

Anna Izabella Zalewska

(Maria Curie-Skłodowska University in Lublin, Poland)

<https://orcid.org/0000-0003-4728-2757>







E-mail: anna.zalewska@mail.umcs.pl; azalew@op.pl

Countless and Uncountable (?) Victims of Chemical Weapons, May 1915

Niepoliczona i niepoliczalne (?) Ofiary broni chemicznej, maj 1915 r.

ABSTRACT

The subject of this discussion are the almost forgotten victims of chemical weapons on the Eastern Front of World War I. Source data related to military operations, in particular to the German gas attacks in the region of the Bzura and Rawka rivers, are the basis for presenting problems related to the estimation of the number of victims of poisonous chlorine gas in the period between May and July 1915. Using the example of selected data relating to the wave attack of May 31, 1915, I show the specificity and complexity of the source documents closely related to the problem under consideration, that is the issue of

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THE AUTHOR'S ADDRESS: Anna Izabela Zalewska, the Institute of History and the Institute of Archaeology of the Maria Curie-Skłodowska University in Lublin, 4A Maria Curie-Skłodowska Square, Lublin 20-031, Poland			
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the countability of victims of chemical weapons. Indirectly, I show the need and legitimacy of systematizing and interpreting all available information on what resulted from the historical use of chemical weapons. This would be conducive to deepening our knowledge about the fallen soldiers and their resting places. It would be helpful to initiate work on a digital repository of knowledge on the use of chemical weapons in the past, taking into account the very diverse descriptions of events and victims of chemical weapons from the Eastern Front of the Great War. Such a digitized resource could contribute to the systematization of highly dispersed source data, their further interpretation and reinterpretation, and their social activation, for the benefit of deepening knowledge about history and historical awareness and preventing the threat of again turning to the use of such weapons of mass destruction.

Key words: the Great War, Eastern Front, chemical weapon (CW), 1915, chlorine, fatal and non-fatal poisonings, estimation of the number of fatalities, resting places as memory triggers, war cemeteries, peace education, OPCW

STRESZCZENIE

Przedmiotem omówienia są zapomniane ofiary broni chemicznej na froncie wschodnim I wojny światowej. Dane źródłowe powiązane z działaniami zbrojnymi, w szczególności z niemieckimi atakami gazowymi w rejonie Bzury i Rawki, stanowią tu podstawę estymacji liczby ofiar trującego chloru z okresu między majem a lipcem 1915 r. Na przykładzie zebranych danych odnoszących się do ataku falowego z dnia 31 maja 1915 r. ukazują specyfikę i złożoność krytyki źródłowej w odniesieniu do liczby ofiar broni chemicznej. Pośrednio ukazują przy tym potrzebę i zasadność systematyzacji oraz interpretacji wszelkich dostępnych informacji na temat tego, czym skutkowało stosowanie broni chemicznej (CW) w czasach minionych. Pomocne w tym byłoby zainicjowanie prac nad cyfrowym repozytorium wiedzy na temat użycia broni chemicznej w przeszłości z uwzględnieniem wydarzeń i ofiar z frontu wschodniego Wielkiej Wojny. Taki zdigitalizowany zasób mógłby się przyczynić do lokalizacji miejsc spoczynku ofiar broni masowego rażenia, do integracji danych źródłowych, a także ich wtórnych opracowań oraz do ich aktywizowania, na rzecz: pogłębiania wiedzy o dziejach i świadomości historycznej oraz zapobiegania zagrożeniu stosowania broni masowego rażenia.

Słowa kluczowe: Wielka Wojna, Front Wschodni, broń chemiczna (CW), 1915, chlor, zatrucia śmiertelne i inne niż śmiertelne, estymacja liczby ofiar, miejsca spoczynku jako wyzwalacze pamięci, cmentarze wojenne, edukacja dla pokoju, OPCW

INTRODUCTION

In the literature, it is stated that the number of victims poisoned as a result of the use of various types of chemical weapons during the First World War was over **1,250,000** soldiers. Of these, between **90,000 to 100,000 people** were poisoned fatally. From the perspective taken here, it is not clear whether the existing summaries of the total number of victims of chemical weapons included victims of gas attacks from the initiation phase of the mass-scale use of this type of weapon on the Eastern Front in

1915. An analysis of the literature on the subject relating to the Great War does not indicate that this is the case.

It is now assumed that attacks with the use of chemical weapons in 1914–1918 accounted for from about **4% to 7.7% of fatalities** in the Great War. Such conclusions can be drawn from the literature on the subject. The very wide spectrum of these estimates is an important incentive, if not for in-depth and comprehensive research, then at least for empathic reflection on the still inaccurately known, and perhaps even now uncountable, numbers of victims of weapons of mass destruction in the history of the world.

The problem of the number of victims of gas attacks launched by the German army in the area of the Łowicz-Błońsk Plain during the fighting for the Bolimów bridgehead in 1915 has previously been addressed rarely and fragmentarily¹. In general, the total number of victims has been indicated without specifying the detailed source basis of these estimates. Losses were calculated mainly using German sources and schematic data from previous Russian studies were duplicated without seeking to correlate Russian and German data. Until now, the published studies have paid little attention to:

- to what extent it is reasonable to perceive the source data on the number of victims of chemical weapons as requiring additions and corrections, and thus questionable, and
- what method or methods should be used to systematize the resources of data (including source data) on the history of chemical weapons use, so that the knowledge about it is more accessible, can be shared and susceptible to further in-depth analyses, e.g., comparative and multi-faceted investigations.

This article is an attempt to focus on these issues, to fill these gaps and provide a potential incentive for researchers to further investigate the problem of the still under-counted victims of chemical weapons. It is also

¹ The exceptions are the works cited below, especially A.H. Де Лазари, *Химическое оружие на фронтах Мировой войны 1914–1918 гг. Краткий историч. очерк*, Москва 1935, in which, however, the author did not refer to all gas attacks between May and July in the area of the fighting on the Rawka and Bzura. The numerical data collected by this researcher also function in the Polish-language literature on the subject. This includes, among others, in the list of losses in Russian regiments resulting from a gas attack between 31 May 1915 and 3 June 1915 in: S. Kaliński, *Od powołania do listy strat. Żołnierze armii niemieckiej i rosyjskiej w bitwie nad Rawką i Bzurą*, w: *Archeologiczne przywracanie pamięci o Wielkiej Wojnie w rejonie Rawki i Bzury (1914–1915)*, red. A.I. Zalewska, Warszawa 2019, s. 61, made on the basis of data collected by A. De Lazari (*op. cit.*, s. 29). An important achievement in this regard are also the publications of N.D. Postnikov, among others Н.Д. Постников, *Убитые на Равке*, Москва 2016.

an argument for the need to initiate the creation of an online repository of all data available to us today that would aid exploring the problem of the use of chemical weapons in the past. It contains conclusions from a critical analysis of the existing written sources and studies relating to the use of chlorine as an active substance on 31 May 1915 on the Front in the area of the Bzura and Rawka rivers. This was the first mass-scale poison gas attack on the Eastern Front.

Taking into account the considerable extent of the issue, the clear limitations in the possibility of specifying the exact number of victims of the use of chemical weapons during World War I, and different opinions on the possibilities and methodology of their calculation, it is rather impossible to fully cover the problem in a relatively short article. That is why I decided to present a very specific issue: the incompleteness and controversy surrounding the data on gas attacks, as well as the arguments in favour of the thesis that the victims of chemical weapons are impossible to be counted. At the same time, I indicate only those examples of source data that well illustrate the complexity of the issues discussed below. They have been selected from the source data that I have examined closely and critically analysed.

In this study, I will focus on one specific situation – the use of chlorine on a massive scale, in the initial phase of spreading the use of chemical weapons. For the clarity of the following, after highlighting the issues of a more general nature, the data that have been collected on the number of victims of chlorine poisoning has been broken down into five groups, though these sometimes have some overlap. First, I delineate the historical background of the analyzed problem. Next, I discuss references to the issue of the number of the victims of the attack of May 31st presented in studies that were created relatively shortly after the events concerned, i.e., in the 1920s and 1930s.² Then I discuss selected documents created directly in the course of hostilities, such as notes, reports, dispatches from the Front, chronicles. My aim is to confront and/or correlate the source data available in both the German and Russian archives. I also give voice to those who came into contact with the victims of the gas attacks shortly after they had

² In this article, it is not my intention to discuss the current state of research on the number of victims of gas weapons during World War I and its determinants. This very important issue deserves a separate in-depth study. This is an important and urgent task. It can be hoped that this gap has been filled with a publication in the description of which we read that in terms of the completeness and scope of the information provided, it is encyclopaedic: М.В. Супотницкий, В.А. Ковтун, С.В. Петров, *Химическое оружие в Первой мировой войне*, Москва 2020. Unfortunately, personally, I am still waiting impatiently for the opportunity to acquaint myself with the content of this book.

taken place and left a trace of this experience in reports, journals, diaries, etc. To my knowledge, some of this source material is published and subjected to source criticism for the first time through this article. At the same time, despite the new data presented here on the topic under study, I do not claim that they allow us to obtain an „objective picture” of the first wave attacks with the use of chlorine on the Russian-German front. In my conclusions, I include the results of a new estimation of the number of victims of poisonous gases, taking into account those of 31 May 1915.

THE VICTIMS OF WAVE ATTACKS ON THE EASTERN FRONT IN THE AREA OF TODAY'S CENTRAL POLAND

The problem of the number of victims of chemical weapons on the Eastern Front of World War I, analogically to the problem of their final resting places, had remained until recently a relatively little known and poorly described topic. Both in the Polish literature on the subject³, and in foreign works⁴. Accounts of the victims of the first gas attacks carried out in May, June and July 1915 (particularly in accounts written in English) were treated relatively marginally⁵ and often with errors⁶. This marginality results, among other things, from the conviction, first of participants in those events, and then of historians, that the fate of the war was decided on the Western Front, and the Eastern Front played a supporting role⁷.

³ For example, Z. Bartel, *Broń gazowa*, Warszawa 1928; R. Umiastowski, *Wśród trujących mgieł – opowieść o wojnie gazowej*, Warszawa 1933; L. Konopski, *Historia broni chemicznej*, Warszawa 2009; S. Kaliński, *Bolimów 1915*, Warszawa 2015; A.I. Zalewska, *Historia użycia przez armię niemiecką broni masowego rażenia (Massenwirkung) w rejonie Rawki i Bzury w styczniu 1915 roku*, w: *Archeologiczne*, s. 99–112.

⁴ For example, П. Каратыгин, *Газовая война*, Харьков 1923; R. Hanslian, F. Bergendorff, *Der Chemische Krieg*, Berlin 1925; Я.Л. Авиновицкий, *Химия в системе современных вооружений империалистов*, Москва 1936; J. Meyer, *Der Gaskampf und die chemischen Kampfstoffe*, Leipzig 1938; R. Hanslian, *Vom Gaskrieg zum Atomkrieg*, Stuttgart 1951, and also later works, for example O. Lepick, *La Grande Guerre chimique 1914–1918*, Paris 1998 where there are references to further literature.

⁵ For example, I. Hogg, *Bolimov and the First Gas Attack*, w: *Tanks and Weapons of World War*, London 1973, s. 7–19; A.I. Zalewska, *Relevant and Applied Archaeology. The Material Remains of the First World War: between „Foundational” and „Biographical” Memory, between „Black Archaeology” and „Conflict Archaeology”*, „Sprawozdania Archeologiczne” 2013, 65, s. 9–49.

⁶ For example, the work of Ian Hogg includes information about an attack at Zduńska Wola, while the author probably meant Wola Szydłowiecka, Bolimów commune, see: A.I. Zalewska, *Historia* for details.

⁷ This is clear both in the memoirs of participants and direct witnesses, especially the decision makers of those events, as well as in later subject studies, for example, cf. M. Neiberg, D. Jordan, *Front Wschodni 1914–1920. Od Tannenbergu do wojny polsko-*

The disproportions in the knowledge of military operations with the use of weapons of mass destruction on the Western and Eastern fronts are very clear. I am putting forward the thesis that the early post-war studies on the actions on both fronts, in which most of the attention was devoted to what was happening on the Western Front, had an impact that disadvantaged the state of knowledge about the latter. To this day, this translates into the (non) memory of the fallen of the Eastern Front (including the victims of chemical weapons⁸) of the Great War. While the memory of those who died on the Western Front is still cherished, this memory is in decline as far as the victims of the Eastern Front are concerned⁹. There are many reasons for this, the investigation of this situation has already been initiated both in historiography and in archaeology¹⁰.

HISTORICAL BACKGROUND – PRIMARY CONTEXT

At the turn of 1914 and 1915, the eastern front stretched over a distance of 1,200 kilometres, of which almost 800 kilometres ran through the territory of today's Poland. Many bloody battles were fought from East Prussia (today Warmia and Masuria), through Mazovia, the Łódź region,

bolszewickiej, tłum. J. Kozłowski, Poznań 2010; P. Hart, *I wojna światowa 1914–1918. Historia militarna*, tłum. J. Szkudliński, Warszawa 2014.

⁸ The problematic nature of attempts to indicate the total number of victims of gas attacks on the Eastern Front was discussed, for example, in an article by Steven Main, who cited several times i.a. the calculations made in the 1920s and 1930s, pointing out **the number of 65,000 gas casualties among the Russian army in 1915–1916**, after: В.А. Меликов, *Стратегическое развертывание*, т. 1, *Первая империалистическая война 1914–1918 гг.: (по опыту первой империалистической войны 1914–1918 гг. и гражданской войны в СССР)*, Москва 1939, s. 323. Cf., S.J. Main, *Gas on the Eastern Front During the First World War (1915–1917)*, „The Journal of Slavic Military Studies” 2015, 28, 1, s. 99–132. However, I would like to draw attention to the problem of duplicating errors in the description of historical facts, present e.g., in the same article by Main. For example, the author cites without comment the data contained in I. Hogg's work and his fundamental errors regarding the tear gas attack in January 1915. At the same time, when describing the three wave (chlorine) gas attacks on the territory of Poland (i.e., 31 May, 6/7 July and 6 August 1915), unfortunately he completely omits (just like the Russian authors) the attack of 12 June 1915.

⁹ A.I. Zalewska, *Relevant*.

¹⁰ See, for example, W. Borodziej, M. Górny, P.T. Kwiatkowski, *Znaki niepodległości. Święto 11 Listopada w Polsce i jego odpowiedniki w międzywojennej Europie Środkowo-Wschodniej*, „KLIO POLSKA. Studia i Materiały z Dziejów Historiografii Polskiej” 2018, 10, s. 171–199; A.I. Zalewska, D. Cyngot, *Wpływ wojennych wydarzeń dziejowych (res gestae) i relacji o nich (historie rerum gestarum) na kondycję materialnych pozostałości po tych wydarzeniach. Studium przypadku na temat dziedzictwa konfliktów zbrojnych jako wyzwania poznawczego i społecznego*, „Folia Praehistorica Posnaniensia” 2020, 25, s. 409–441, and further literature there.

the lands around Kielce, to Lesser Poland and Subcarpathia. Unlike the Western Front, the Eastern Front had been moved since the autumn of 1914. In 1914 and 1915, the battle line moved several hundred kilometres from the west to the east and from the east to the west. It was not until the winter of 1915 that the fighting sides got stuck in the trenches after various exhausting manoeuvring fights (the Łódź Operation). Before this happened, the German command – assessing the situation on the Eastern Front as disturbing – decided to hurriedly draw reinforcements from the Western Front (including from Ypres). The first troops arrived on the Eastern Front at the end of November 1914¹¹. When engaged in combat, they strengthened the 9th Army established in November 1914 and helped to capture Łódź, which the Russians left on 6 December 1914. At the same time, the Battle of Łowicz broke out, a continuation of the Łódź Operation and its final act¹².

On 13 December 1914, the Russian High Command ordered the troops operating on the left bank of the Vistula River to withdraw¹³. They were to occupy new positions east of the Bzura, Rawka, Pilica and Nida rivers. The planned and orderly retreat under the pressure of effective offensive actions by the German army began on the night of 15/16 December, when some units of the 1st Army of the Russian Empire withdrew from Łowicz to the eastern bank of the Bzura River¹⁴. By 19 December, Russian troops, previously fighting near Łódź, took up new defensive positions on the eastern banks of the Bzura and Rawka rivers. The troops were weakened as a result of losses, and the soldiers were tired of several months of fighting. More than 100,000 soldiers of the Russian army had then been taken prisoner¹⁵. With the end of the Łódź Operation, later described as the largest manoeuvring battle in this war, tactical and operational movements were gradually being phased out on this part of the Eastern Front.

From December 1914, the tsarist army created defensive positions basing them, where possible, on natural terrain obstacles, including on the high eastern banks of the Rawka and Bzura rivers, flowing across the relatively flat terrain of the Łowicz-Błońska Plain. The defensive positions that they formed were located only about 60 km from the centre of Warsaw and the command of the Russian army had no doubts that

¹¹ J. Dąbrowski, *Wielka Wojna 1914–1918*, t. 1, Oświęcim 2015, s. 223 and Hauptstaatsarchiv Stuttgart [dalej: HStAS] M 33/2 Bu 87.

¹² See: G.K. Korolkow, *Operacja Łódzka 1914. Najciekawsza batalia pierwszej wojny światowej*, Oświęcim 2014.

¹³ Y. Danilov, *La Roussie dans la guerre mondiale (1914–1917)*, Paris 1927, s. 334.

¹⁴ *Ibidem*; G.K. Korolkow, *op. cit.*, s. 222.

¹⁵ Bundesarchiv-Militärarchiv in Freiburg im Breisgau [dalej: BArch] PH 5-II/279.

if the opponent overcame the section of the front between Sochaczew and Skierniewice, the road would be open not only to Warsaw, but also further to the east. Indeed, the German army quickly crossed both rivers and formed a bridgehead between Zakrzew (in the Sochaczew region) and the Mogiły farm (in the Bolimów region)¹⁶. From the Bolimów bridgehead, the Germans planned to launch an attack on Warsaw, and then further east. The first such attempt was made 31 January – 5 February¹⁷ during the winter battle of Bolimów¹⁸. At that time, the Germans concentrated fire from as many as 600 artillery pieces on a several-kilometre section of the front. The possibility of conducting such an intense artillery strike was then unique on the Eastern Front, as was the multiple use, for the first time in history on a mass scale, of at least 18,000 projectiles releasing irritating and tear-inducing substances¹⁹. The Russian army, however, repelled the attacks at the cost of large casualties²⁰, losing some positions, but not allowing the front line to be breached.

GAS CLOUD ATTACKS ON THE EASTERN FRONT

After the failure of the winter attempts by the German troops to break free from the ties of the trench warfare, the military decision-makers responsible for military operations on the eastern front were open to „more effective” combat solutions. From April 1915, on both fronts of the Great War, the Germans began to open more and more the lid of the deadly „Pandora’s box” of chemical warfare. After opening it, along with

¹⁶ See details in: A.I. Zalewska, J. Czarnecki, *Zastój na całej linii. Historia przejścia od wojny manewrowej do pozycyjnej na przyczółku bolimowskim (1914/1915)*, w: *Archeologiczne*, s. 27–42.

¹⁷ The justification for the completely innovative thesis that the attacks with gas missiles were carried out by the Germans in the area of Rawka and Bzura not only once (on January 31, as is generally accepted and repeated in the literature on the subject), but many times, has been discussed elsewhere, see: A.I. Zalewska, J. Czarnecki, *Conflict Gas-scape: Chemical weapons on the Eastern Front, January 1915*, w: *Conflict Landscapes Materiality and Meaning in Contested Places*, red. N.J. Saunders, P. Cornish, Routledge 2021, s. 66–84.

¹⁸ A.I. Zalewska, J. Czarnecki, *Ślady i świadectwa Wielkiej Wojny nad Rawką i Bzurą*, Warszawa 2016, s. 35.

¹⁹ E. Ludendorff, *Moje wojenne wspomnienia*, t. 1, 1914–1916, Warszawa 2014, s. 107.

²⁰ According to the study *Strategic outline of the war*, only in the section occupied by the Russian 6th Army Corps, losses (killed, wounded, and missing) amounted to 40,103 soldiers and officers. And this was only during the first three days of fighting. This study does not say anything about the losses of other Russian units – for example the regiments subordinate to the 1st Army, which fought in the Borzymów region, after: A. Незнамов, *Стратегический очерк войны 1914–1918*, cz. 3, Москва 1922, s. 62.

poisonous gases that emerged from its interior until the end of the War, were accompanying misfortunes that have been wandering the world until today and plaguing people: mass death and individual dramas of the victims of poisonous substances.

Initially, the German army used chlorine as a „panacea” to get out of the trench war drama. The scientist Fritz Haber (1867–1934) was an advocate, initiator and facilitator the modus operandi of using the „deadly potential” of poisonous clouds. Haber, a German of Jewish descent, born in Wrocław (German: Breslau) was a brilliant chemist who quickly gained a decisive voice in the domain of developing and using „dirty weapons”²¹. It was he who promoted chlorine as the most effective combat agent available at that time and possible to implement on the battlefield. Initially, Haber wanted to fill artillery shells with chlorine, in the same way as the tear-inducing and other irritant gases that were very intensively being experimented with on the Eastern Front in the winter of 1914/1915. However, the Oberste Heeresleitung (OHL) command refused to provide him with the number of missiles he needed²². Haber devised, immediately designed and implemented a different method of damaging the enemies of the German forces with volatile poisonous substances. His idea to solve the technical limitations was the „wave attack” method²³, also described in the literature as a „gas cloud attack”²⁴.

The first time a wave attack using volatile chlorine was used on the Western Front was in the Ypres area in Flanders (Belgium). The attack of 22 April 1915 was preceded by long preparations²⁵. From mid-January, the Germans began to form a new unit to service the new weapons. Initially, it was a 500-person Pionier-Regiment No. 35²⁶. The regiment was also described as Gasregiment Peterson²⁷. To mask the actual function of this

²¹ Fritz Haber was also the first to synthesize ammonia from nitrogen and hydrogen, which was appreciated by awarding him the Nobel Prize in Chemistry in 1918.

²² M. Hoffmann, *Wspomnienia. Wojna wśród niewyzyskanych sposobności*, 1925 [Reprint, Oświęcim 2013], s. 60.

²³ Z. Bartel, *op. cit.*, s. 12.

²⁴ M. Wścieklica-Pollak, *Broń chemiczna. Słownik polsko-francusko-niemiecko-rosyjski*, Warszawa 1932, s. 43.

²⁵ R. Bille, *Ieper – Ypres 1914–1918. La guerre chimique dans la region*, Wervik 2003.

²⁶ There were pioneer battalions and independent companies in the German army that performed engineering and construction tasks – engineering troops analogous to those in the Entente armies. There were also troops of Assault Pioneers – equipped with equipment to remove wire entanglements, explosives to blow up fortifications, and special troops of assault pioneers equipped with flame throwers. The pioneer regiment in the German army was such an unusual formation that often commanders, in whose section the Gas Regiment appeared, called it a battalion.

²⁷ R. Hanslian, *Der deutsche gasangriff bei Ypern am 22. April 1915*, Berlin 1934, s. 13.

regiment, it was referred to as Pionierkommando or Desinfektionstruppe Peterson²⁸. By April 1915, the regiment was expanded and consisted of 3 battalions, 3 companies each and a logistics company. It also included a field meteorological unit (Feldwetterstation) and a radio communication unit. In total, around 1,600 soldiers and officers served in it.

Already in the course of preparations for the attack on Ypres, the German command decided to create another „gas regiment”. This regiment was the 36th Pioneer Regiment (Pionier-Regiment No. 36), initially commanded by Colonel von Goslich. The composition and organization of the regiment were the same as those of the 35th Pioneer Regiment, but the spatial scope of the operation differed; it was to serve on the Eastern Front.

THE FIRST WAVE ATTACK ON THE EASTERN FRONT OF THE GREAT WAR, 31 MAY 1915

The first wave attack using poisonous chlorine on the Eastern Front was carried out by the German army on 31 May 1915 around 2:30 am on a fairly wide stretch of the front, covering most of the area of the Bolimów bridgehead. The timing of the beginning of the attack depended on the laws of physics, meteorological and terrain conditions that would determine the process of formation of deadly clouds and the combat concentration of poison²⁹. The release of volatile gas from approximately 12,000 cylinders resulted in a poisonous cloud formation.

The German army deployed the cylinders over a distance of 12 kilometres (in a straight line). In the section from the vicinity of the settlement of Majdan Bolimowski (in the south) through the villages of Wola Szydłowiecka, Humin, Borzymów, Sucha to Zakrzew (in the north), the soldiers placed groups of 10–12 cylinders in batteries along the trench line at irregular distances from each other (from a few to even 50 metres), in places considered the most convenient. They made the selection of places dependent on the spatial relationship between the positions occupied by the Russian and German troops. The smaller the width of the so-called „No man’s land”³⁰, the closer was the distance between the batteries. After the gas cloud had passed through, the German army units assigned to this

²⁸ The unit was named after the unit commander, Colonel Otto Peterson, see: L.F. Haber, *The poisonous clouds*, Oxford 2002, s. 30.

²⁹ Z. Bartel, *op. cit.*, s. 35, 48–49.

³⁰ A.I. Zalewska, J. Czarnecki, *An Archaeology of ‘No Man’s Land’. The Great War in Central Poland*, w: *Rediscovering the Great War. Archaeology and Enduring Legacies on the Soča and Eastern Fronts*, red. U. Košir, M. Črešnar, D. Mlekuž, Routledge 2019, s. 122–139.

task started the assault. However, the attack did not develop as expected. The storm troopers were stopped by the dense fire of small arms and machine guns from the Russian side. The German command, convinced by this of the ineffectiveness of the use of gas, stopped the attack and ordered the troops to return to their starting positions³¹.

German documentation from spring 1915 on the results of the gas warfare, including the casualties of the first night attack on the Eastern Front, is very sparse. The sources show that the German command not only immediately after the release of the poison, but also long after that, had absolutely no knowledge of the size of the losses inflicted by the lethal chlorine on the Russian troops that had been hit by it.

Recently, it has become possible to at least partially supplement and verify the figures relating to the death rate of the victims of the use of poisonous chlorine by the German army in 1915, taking into account Russian data. This is due to the digitization and partial disclosure by the Russian State Military and Historical Archives [Российский государственный военно-исторический архив, hereinafter РГВИА] of Russian archival documents on the portal dedicated to the memory of the heroes of the Great War 1914–1918 („Памяти героев Великой войны 1914–1918”)³². The Russian source data that I have identified are more complete than the German ones, but they also do not contain any content that would allow for a precise and unambiguous determination of the number of human losses due to gas. In turn, in studies prepared immediately after World War I and in later times, one can find various estimates of numbers of losses caused by the first gas attack on the Eastern Front, carried out on 31 May 1915.

The following sources are particularly important in the context of the problem discussed here:

- logs of combat operations of individual units taking part in the battles in the Bzura and Rawka areas (unfortunately, at the moment this resource is incomplete);
- post-factum reports in the days following the gas attack by commanders of certain units, and
- containing brief descriptions of some battles applications (for the awarding of decorations to soldiers who, despite the action of gas, stopped the attack of German troops);

³¹ *Bayerisches Hauptstaatsarchiv München – Geheimes Hausarchiv [dalej: BayHStA], nr 239, s. 175.*

³² Portal www.gwar.mil.ru.

In the critical use of these sources, it is necessary to take into account the dynamics of the situation and the chaos that arose after the passage of the lethal chlorine cloud. Secondly, the researcher must take into account the conditions of a specific combat situation (soldiers of various sub-units and various regiments fought and died in one section) and also the process of the evacuation of the wounded and the dead during the said situation. Unfortunately, as one can read in some documents, it was often impossible to identify the victims, or even locate them.

Below I present selected detailed data confirming the thesis that **the issue of the countability of human victims of the use of gas in 1915 by the German army is very problematic** and that **they have still not been finally counted** either in the first or in the subsequent gas attacks that took place in the area of today's Poland in 1915³³.

SELECTED HISTORICAL STUDIES CONTAINING DATA ON HUMAN LOSSES IN THE GAS ATTACK ON 31 MAY 1915 IN THE 1920S AND 1930S

The main group of studies on which many modern historians still base their opinions on this matter are the publications of Russian and German researchers written up to 20 years after the end of the Great War. In these studies, the estimates of the gas casualties vary and refer (sometimes only casually) especially to the first attack of May 31, while briefly mention

³³ Recently, Nikolai Postnikov has made another attempt to count the victims of the gas attacks in his article on new data on the first wave gas attacks on the Eastern Front of World War I (May–June 1915). The author of this article bases his analysis on Rossiyskiy Gosudarstvennyy Voenno-Istoricheskiy Arkhiv [dalej: RGVIA] source data, probably using the archive of collections physically available in the reading room, not available to me at the moment. Hence, there may be differences between his and my calculations. From my perspective, it is reasonable to treat the results of this researcher's investigations and mine as complementary, not exclusive or competing. N. Postnikow does not question the figures given by De Lazari, but, it is worth appreciating, he also takes into account the calculations of gas losses based on other sources, including in the report of the Chief of the Medical Department of the Staff of the 2nd Army, Maj. Gen. A. de Roberti, 30/31 June 1915 (s. 92, 95, 103). At the same time, his analysis did not take into account some of the source documents that, in my opinion, are very important for the issue of the number of victims of the use of combat gases, which I refer to in this article. According to the data collected by Postnikov, on 31 May 1915, the Russians lost **8,932** soldiers and officers poisoned with gas, including **1,101** fatalities (p. 92), see: Н.Д. Постников, *Новые данные о первых газобаллонных атаках на восточном фронте первой мировой войны (май-июнь 1915 г.)*, „Вестник Московского государственного областного университета. Серия: История и политические науки” 2020, 2, s. 87–110.

(or don't mention at all) the other two wave attacks that the German side made in June and July 1915 also on the Bolimów bridgehead.

Contemporary researchers of the early history of the use of chemical weapons on a mass scale often refer to a comprehensive study by Rudolf Hanslian, which appeared in print in 1925 under the meaningful title *Chemical War*. Referring to the 31 May attack, Hanslian recorded the losses of only one division, the Siberian one, where **9,000** soldiers were affected by poison gas, **6,000** of whom died³⁴.

Another German researcher, Prof. Julius Meyer wrote twelve years later that as a result of the gas attack near Bolimów on 31 May 1915, „6,000 Siberian shooters were suffocated and 3,100 poisoned”. Meyer also made a not very precise calculation from which it transpires that that for each gas cylinder there was „0.76 killed enemy”³⁵ and noted that as a result of this attack, as many as 15,000 Russian men were taken prisoner that day. This latter information is not confirmed by German or, what is even more significant, Russian source documents. At the same time, both researchers remained silent in their publications on the victims of the night gas attack on the German side. This is particularly surprising, especially in relation to the latter publication.

In turn, from the eighth part of the official publication of the Reich Archives *World War 1914–1918*, published exactly a decade later (1935), we can learn more about the gas attacks in the area of the Bolimów bridge, but little about the number of gassed people³⁶. The only mention of the Russian losses of 31 May is that, according to the testimony of Russian prisoners of war, **1,200** people died on the spot and **3,100** were poisoned³⁷. These data are incomplete. We also find in this work the official figures concerning German losses (that it seems are based on documents), which amounted to **374** soldiers and officers, and there is also talk of the victims of their own gas.

³⁴ R. Hanslian, F. Bergenroff, *Der chemische Krieg*, Berlin 1925, s. 68. It should also be added that in the light of the available Russian documents and studies, the Russian fatalities quoted by Hanslian are greatly overestimated. The problem of overestimating the number of gas victims has already been accurately discussed, for example, by M.V. Supotnicki, in the commentary to the reprint of the work by Aleksander N. De-Lazari cf. also M.B. Супотницкий, *Забывтая химическая война*, http://www.supotnitskiy.ru/book/book5_kommentarii1_10.htm [dostęp: 31 V 2021]. J. Main also refers to the problem J. Main, *op. cit.*, s. 131–132.

³⁵ J. Meyer, *Der Gaskampf und die chemischen Kampfstoffe*, Leipzig 1938, s. 213.

³⁶ *Der Weltkrieg 1914–1918*, Berlin 1935 contains information (Achter (8.) Band) about three gas attacks in the region of today's Poland, that is, apart from the May one, attacks on 12 June and 6 July 1915.

³⁷ *Der Weltkrieg*, s. 135.

The study contains information about 56 soldiers „poisoned with gas”³⁸, but nothing was mentioned about the cases of fatal gas poisoning, for which there are confirmations in the sources (which I write about below).

Also in Soviet Russia after the War there were reports of gas use during the Great War, although, for example, in the multi-volume publication *Strategic outline of the war* (*Стратегический очерк войны*), which can be treated as an equivalent of the German *Der Weltkrieg 1914–1918*, the attacks of May, June and July 1915 were not mentioned at all.

Already in 1935, the work (*Химическое оружие на фронтах Мировой Войны 1914–1918 гг.*) of Alexander Nikolaevich De Lazari (1880–1942) on chemical weapons on the fronts of the World War 1914–1918 was published. It contains the first, relatively detailed, Russian data on the course of gas attacks and the number of their victims³⁹. De Lazari emphasizes that his calculations concerning the event of the 31 May gas attack extend to 3 June 1915. Thus, it draws attention to a very important problem, namely that after the attack on 31 May, there were still new cases of gas poisoning, for example in the trenches of the first line manned by reserve units, where gas lingered in shelters and dugouts and in the so-called „Gas swamps”, wet depressions of the ground, both in the forest and in the open. The accuracy of these data indicates that De Lazari used archival sources, including logs of combat operations of individual units. For many years, this publication was a key, though little-known, Russian source of data on the events on the Eastern Front in 1915. As De Lazari calculated, between 31 May and 3 June 1915, there were 9,038 soldiers and officers poisoned with chlorine, including 1,183 who died on the spot. As this study was created in the 1930s and was based on original documents, it may be considered as the most credible⁴⁰.

The regimental histories of German units are another group of published and publicly available secondary studies that contain information about the gas attacks discussed here and the human losses caused by them. These publications were created on the basis of source documents of individual units, as well as utilising the memories of the soldiers and officers serving in them. In the present paper I refer to the history of the regiments fighting on the Bolimów bridgehead in 1915. Some of these studies contain figures on losses to the German units as a result of the action of chlorine on the Russian opponents. As an example, I will mention the numbers included in

³⁸ *Ibidem*, s. 134.

³⁹ А.Н. Де Лазари [Aleksandr Nikolaevich De Lazari] – a lieutenant colonel of the General Staff of the Russian Empire, one of the first commanders of the Red Army, is seen as the first historian of the Chemical Defense Forces.

⁴⁰ The figures given by De Lazari cannot be verified without full access to the Russian archives.

the description of the course of the gas attack on 31 May 1915 in the history of the 225th Reserve Infantry Regiment [Reserve-Infanterie-Regiment, hereinafter RIR]. This unit manned positions in the forest south-west of the village of Wola Szydłowiecka in the direction of villages Majdan Bolimowski and Mogiły (today Joachimów Mogiły). The unknown author (authors?) of the chronicle noted that as a result of an accident, during the attack with the use of poisonous chlorine gas cylinders, **23** soldiers of this regiment were poisoned, including **1** fatally. In the same event, **2** soldiers of the 36th Pioneer Regiment (known as the Gaspionier-Regiment) also died. It was this unit that was responsible for the operation of gas cylinders on the Rawka and Bzura bridgehead, their proper location and for opening the valves⁴¹.

After the gas cloud had passed, the 227th RIR was to strike in the second wave of the attack by the German infantry. After the cancellation of the attack, its soldiers returned to their starting positions, and the history of this regiment records that it was later „heard” that the gas had disastrous consequences among the Russians and only a few riflemen remained alive in their trenches⁴².

The author of the chronicle of the 226th RIR also wrote about these later „rumors” about the extent of human losses in the Russian army. This regiment took positions in the area of the village of Wola Szydłowiecka and was to attack the Russian positions in the first wave, immediately after the gas cloud had passed. However, due to heavy fire from the Russian army, the attack did not take place. At first, the soldiers of the German army thought that the gas had not worked, and it was only in July, during the march to Warsaw, that they found out that the Russians had indeed suffered huge losses: „The gas cloud of 31 May, which did not cause heavy losses on the Russian front, must have had disastrous consequences further behind. Because during the march through Żyrdów, in July, we found a cemetery with the inscription on its entrance gate: <<Here lie 5,000 Russians murdered by the Germans with gas>>”⁴³.

In the course of searching the documentation conducted as part of the archaeological and historical research on the eastern front, I analyzed both German and Russian documents. Below, are presented selected source data from them on human losses resulting from the gas attacks on the Bolimów bridgehead in 1915 and subsequent studies on this subject, which

⁴¹ *Kriegsgeschichte des Reserve-Infanterie-Regiment 225 nach Aufzeichnungen aus dem Felde*, Gorkitz 1928, s. 67. For a more general discussion of the nature and activities of the Gaspionier-Regiment, see: S. Kaliński, *Bolimów*; A.I. Zalewska, J. Czarnecki, *Ślady*.

⁴² F. Giese, *Geschichte des Reserve-Infanterie-Regiments 227 im Weltkrieg 1914/18*, [b.m.w.] 1931.

⁴³ W. Rohkohl, *Reserve-Infanterie-Regiment 226*, teil 1, Oldenburg-Berlin 1923, s. 72.

I treat as elements of the justification of the thesis on the impossibility of calculating the number of the victims of chemical weapons in 1915 on the Eastern Front. Also, I personally treat them also as a motivation to make – through the archaeological process – the sites of these events material testimonies and motives for reflection.

SOURCE DATA FROM GERMAN ARCHIVES

I found significant, although very laconic data on the preparations for the attack, its course and consequences in the „Journal of Combat Operations of the 9th Army”⁴⁴. Only the following entry applies to the problem of human losses: „Units with hand grenades went into battle, but they fell under heavy enemy fire. Unexpected losses have been recorded”⁴⁵.

There is nothing more. No numerical data are given. Another important source of information on the topic under study are the diaries of the commander-in-chief of the 9th Army (from April 1915), Prince Leopold of Bavaria. Although he wrote quite extensively about the attack itself, as well as about his disappointment with the apparent poor „effectiveness” of chlorine on the Rawka and Bzura bridgehead, he only mentioned the German losses in one sentence: „It was particularly painful for me that this first opportunity to perform a major act of war was a disastrous failure; and about 500 soldiers were sacrificed unnecessarily, but that could not be changed”⁴⁶.

SOURCE DATA FROM RUSSIAN ARCHIVES

When we analyze the number of victims of the gas attack of 31 May 1915, documents and early studies of this problem in Russian shed light on human losses, especially among the Russian troops. Among other things, they relate to the units that manned the front line and that suffered the most severe losses from the effects of chlorine⁴⁷. Much of the documentation and data that I am presenting in this part and which concern the Russian losses of 31 May 1915 are published in scientific circulation for the first time and had not been included in the previous

⁴⁴ BArch PH 5-II/281.

⁴⁵ BArch PH 5-II/282.

⁴⁶ *BayHStA* nr 239, s. 175.

⁴⁷ This is confirmed, among other things, by the content of the study by А.Н. Де Лазари, *op. cit.*

discussion of the problem⁴⁸. This includes in particular dispatches sent by telegraphy by commanders of various ranks, extracts from the logs of combat operations of individual regiments affected by the gas attack and reports of doctors working in, or visiting, field hospitals in the area affected by the use of gas, as well as memories of eyewitnesses of those events. From my perspective, these previously omitted source materials deserve attention and further in-depth, comprehensive research. It should also be noted that the information they contain is not easy to use, these documents contain figures that are not necessarily always accurate, and in some cases, they are even contradictory.

For example, in the „Log of combat operations of the 53rd Regiment of Siberian Riflement” there are no precise data on the losses. It only says that the unit lost three quarters of its personnel, and after 31 May, the number of those who survived was sufficient to create only one battalion⁴⁹. The exact numbers are included in the message from 31 (18) May 1915 at 22:00. It shows that the regiment lost **2,568** killed and wounded soldiers and **21** officers: „14 officers and 682 soldiers remained in the 53rd Regiment”⁵⁰.

Another document is the dispatch of 1 June (19 May) 1915, at 12:40. It contains information that the 53rd Siberian Regiment lost **2,610** killed and wounded, including: **700** officers and soldiers who died as a result of the gas, and **1,828** officers and soldiers were poisoned⁵¹. Meanwhile, in the report from the battles prepared by the regiment’s adjutant on 31 (18) May 1915⁵², we learn that there were about **2,500** gas casualties among soldiers, including **600** killed on the spot, and **12** officers, **5** of whom died⁵³.

From archival documents and De Lazari’s description⁵⁴, we learn, among other things, that the devastation caused by the gas had several stages. It had the most lethal effect on soldiers immediately after its release,

⁴⁸ N. Postnikov published his article in 2020 and although he analyzed many important archives unavailable to me, he did not analyze or cite some of the documents and figures, important in my opinion, for the assessment of Russian losses (e.g., data on losses of the 54th and 56th Siberian Rifle Regiments).

⁴⁹ *Журнал военных действий 53-го Сибирского стрелкового полка с 1 мая по 27 июня 1915 года*. RGVA, фонд [dalej: f.] 3387, опис [dalej: оп.] 1, дело [dalej: д.] 39.

⁵⁰ It is a cable summarizing the losses suffered on the entire gas front on 31 May 1915. RGVA, f. 2019, оп. 1, d. 81.

⁵¹ *Ibidem*.

⁵² The account is undated, but in the same set of documents as the „Log of Combat Operations”, so it may be assumed that it was written immediately after the events described there.

⁵³ *Реляция о боевых действиях 53-го Сибирского стрелкового полка 18 мая 1915 года*. RGVA, f. 3387, оп. 1, d. 39.

⁵⁴ А.Н. Де Лазари, *op. cit.*, s. 29.

but it also accumulated in the hollows of the Russian trenches and in other depressions of the terrain behind the front line (see the mention of the „gas muds” above) and caused losses among Russian soldiers even three days after the German gas attack.

For example, in the „Journal of the military operations of the 54th Siberian Regiment” under the date 2 June (20 May) 1915, it was written: „During those days, there were still cases of sickness due to the action of poisonous gases (...) there were especially many of them in the 2nd battalion of the 53rd Siberian Rifle Regiment, which was in our regiment’s reserve. By the evening of 20 May (2 June 2), there were only 66 people left in it”⁵⁵.

According to De Lazari, the units that suffered the most severe losses from the chlorine attack on 31 May 1915 were the regiments of the 14th Siberian Rifle Division, where **6,000** soldiers and **50** officers were injured by the chlorine attack. De Lazari’s calculations of losses include the 53rd, 54th, 55th and 56th Siberian Rifle Regiments as well as the 1st and 4th companies (*sotnias*) of the 45th Don Cossack Regiment⁵⁶. Unfortunately, he does not refer in detail to any possible human losses of other units, which could also have been incurred as a result of the action of gases⁵⁷. In the units listed by De Lazari, the gas losses can be described as enormous. The 53rd Siberian Rifle Regiment alone lost **3127** soldiers and **17** officers. This constituted 96.2% of the original number of soldiers and 48.6% of the number of officers⁵⁸. This observation is important because in the available archival documents we find quite contradictory data.

I see the above compilations based on selected archival documents as representative of a wide range of problems faced previously and still faced by all those who tried to quantify the human losses resulting from the use of chlorine in 1915. The main ones are the inaccuracy and imprecision of the currently available figures.

The problem of imprecise figures is also well illustrated by the source material relating to the 55th Siberian Rifle Regiment. The regiment’s combat log shows that as a result of the German chlorine attack on 31 May, the regiment lost **359** killed and **2048** poisoned soldiers, as well as **3** killed

⁵⁵ Журнал военных действий 54-го Сибирского стрелкового полка за период с 1-го мая по 30-е июня 1915 г. RGVA, f. 3388, op. 1, d. 39.

⁵⁶ This number does not appear in De Lazari’s count. I established it on the basis of other archival documents, i.e.: in the message summarizing the losses suffered as a result of the gas attack on 31 (18) May 1915, there was a note about the losses of 5 officers and 101 Cossacks in the 45th Don Cossack Regiment.

⁵⁷ I draw attention to this, in particular, the omission in the calculations of subunits of sappers or artillery as well as units operating at the rear of the front line.

⁵⁸ А.Н. Де Лазари, *op. cit.*, s. 29.

and **14** poisoned officers⁵⁹. Meanwhile, a dispatch from 31 (18) May at 22:00 shows that this regiment lost **2,348** soldiers and **21** officers⁶⁰.

The problem of imprecise numerical data is, for example, well-illustrated by the available source material relating to the 54th Siberian Rifle Regiment. In the log of combat operations of this regiment, we find no records of human losses at all. This could be explained by the fact that during the attack on 31 May 1915, this regiment was in reserve. But the error of such a simplified inference is illustrated by the above-quoted dispatch from 31 (18) May 1915 at 22:00. It shows that the 54th Siberian regiment had lost **150** soldiers and **1** officer as a result of the chlorine attack. The cable does not specify how many of them were killed outright and how many had been poisoned with gas, which additionally confirms the existence of the problem of unreliable data.

Among the regiments included in De Lazari's list, it is also worth referring to the data on the 56th Siberian Rifle Regiment. This regiment suffered relatively few losses as a result of the action of gas on 31 May 1915, but in the Military Operations Log of this particular unit, we find evidence that is very important for the analysis conducted here, that the gas retained its poisonous properties even eight kilometres from the front line. As we read in the report from the fighting on 31 (18) May 1915, the 56th Siberian Regiment, which was in reserve that day and stationed in the villages of Czerwona Niwa and Aleksandrów, had **7** soldiers heavily poisoned with chlorine while still in the camp and **54** lightly poisoned⁶¹. This is important information indicating the power of volatile chlorine, and indirectly the need to include in the estimates the victims of this poison who were also apparently not involved in combat situations.

Other information important for the analysis of the source material are the references to human losses in the 55th Infantry Division. In De Lazari's opinion, these losses were less severe than in the 14th Siberian Division. This division lost a total of **3,070** soldiers and **26** officers. This may be due to the fact that it was mainly the 217th Kowrowski Infantry Regiment that was exposed to chlorine, and they were covering the section from the southern end of the Humin village to the forest edge south of Wola Szydłowiecka. This area was particularly interesting for me, because it was in this section that we discovered and documented a forgotten war cemetery (probably of the 217th Kowrowski Infantry Regiment) and

⁵⁹ Описание участия в боях 55-го Сибирского полка с 1-го мая по 30-е июня 1915 г. RGVA, f. 3389, op. 1, d. 51.

⁶⁰ RGVA, f. 2019, op. 1, d. 81.

⁶¹ Копия из журнала военных действий за время боев с 1-го мая по 1-е июля 1915 года. RGVA, f. 3390, op. 1, d. 23.

a common grave where the fallen soldiers of the Tsarist army are buried together. Both burial sites required interpretation to prove their status and the need for their protection⁶². Unfortunately, the soldiers who rest there remain anonymous.

The issue of the anonymity of the victims of chemical weapons deserves a separate discussion⁶³. Here I am just signalling that this is a problem that has accumulated and almost constantly has been becoming more complicated for over a hundred years. I will illustrate it with data relating to the 217th Infantry Regiment. According to De Lazari, this regiment lost **16** officers and **2,147** soldiers to the use of poisonous chlorine. This number coincides with that given in the Regiment's Combat Operations Log, where it was recorded that in the gas attack on 31 May, the poisonous cloud injured **15** officers and **2,147** soldiers. However, the diary does not detail how many of them were poisoned with chlorine and how many were killed by it. As the chronicler of this regiment wrote on 1 June (19 May) 1915: „All those killed, and poisoned with gas, were moved to the cemetery at the end of the village of Wola Szydłowiecka, not far from the headquarters of the regiment. At the cemetery, attempts were made to establish the identity of the dead, but, apart from a few, there was no possibility of doing so. One common grave was dug, and 201 bodies were buried there. Only 55 people were identified from among those buried”⁶⁴.

In turn, a dispatch sent from the command of the 2nd Army of the Russian Empire on 31 May at 22:00 states that the losses in this regiment are not fully explained and that about half of its soldiers died, „that is, about **1,800** privates and **6** officers”⁶⁵.

⁶² A.I. Zalewska, G. Kiarszys, *Absent presence of Great War cemeteries in the municipality of Bolimów, Central Poland*, w: *The Materiality of Troubled Past: Archaeologies of Conflicts and Wars*, red. A.I. Zalewska, J.M. Scott, G. Kiarszys, Warszawa–Szczecin 2017, s. 55–81; *Archeologia frontu wschodniego jako wyzwanie*, red. A.I. Zalewska (w druku).

⁶³ Undoubtedly, some of the victims can be identified by name thanks to the resources of the archive <https://gwar.mil.ru/>. I have made such an effort and I am in the process of carrying out this task. It is so complicated that my goal is not to conduct polemics with outstanding researchers over the number of fallen, but to reach as complete name lists as possible in connection with specific cemeteries and war graves, and unfortunately (as shown by the results of archaeological research) with non-cemetery sites of fallen soldiers, including victims of chemical weapons, in the area of Bzura and Rawka. The e-repository of knowledge, about the legitimacy of creating about which I wrote above, could undoubtedly contribute to the implementation of this and this type of goals.

⁶⁴ *Журнал военных действий 217-го пехотного Ковровского полка с 1 мая 1915 г. по 31 мая 1915 г.* RGVA, f. 2830, op. 1, d. 28. The document lists the surnames of the identified soldiers. In my opinion, these soldiers deserve commemoration by their full name.

⁶⁵ RGVA, f. 2019, op. 1, d. 81.

Further positions (south-west of Wola Szydłowiecka) were occupied by the 218th Gorbатовski Infantry Regiment; the data show that it was least affected by the lethal effects of gas. Why? Our findings so far based on archaeology and remote sensing data⁶⁶ show that most of the defence lines of this regiment were located in heavily forested areas, which resulted in the chlorine cloud spreading differently there than in the open. Moreover, analysis of written sources, and more specifically, the content of the German regimental history of the 225th RIR, indicates that in the section occupied by this regiment, not all chlorine cylinder valves were opened, so the gas cloud did not cover the entirety of this section of the front line⁶⁷.

According to De Lazari, the 218th Infantry Regiment lost 9 officers and 894 soldiers, a total of 903 gas casualties. However, according to the Military Operations Journal, in the gas attack on 31 May 1915, the regiment lost 195 soldiers and officers killed by the gas and 689 chlorine-poisoned soldiers and officers, a total of 884 gas victims⁶⁸. From the telegram of 31 (18) May 2015 at 22:00 relating to the 218th Regiment, it appears that it lost 1 officer and 730 soldiers, without specifying the number of wounded and killed.

That the data on human casualties due to the use of chlorine is incomplete can also be determined indirectly. For example, we may take the case of the 219th Kotelnicki Infantry Regiment, the soldiers of two battalions who manned the trenches of the decimated 217th Infantry Regiment on 31 May 1915. Yet, inexplicably, no losses are recorded among them in the Log of Combat Operations, nor in the available dispatches of 31 May and the following days. The same is the case with the data relating to the 220th Skopinski Infantry Regiment, who occupied the section of the front beyond the immediate reach of the gas cloud. Neither the combat log of this regiment nor the dispatches from the battlefield mentions losses in this unit. However, bearing in mind the range of „effective” gas operation, it should be assumed that human losses in this unit could also have been serious.

Summing up the data from the official documents that I have examined so far, it appears that as a result of the German gas attack **on 31 May 1915, between 8,092 to 8,377 soldiers and officers were killed and poisoned with gas**. These data refer to the human casualties of both divisions mentioned above, including infantry and cavalry units manning the

⁶⁶ A.I. Zalewska, J. Czarnecki, G. Kiarszys, *Krajobraz Wielkiej Wojny. Front nad Rawką i Bzurą (1914–1915) w świetle teledetekcji archeologicznej i źródeł historycznych*, Warszawa 2019.

⁶⁷ *Kriegsgeschichte*, s. 67.

⁶⁸ *Журнал военных действий 218 Пехотного Горбатовского полка с 1 мая 1915 г. по 31 мая 1915*. RGVA, f. 2831, op. 1, d. 37.

first line of trenches and units in reserve. It should be emphasized here that the currently available source data do not show losses in artillery units or in support units (e.g., among sappers), which further makes it difficult to provide more precise figures⁶⁹. De Lazari mentions losses in these formations in his calculations. Moreover – as I wrote above, the data presented by A.N. De Lazari include gas poisoning not only on 31 May, but also on the following days – up to and including 3 June 1915. This explains the fact that his data on losses give a total that is higher than the data resulting from the compilation of numerical data from dispatches and logs of combat operations of the individual units alone⁷⁰.

The data in some combat logs and dispatches support the validity of expanding the pool of figures that should be taken into account in the estimation of these figures, including the factors taken into account by De Lazari (such as gas-induced human losses several days after the attack).

For example, the account of the fighting of the 56th Siberian Regiment does not contain any information about cases of sickness or gas poisoning after the filling of the trench lines previously occupied by the 55th Siberian Regiment. Only in the summary of losses incurred from 31 (18) May to 12 June (30 May) 1915, does this journal record human losses: **1** killed and **3** injured officers, together with **23** killed and **189** wounded and injured soldiers⁷¹. The document does not specify which losses were caused by German artillery fire and which (if any) were due to the effects of gas. These calculations also do not include losses from 12 June (30 May) 1915 – when the 56th Regiment was the subject of another German gas attack.

OTHER ARCHIVAL DOCUMENTS CONTAINING INFORMATION ABOUT THE VICTIMS OF THE GAS ATTACKS ON 31 MAY 1915

Important information helpful in estimating human losses as a result of the attack on May 31, 1915 is also included in the notes and documents drawn up by witnesses of those events who had contact with the victims of gas attacks shortly after they had occurred, e.g., in medical reports, diaries, memoirs etc. The collection of documents drawn up directly during the fighting or even several months after the gas attacks is particularly

⁶⁹ N. Postnikov reports that artillery units of both these divisions lost about 236 soldiers and officers as a result of the gas, see: Н.Д. Постников, *Новые*, s. 93.

⁷⁰ The discrepancy in the data from archival documents and De Lazari's study is explained in a similar way by N.D. Postnikov, see: *ibidem*, s. 92.

⁷¹ Копия из журнала военных действий за время боев с 1-го мая по 1-е июля 1915 года. RGVA, f. 3390, op. 1, d. 23.

informative. It includes reports of unit commanders, testimonies of soldiers and officers of these units, as well as reports of doctors who visited field hospitals receiving chlorine victims on the day of the gas attack or immediately after it. These documents were collected at the request of the Special Investigation Committee, examining cases of violations of military law and international law by the German army.

It is worth recalling as an example the data contained in the questionnaires completed by the commanders of units that were in the front line during the gas attacks in 1915–1916 and were exposed to gases. These documents are very laconic, and the numbers provided in them do not always correspond to the numbers contained, for example, in the logs of combat operations of individual units. Most often, they are given generally or collectively. This makes them not the best source material for assessing the losses suffered by the Russians as a result of the action of chlorine. For example, in the report on the losses of the 54th Siberian Regiment on 31 May 1915, the commander of this regiment not only summarized the losses of several units in total, but also included the sum of losses from two gas attacks – carried out on 31 May and 12 June. According to this document, the 53rd, 54th and 55th Siberian regiments and the 2nd *sotnia* of the 45th Don Cossack Regiment – which were subjected to a gas attack on 31 May 1915, as well as the 24th, 54th and 56th Siberian regiments that suffered losses in the 12 June attacks, lost „from both of these events approximately **2,500** people killed; and **7,000** people poisoned”⁷².

Particularly informative data derive from the reports of doctors working (or supervising activities in the field of medical assistance) at dressing points and/or in field hospitals located at the rear of the front in the area where gas attacks had taken place, but also in medical facilities remote from the battlefield⁷³.

In his report, A. I. Ignatowski, professor of medicine, mentioned 12 hospitals and medical points in Warsaw and one of the hospitals in Żyrardów as those to which victims of gas weapons were taken after the attack on 31 May 1915. In all, **3,000** soldiers and **68** officers poisoned with gas were brought to these facilities on the day of the gas attack, of which **101** soldiers and **5** officers had died by the end of the day⁷⁴. Source criticism of another part of this interesting group of documents from which one may

⁷² RGVA, f. 13159, op. 1, d. 62.

⁷³ Here, as a very valuable supplement to these data, we should treat these from the report of A.V. de-Roberti, head of the sanitary department and author of the official report for the Command of Maj. Gen. Of the 2nd Army, cited by N.D. Postnikov (Н.Д. Постников, *Новые*, see footnote 33 above).

⁷⁴ RGVA, f. 13159, op. 1, d. 1.

draw conclusions includes five reports of doctors working in the back-up military hospitals in the Teresin area, 16 kilometres from the battlefield. These reports date from 2 June (20 May) 1915⁷⁵. According to them, 9 officers and 1,574 soldiers poisoned with gas were brought to Teresin, where the Main Evacuation Point No. 3 and other hospitals and medical points were located, and on 31 May and 1 June, about 50 died of gas poisoning. Many remained in a severe or very severe state for a long time, due to damage or severe irritation to the upper and lower respiratory tract⁷⁶.

As a result of being affected by gas, many soldiers died both directly on the battlefield and later. After chlorine vapours are absorbed by the human body, hydrochloric acid and hypochlorous acid are produced in the aqueous environment, which in turn releases active oxygen in the lung tissues⁷⁷. Strong acids cause, among other things, thrombotic necrosis. This process is confirmed by the source documents.

For example, the report of the Doctor of Medicine D. M. Łavrov of 11 June (29 May) 1915, shows that on 31 May, between 4:00 am and 5:00 am, about 400 soldiers poisoned with gas were brought to the hospital in Teresin. Of these, 21 were already dead. By 7 p.m., another 27 soldiers had died in the hospital. On the same day, about 1,200 soldiers poisoned with gas were brought to hospital No. 3 in Guzów throughout the day (until midnight), of which 140 died immediately. That same night (1 June), Dr. Lavrov went to Żyrardów and found there that by 4 am, about 3,000 gas-poisoned people had been admitted to the hospital, of which about 30% were in a serious condition. This hospital admitted another 1,000 chlorine-poisoned soldiers by 1 p.m. on 1 June. This document does not contain data on the deceased in the hospital in Żyrardów. Doctor Lavrov also visited a dressing point in Radziwiłłów (than Staro Radziwiłłów) and wrote that from the morning of 31 May to the morning of 1 June about 1,900 people poisoned with gas were admitted, of which 135–140 died.

These data should not be mechanically added up, for a number of reasons. Among other things, it is not known if, and if so, how many poisoned patients were transferred from one facility to another. There are indications that the poisoned people who were transported directly from the battlefield to Guzów, Radziwiłłów or Teresin were then transported to hospitals in Żyrardów or Warsaw. It is also not clear whether the doctors who submitted the reports counted all poisoned soldiers who came to

⁷⁵ *Ibidem*.

⁷⁶ C. Pałczyński, A. Krakowiak, *Skutki ostrego narażenia na substancje toksyczne w układzie oddechowym*. „Alergia” 2012, 3, s. 16–21.

⁷⁷ *Ibidem*.

a given hospital or dressing point, or only those who were temporarily detained and registered in a given facility. There is a possibility that some of the patients were immediately transported to Warsaw or Żyrardów from the railway stations in Teresin and Radziwiłłów. In addition, the reports of military medics presumably did not include mentions of all the facilities that provided aid to soldiers who were poisoned with gas, including hospitals that received them.

In none of the above reports, for example, was the hospital located in the convent of the Sisters of Nazareth in Szymanów (12 kilometres from the front) included. The nun keeping the chronicle of the monastery wrote⁷⁸, among other things: „For several weeks our area has been flooded with the military, because the entire division has come here for a rest. The 12th Infantry Regiment of Siberian Riflemen is stationed in Szymanów (...). The village and the manor house are full of soldiers, there is noise and constant disturbance everywhere. We live just like in a barracks”.

In the light of a note dated 31 May 1915, the poisoned soldiers were also sent there and received medical help and support from the Sisters. The Chronicle from Szymanów records: „Tonight we were **awakened by the suffocating stench of the gases** released by the Germans for the first time. Puffs of acrid blue smoke poured through the open windows; we hastened to close them as quickly as possible. The next day, the panic and rage at the Germans was enormous. There had been **6,000** soldiers lying in the trenches in a row”.

Important for understanding the scale of human losses is also the following entry on the victims of the May gas attack: „We got about **1,000 victims** – many die in agony, their lungs and insides burnt. The funeral of young officers is ceremoniously held. (...) A few days later, an even more solemn funeral of a dozen or so victims. A dozen or so biers without coffins decorated with greenery carried soldiers on stretchers...”⁷⁹. From the chronicle we learn that the deceased soldiers were buried in the park around the monastery and in the nearby war cemetery, and in Teresin.

SUMMARY AND ESTIMATION OF CHLORINE GAS CASUALTIES ON THE EASTERN FRONT

The numbers of killed and chlorine-poisoned soldiers in the Russian and German armies still remain unclear and debatable. Researchers, whether

⁷⁸ *Kronika z Szymanowa rok 1915*, knlb.

⁷⁹ *Ibidem*.

writing right after World War I or in the following decades, delved into this topic, but did not leave indisputable, conclusive determinations as to the precise numbers of the fallen and gas-poisoned soldiers fighting on the Rawka and Bzura front that would take into account all three chlorine attacks carried out there by the German army in 1915. Currently, due to the passage of time and limitations of the resources of source documents (partially destroyed, partially dispersed in Russian, German and Polish archives and private collections), in my opinion, it is impossible to provide hard figures indicating the estimated number of victims of gas attacks on the Eastern Front, which does not mean that such attempts should be abandoned.

At present, it is possible to carry out at least collective recapitulations of the various source data and secondary studies available today. **Therefore, the author does not claim to be able to present the final truths relating to the problems discussed here, but only seeks to strengthen the epistemic truth.** Hence, the summary results of the estimation of the number of victims of the first three⁸⁰ German gas wave attacks on the Eastern Front presented in this article are of the nature of an attempt in which the veracity of the statements should be defined rather in terms of being statements of current knowledge than as fully verified.

I have presented the conditions of verifiability above using the example of data relating to the gas attack of 31 May. The following estimation, total for three gas attacks, is the result of an analogical analysis of the source data relating to the next two wave attacks⁸¹ in the Bzura and Rawka

⁸⁰ N. Postnikov, in his otherwise very interesting article, using Russian archival documents, additionally indicates „a fourth wave of chlorine attack in the Bolimów region”. He claims that it took place on the night of 5–6 June 1915 in the section occupied by one of the battalions of the 14th Siberian Rifle Division. However, the author does not specify exactly where this additional attack would have taken place. Instead, he writes that the attack did not lead to any losses. I perceive the author’s thesis as highly debatable at the moment, as no German sources confirm this attack. The author also describes the gas attack that took place on 6 June in the area of the village of Konopnica near Rawa Mazowiecka. There, the Germans used chlorine released from specially modified flamethrowers, which is confirmed by other sources. The Russians lost 12 soldiers and one officer there. German sources also mention this attack, but the attack was not a wave attack. To carry out it, the Germans used a flamethrower or flamethrowers adapted for the dissemination of active substances – poisons. Therefore, in my opinion, it is not justified to equate it with the three situations of mass use of gas in combat situations that took place in May, June and July in this area. It is noteworthy that in 1915 the „gas psychosis” prevailed and the resulting source records may reflect that in suggesting that there had been more than three waves of attacks on the Bolimów bridgehead.

⁸¹ It is a fact, for example, that according to the entries in the Military Operations Log of the 9th Army (BArch 5-II/282), the fourth gas attack took place in the area of the Rawka and Bzura. The Germans carried it out in the vicinity of the village of Łady on the Vistula

regions, closely related to the initial attack on the Eastern Front. They took place on 12 June and 6 July 1915 in the Bzura and Rawka area⁸².

My calculations so far (for which I have found confirmation in the source data) showed that the minimum and estimated number of victims of the first three German wave attacks on the Eastern Front, carried out using the poisonous properties of chlorine, on the side of the Russian army ranges from **21,477 to 22,094 soldiers and officers**. From the summary of the figures published by N.A. Postnikov, we get the number of gas casualties estimated at **30,278 soldiers and officers**, fatally poisoned and poisoned with gas in the area of Rawka and Bzura in 1915⁸³.

The gas casualties on the side of the German army are probably no less than **1,812** people killed and poisoned with chlorine. These figures, although still debatable (rather, understated), show the deadly power of chlorine as the first weapon of mass destruction used on a massive scale and in combat situations on the Eastern Front.

This may be a warning that even active substances that are relatively primitive, easy to obtain and use as a weapon, such as the chlorine used in 1915, can cause in a short time large numbers of deaths and enormous suffering to people who came within their range of action, such as was the case at Ypres or Bolimów.

As a result of investigations relating to the victims of the use of chemical weapons on a massive scale on the Eastern Front, the reasons for the impossibility of accurately determining human losses were revealed. This problem emerged in a specific cognitive context, i.e., as a result of attempts to define and understand who was buried in numerous cemeteries and war graves established in 1915 in central Poland and why they remain forgotten. It seems, however, that the issue of the undefined number of victims of chemical weapons and their poor representativeness in historiography is of a nature that is broader than just idiographic. Determining the number

River and it was a test of a gas attack over water. The attack was carried out on the Russian positions on the other side of the Vistula, in the area of Wyszogród. There is no mention of its effects in the Russian documents available today. This issue is worth discussing in more detail, but it goes beyond the issues presented in this article.

⁸² More information on these attacks can be found in: S. Kaliński, *Bolimów*; A.I. Zalewska, J. Czarnecki, *Ślady*.

⁸³ See: Н.А. Постников, *Новые*. We know that this researcher did not include all the losses resulting from the source documents. Both of these calculations (my modest ones resulting from a very limited access to source data and those of N.A. Postnikov, who has, I assume, full access to the data collected in RGVA), are still hypothetical. The estimates contained in this article, due to their vagueness, indirectly confirm the thesis about the incalculability of chemical weapons victims but contradict the sense of using the adjective „uncounted” in the title of this article.

of human losses as a result of the use of poisonous chlorine in the first wave attack carried out on 31 May 1915 by the imperial army of Germany in today's Poland is not the only challenge facing researchers of the effects of the use of chemical weapons in history.

By raising this problem, this article aims to indicate the urgent need and legitimacy of systematizing and interpreting the source data, helpful in specifying and commemorating the victims of chemical weapons, especially those considered undefined and uncountable, such as the victims of German chemical weapon wave attacks on the territory of today's Poland. It would be helpful to create a digital repository of knowledge on the use of chemical weapons in the history of mankind, within which source evidence, written, iconographic, material, physicochemical, anthropological and other data could be integrated⁸⁴. I hope that this article can contribute to ensuring that this legitimate step will come, taking into account the source data also from the Eastern Front of World War I, including those relating to the victims of the use of chlorine by the German Imperial army, 31 May 1915.

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(translated by Paul Barford)

⁸⁴ I justify this need in more detail in other places, see: A.I. Zalewska, *The Use of Chemical Weapons on the Eastern Front of World War One (1915) and its Material and Discursive Remains*, „Acta Universitatis Lodzianis. Folia Archaeologica” 2020, 35, s. 243–273.

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ABOUT THE AUTHOR

Anna Izabella Zalewska – an archaeologist and historian working as an associate professor at the Institute of Archaeology and at the Institute of History, Maria Curie Skłodowska University, Poland. She is the member of the Advisory Board of Outreach and Education of the OPCW and also of the Council for the Protection of the Archaeological Heritage. Her publications include contributions to memory studies, landscape studies, heritology, prosocial and socialised archaeology of the contemporaneous times, public history, historiography, communication, museology, material-discursive practices with the engagements and agency of the material, written and non-material remains of the recent past, methodology. She is the author, co-author and editor of over one hundred articles, four monographs and four collected volumes.