving Archangel with the least allusion to the catastrophe was removed.¹¹³

The territory of the little settlement, the port and the wharf (the whole berthing line) “had been transformed into ash and recalled a moonscape.”¹¹⁴ “The settlement had turned into a wasteland.”¹¹⁵

The Impressionistic Evidence

The Ekonomiiia explosion was readily heard and felt in Archangel. Towards 10:00 a.m., “the sound of a massive explosion rolled over the town, houses shook, with a ringing sound glass panes blew out of window frames and doors swung open of their own accord as they do in fairy tales.”¹¹⁶ Armistead, who wrote that the first explosion was at 9:15 a.m., noted that it was “so violent that in spite of the distance between here and Economy (about 16 miles), the houses in Archangel shook from top to bottom as from an earthquake, windows were shattered, and many women fainted from fright.”¹¹⁷

Several of the major commentators on the Ekonomiiia explosion reference the rich eyewitness account left behind by Alexander Boчек, already mentioned above: he was purser and second officer on *Kursk*, a large freighter of the Russian Volunteer Fleet which had come in before *Cheliuskin*. Seriously damaged by a German mine in the Gorlo, the constricted entrance to of the White Sea, the *Kursk* was in the floating dock at Ekonomiiia undergoing repairs. Boчек was aboard *Kursk* on 13 January, about 500 metres from *Cheliuskin*.¹¹⁸ He recalled that

on 13 January in the year 1917 the ice-breaking ship *Semen Cheliuskin* exploded, having come from Murmansk with a full load of explosives — around 2,000 tons ... The floating dock holding us almost went over, the ice all around it was shattered, and the superstructure received damage. Two minutes after the explosion I jumped out onto the deck and descried that the frozen Dvina was covered by people running to the opposite bank ... Over the whole area of Ekonomiiia hung thick smoke, many homes were enwrapped in flames ... In the space of 15-20 minutes its whole populace had abandoned Ekonomiiia.¹¹⁹

In another rendition, Boчек recalled that, towards 9:00 a.m. he and other officers were sitting in *Kursk*'s wardroom when a deafening explosion roared out, the

¹¹³ Semin, “Nagasaki na Ekonomii,” 62.

¹¹⁴ Ibid.

¹¹⁵ Lola, *Ot pervogo do poslednego desiatiletiia XX veka*, 7.

¹¹⁶ Skriagin, “Vzryvy na Severnoi Dvine.”

¹¹⁷ Armistead to Hudson’s Bay Company headquarters, 28 January 1917.

¹¹⁸ Skriagin, “Vzryvy na Severnoi Dvine.”

¹¹⁹ Troshina, *Velikaia voina*, 78-79.

ship leaped from the keel blocks and all the officers were thrown from their chairs. “When I dashed out onto the spar deck, from where one could see all of *Ekonomiia* ... a horrific picture chilled the heart. There, where *Semen Cheliuskin* had stood, a dark mass of black smoke rose slowly into the sky, and in lieu of snow the earth, turned over by the explosion, showed black, and from it stuck out scattered pieces of the ship.”¹²⁰

Armistead, on his dash to *Ekonomiia*, had passed a continuous procession of labourers and soldiers, many of them badly wounded and bleeding, without transport, tramping to Archangel. When he reached *Ekonomiia*, around 12:00 p.m., “a big fire was raging, and explosions of greater or lesser violence were occurring without interruption.” As he walked along along the quays, practically all was deserted, all the workmen had fled and the crews had left their ships.¹²¹

Admiral Posokhov, also rushing up to *Ekonomiia* from Archangel as Armistead had done, left the following record:

approaching *Ekonomiia* from the south, I saw a small amount of smoke on my left, this was the horse stalls and sheds on the *Kursk*, burning. To my right — a large fire; from there came frequent explosions of various force and eruptions of flame manifested themselves. Going further, I saw the half-ruined barracks deserted by their inhabitants. I saw the body of a worker killed by a brick which had flown out of a stove. Workers and militiamen had all fled, 10-15 officers came up to me, many of them wounded. Almost ceaseless explosions and the whistle of shells came from the eastern side of the region, where explosive articles were concentrated.¹²²

Regarding *Bayropea*, Bocek has the following to say. At several minutes before 1:00 p.m. he and the first officer of *Bayropea* were aboard *Kursk*, the only ship left with steam in her boilers; the wounded from the *Cheliuskin* detonation were gathered there, and the officers tended to them. They went out onto the spar deck and watched *Bayropea* through binoculars. In her middle hold a fire burned, growing larger and larger, and smoke belched into the frozen sky.

Exactly at 1:00 pm we were blinded by a searing flame. It, in the form of a gigantic sphere, flashed up over *Bayropea*. After a second or two there followed a horrifically frightful explosion, no less powerful than the explosion of the *Semen Cheliuskin*. The shock wave knocked us from our feet and propelled us about 10 metres from where we had been standing. Our *Kursk* again leaped from the keel blocks of the dock, and her riveted plating creaked. To this day I cannot understand why our ship did not keel over onto the wall of the floating dock.¹²³

Human Losses

According to Armistead, all save the captain and first officer of *Cheliuskin*,

¹²⁰ Skriagin, “Vzryvy na Severnoi Dvine.”

¹²¹ Armistead to Hudson’s Bay Company headquarters, 28 January 1917.

¹²² Troshina, *Velikaia voina*, 79-80.

¹²³ Skriagin, “Vzryvy na Severnoi Dvine.”

who'd left that morning to report on their ship's arrival to Archangel, were killed.¹²⁴ One commentator records that on *Bayropea* the whole crew, sheltering from the fire in the forecabin, died.¹²⁵ Boček agrees. As he recounts it, the *Bayropea*'s first officer tried to get his men to abandon ship, but they refused, perhaps because it seemed that on the one hand the deck of the *Bayropea*, under fire from the exploding shells on the shore, was too dangerous to traverse, and on the other the ice alongside on the riverside was broken up by the explosion of the *Semen Cheliuskin* and beyond bounds. Perhaps ultimately the crew found itself in a trap between a cannonade of unpredictable shell fire on the wharf side, and freezing water strewn with broken ice to seaside,¹²⁶ and for these reasons chose to stay put. Armistead, however, reports many fewer fatalities in *Bayropea*: six officers (all named), eight Chinamen (none named), as well as a French sergeant. All the rest of the crew survived, with very slight injuries.¹²⁷

Thus it would seem, upon first consideration, that human losses were substantially less at Ekonomiiia than at Bakaritsa. If that was indeed the case, it was not the result of safety measures undertaken by military and civilian authorities, but because, on hearing the first alarm (sounding of the fire bell), the locals had fled in all directions — across the Kuznechikha, into the forests, and toward Archangel. “Panic had set the pace of the ball.”¹²⁸ Moreover, the area was far more sparsely settled than the Bakaritsa region.

Still, many may not have escaped. Indeed, it is difficult to make any real sense of the various casualty counts given for the Ekonomiiia tragedy. One source gives the numbers of dead and wounded as 70 killed (largely sailors from destroyed ships) and 344 wounded (amongst them, 39 women and children).¹²⁹ That seems a very conservative tally. Benckendorf, a contemporary port official, says 400 were killed, nearly half of them women, employed as dockers because of labour shortage.¹³⁰ Several other writers give the numbers as 284 dead and 229 missing;¹³¹ other numbers are 52 killed with 300 wounded, and yet others have the killed and wounded totalling more than 500.¹³² Many of the wounded had little chance of survival; as Armistead observed, “it is unfortunately feared that most of the wounded who could not save themselves or be rescued, must have frozen to death.”¹³³ Thus the number of dead would have risen rapidly as the wounded succumbed to searing frost in lieu of death by fire.

In all probability, the various casualty counts are simply far too low. Lieutenant

¹²⁴ Armistead to Hudson's Bay Company headquarters, 28 January 1917.

¹²⁵ Troshina, *Velikaia voina*, 79.

¹²⁶ Skriagin, “Vzryvy na Severnoi Dvine.”

¹²⁷ Armistead to Hudson's Bay Company headquarters, 28 January 1917.

¹²⁸ Semin, “Nagasaki na Ekonomii,” 62.

¹²⁹ Troshina, *Velikaia voina*, 81.

¹³⁰ Benckendorf, *Half a Life*, 166.

¹³¹ Shoigu, *Rossia v borbe*, 43; Skriagin, “Vzryvy na Severnoi Dvine.”

¹³² “EFK,” Kortic, 24; “Ramzes,” Kortic.

¹³³ Armistead to Hudson's Bay Company headquarters, 28 January 1917.

Liuts, the commandant at Ekonomiiia, placed the number of port workers and officials at 2,000. This number does not include women and children, the aged, inhabitants of nearby villages, workers and soldiers of the Ekonomiiia-Mudiug railway branch, as well as members of the berthed ships' crews. "Because of this," according to a recent reassessment, "all given figures regarding the number of killed, missing without trace and wounded are relative and do not reflect the true losses."¹³⁴

These assessments highlight the utter speciousness of the figures reported by Admiral L. Korvin, then in charge of Archangel and its maritime region, to the Naval Ministry on 16 January: two officers, one official, ninety-nine lesser ranks, eight foreigners, 165 workers, twenty women, eighteen Buriats, nineteen children — all only wounded. No deaths; only 344 wounded! That was all, from the detonation of two munitions ships' cargoes and hundreds of barrels of melinite on the wharves, in three massive explosion that rained flaming debris over everything within a one-and-one-half kilometre radius, and set raging fires that had to be fought for ten days!¹³⁵

"They buried the dead hurriedly, counting them, but never could determine the tally of the losses from the explosions of the ships," observes one commentator. From the left bank of the port area alone, they buried 607 identified corpses.¹³⁶ In sum, the figures of dead, wounded and missing without trace vary wildly — and it is a sure thing to say that they will never be determined with even proximate exactitude.

III. Observations

I offer some closing observations, which in themselves suggest why no conclusion as such is yet possible on the subject of the Bakaritsa and Ekonomiiia catastrophes. I have sought to reconstruct and present the anatomies of both Archangel explosions; the sources are not always clear and often conflict, so it may be that further research will adjust what this paper has presented. But some things can be said with certainty, and they follow.

1. Both the *Baron Driesen* and the *Semen Cheliuskin* were munitions ships; and both blew up in outlying ports of Archangel, not in Archangel City Harbour proper.

2. Both still had substantial quantities of explosives aboard when they detonated. All sources seem to suggest that it was less than 2,000 tons aboard each.

3. Both *Driesen* and *Cheliuskin* had death partners, ill-fated twin stars. With *Driesen* it was *Earl of Forfar* and with *Cheliuskin* it was *Bayropea*.

4. In both cases, it seems from the sources that the twinned death ship had far more explosive on board than their partner ship, which exploded first.

5. Both primary explosions not only ignited their twin, but also set off massive wharf and port fires, which did inestimable damage not only to wharves and other port facilities and installations, but also to other ships in the vicinity.

¹³⁴ Semin, "Nagasaki na Ekonomii," 64.

¹³⁵ *Ibid.*, 65.

¹³⁶ *Ibid.*

6. With both explosions, the fires raged over large areas of the port. The *Ekonomiia* fire was, ultimately, far more destructive, effectively ending the port's serviceability in any manner whatsoever.

7. With both catastrophes, the loss of lives was never effectively established, and in all probability the numbers reached at least several thousand at Bakaritsa, and probably that many at *Ekonomiia* as well.

8. The overall loss of munitions in both ports, both explosive and not, was astronomical, probably in the 30,000 tons range in each.

9. In both catastrophes, gigantic fireballs soared into the sky, and there were very distinct mushroom formations of a hundred metres across and more. It remains unclear whether or not they were occasioned by the explosions of the primary vessel, *Driesen* or *Cheliuskin*, or by the unfortunate twin, *Earl of Forfar* or *Bayropea*.

10. Which explosion, *Ekonomiia* (with *Cheliuskin* and *Bayropea*) or Bakaritsa (*Driesen* or *Earl of Forfar*) was more destructive? Perhaps it was one of the two vessels at *Ekonomiia* for, as one contemporary wrote, "we could easily hear the explosion, though it was around 40 kilometres away".¹³⁷ But then, as noted earlier, the explosion at Bakaritsa was heard and felt in Kholmogory, about fifty kilometres distant.

11. I have established with some certainty what *Driesen* had aboard at the time of her destruction, and for *Cheliuskin* the lading information is sketchier, but clear enough in broad outline. Neither of them, *prima facie*, held more explosive material than the *Mont-Blanc* at the time of their detonations. However, this is not enough to draw any larger conclusion about the force of the explosions which occurred at Archangel. As the sources seem to suggest, the fireballs and mushroom clouds at both Bakaritsa and *Ekonomiia* were occasioned by the secondary explosions of the *Earl of Forfar* and the *Bayropea*. Their lading lists assume critical importance here, as well as evidence to indicate how much had been unloaded from each of the vessels at the time of the disasters. That is for future research to determine. While it is not likely that their loads surpassed the cargo of the *Mont-Blanc*, that is not yet proven. Certainly the *Mont-Blanc* carried more explosive than *Baron Driesen* and *Cheliuskin*, but more information is needed on the cargoes of *Earl of Forfar* and *Bayropea*. Moreover, it seems to me that in tabulating destructive force released at any single moment, other factors come into play. For example, there must be some difference between explosive force experienced in a river delta characterized by flat and forested land, and that experienced in a bowl-like setting, at the foot of hard-rock hills at Halifax. There must also be some correlation in force released depending on the nature of the exploding substances, and their proportions (when too much of one commodity with respect to the primer actually weakens the magnitude of the overall explosive power released). Certainly other considerations come into play. Calculations such as these, however, lie in the province of others, of explosives and catastrophe studies experts, who can tabulate the forces released in the Archangel explosions, and draw a proper comparison between them and the disaster at Halifax. My hope is that such experts may find useful the details of the Archangel catastrophes presented in the present paper.

¹³⁷ Melekhov, *O Rodnom severe*.

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