

Indicator analysis as a way for the Second Department of Polish General Staff to counter the risk of chemical warfare being unleashed by Germany in the 1920s

Abstract

After regaining its independence in 1918, Poland faced a number of security challenges. The most important of these was survival in the face of revisionist steps taken by aggressive neighbours, including Germany and the USSR. One important aspect of this threat was to determine the risk of the Weimar Republic unleashing chemical warfare against the Second Republic. In order to cope with this intelligence task, the Second Department of Polish General Staff developed a number of instructions whose structure and internal logic is comparable to the indicator analysis technique developed only 60 years later by the American Intelligence Community. On the basis of material preserved in the State Archive in Gdańsk and contemporary textbooks on information analysis techniques, it is shown how officers of Polish military intelligence, decades before the method of indicator analysis was formalised, developed their own way, which is essentially identical to it. This demonstrates the remarkable innovation and organisational capacity of the newly forming intelligence service of the reborn state.

Keywords

Second Department of Polish General Staff, chemical weapons, Poland, Germany, intelligence, indicator analysis.

After independence in 1918 and during the formation of its borders until 1922, the reborn Republic was vulnerable to German revisionism. There were at least three reasons for this threat. Firstly, Poland had 2/3 of the industrial potential of Upper Silesia, which - together with the Ruhr and the also lost Alsace and Lorraine - was the most important industrial area of the Reich. Secondly, Greater Poland was, before the First World War, an agricultural region renowned for its productivity, one of the most important for Germany's food economy. Thirdly, the Pomeranian Corridor divided Germany into two areas and physically cut off East Prussia from the main national territory. Therefore, from the very beginning of the reborn Polish state, the main task of its military intelligence was to obtain information that could provide evidence of Berlin's war preparations.

One of the most important changes in the methods of warfare brought about by World War I was the advent of the first weapons of mass destruction, i.e. war gases. The psychological effects associated with the use of these weapons were enormous. Whether through memoirs described in literature, witness accounts or images and photographs, the vision of a weapon capable of killing or permanently maiming thousands of people in an instant will always accompany humanity. To associate the use of war gases only with the Western Front is erroneous. Also in the eastern theatre of operations, including the areas of the reborn Second Republic, soldiers of the warring sides and civilians could come into contact with this deadly weapon. Between January and July 1915, the Germans attempted several times to break through the Russian positions near Bolimow, using battle gas. In August of the same year, unable to capture the Osowiec fortress, they also opted for a chemical attack, which led to one of the most gruesome events in the history of wars, dubbed the attack of the dead¹. Later on, information about the use of poisonous gases appeared in reports from Greater Poland troops taking part in the uprising².

¹ А.А. Черкасов, А.А. Рябцев, В.И. Меньковский, «Атака мертвецов» (Осовец, 1915 г.): миф или реальность, „Былые годы” 2011, no. 4, pp. 5–11. Despite a six-month siege, the Germans were unable to take the Osowiec fortress, so Marshal Paul von Hindenburg, commanding the German army, gave the order to launch a battle gas attack on Fort Zarzeczny and its advanced positions on the right bank of the Biebrza River. As a result of this attack, the entire 226th Infantry Regiment, which was defending the positions, was poisoned. The German soldiers, in a force of about 7,000, moved forward, thinking that they would take the abandoned positions. Meanwhile, opposite them, a company of horribly burned, dying Russians moved to counterattack. This caused such a shock to the attacking soldiers that they threw themselves into a panicked flight, convinced that they were being fought by the living dead. The history of the struggle and the German gas attacks on the Russian positions on the Rawka River, commonly referred to as the Battle of Bolimow, has already been well researched and described in the national literature.

² For example, during the so-called Battle of the windmills, which took place on 19 I 1919 near Leszno. See: *Śladami powstania wielkopolskiego. Bitwa pod wiatrakami i inne potyczki* (Eng. In the footsteps

Therefore, the study of issues related to the possibility of the use of weapons of mass destruction by Germany was an important task for the Second Department of Polish General Staff (later the General Staff of the Polish Army, the Staff of the Commander-in-Chief). This is clearly demonstrated by the Polish intelligence documents analysed in this article, preserved in the State Archives in Gdańsk (hereinafter: SAG).

However, information acquisition is only one phase of the so-called intelligence cycle. It cannot function in isolation from the other phases, namely prior planning and tasking and subsequent analysis and distribution. The purpose of this article is to show how the above-mentioned documents reflect the principles concerning the organisation of analytical and information work adopted at the Second Department of Polish General Staff (hereinafter: Second Department).

Research methods, sources and definitions

The primary research method used in the article is a comparative analysis of the source intelligence documents of the Second Department in the light of the theory and practice of analytical and information operations. Particular attention has been paid to the definition of the intelligence cycle and indicators (indices).

The sources used in this article are documents collected in the collection *Organization of intelligence and instruction* marked with the number 1107 and located in SAG³. This collection consists of a relatively small collection of only 212 pages of material relating to the work of Office 7 of the Second Department in Gdańsk. Most of them consist of personal data of agents, information on the dislocation of German troops, operational instructions, cipher instructions and guidelines on the concealment of writing. Among them, however, are four letters dealing directly with the acquisition of information on chemical weapons.

The book *Theory and practice of analytical and informational activities*⁴ by Józef Kozłowski (definition of indicators, the intelligence cycle) and English-language

of the Wielkopolska Uprising. The Battle of the windmills and other skirmishes), Institute of National Remembrance, <https://pw.ipn.gov.pl/pwi/historia/przebieg-walk-powstancz/sladami-powstania-wielk/8464,BITWA-POD-WIATRAKAMI-I-INNE-POTYCZKI.html> [accessed: 5 VI 2023].

³ State Archive in Gdańsk (hereinafter: SAG), *Organizacja wywiadu i instrukcja* (Eng. Intelligence organisation and instruction), (herinafter: *Organizacja wywiadu...*), ref.no. 1107. When quoting original texts, their spelling has been adapted to modern Polish and obvious spelling errors have been corrected..

⁴ J. Kozłowski, *Teoria i praktyka działań analityczno-informacyjnych* (Eng. Theory and practice of analytical and information activities), Warszawa 2016, pp. 76–215.

studies on analytical techniques were used to provide definitions of the intelligence concepts studied.

According to Kozłowski, the intelligence cycle is divided into five stages. The first is planning, during which the tasks for the acquisition apparatus are defined. The second is the acquisition of information from various personal and technical sources. This is followed (the third stage) by their processing, when intelligence information is pre-processed, broken down into smaller pieces and verified. The fourth stage is their analysis, i.e. re-integration and aggregation, after which the intelligence information becomes intelligence information and thus - implicitly - a verified and objective picture of the situation for which the intelligence service already takes responsibility. The fifth stage is information dissemination. After this, the decision-makers, already familiar with the facts, set the next tasks, which start the planning of the new intelligence cycle⁵.

In this article, indicator analysis is understood as a periodic review of observed events and trends, done to track them, monitor targets, detect new trends and warn of unforeseen changes⁶. It is therefore a structured analytical technique by which historical data, trends and doctrinal documents are examined in order to identify imminent threats at an early stage. This most often (although not exclusively) involves events such as the outbreak of armed conflict or internal upheaval. Indicator analysis thus involves observing reality for the occurrence or non-occurrence of specific events, phenomena, actions that may indicate an impending crisis. In addition to early warning, one of the purposes of this type of analysis is to identify information needs and the resulting preparation of tasks for the acquiring intelligence apparatus, as well as the creation of possible scenarios for the development of the situation⁷. They are therefore an extremely important part of the intelligence cycle and occur in two of its five stages - planning (tasking) and analysis.

In the US literature, structured research techniques are considered to have started in the 1980s. Their intensive development took place at the beginning of the 21st century, influenced by the reflections following the terrorist attack on

⁵ Ibid.

⁶ U.S. Government, *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis*, 2009, p. 12.

⁷ R.J. Heuer, R.H. Pherson, *Structured Analytic Techniques for Intelligence Analysis*, Washington 2011, p. 24. J. Kozłowski, *Teoria i praktyka...*, p. 150–151; P. Grunt, *Structured Analytic Techniques: Taxonomy and Technique Selection for Information and Analysis Practitioners*, "Journal of Management and Financial Sciences" 2017, vol. 10, no. 30, p. 128.

11 September 2001, which was one of the greatest failures in the history of the United States Intelligence Community⁸.

Chemical intelligence in the collection of the State Archive in Gdańsk

In the documents of the Second Department preserved in the SAG, one can find information indicating concerns about the possibility of chemical warfare with Germany. In the collection numbered 1107 and entitled Organisation of intelligence and instruction, one can find a general instruction and three intelligence tasks for the Gdańsk office of the Second Department related to the acquisition of information concerning chemical armament in Germany⁹.

The first of the documents, actually a set of four annexes preserved, unfortunately without a cover letter, sets out the tasks of chemical intelligence for Germany, East Prussia and Gdańsk. The importance attached to these tasks is best demonstrated by the fact that the document was signed by the Chief of the General Staff of the Polish Army himself - General Władysław Sikorski. Based on a reference in a later document, it should be dated mid-June 1921¹⁰.

The document is divided into four parts. The first contains general instructions, the next three detailed instructions for chemical intelligence work in Germany, East Prussia and the Free City of Gdańsk. The General Staff instructed the offices of the Second Department to acquire, among other things:

- chemical warfare manuals,
- plans and blueprints for gas protection equipment,
- plans and specimens of the latest chemical weapons,
- all scientific literature on the production of chemical weapons,
- photographs of technical equipment for the production of chemical warfare gases (after infiltrating selected chemical plants in Germany)¹¹,

⁸ R.H. Pherson, *The Five Habits of the Master Thinker*, "Journal of Strategic Security" 2013, vol. 6, no. 3, pp. 54–55.

⁹ SAG, *Organizacja wywiadu...*, ref. no. 1107, pp. 5, 17–18, 81, 146–150.

¹⁰ *Ibid.*, pp. 146–150. A reference indicating the date of creation can be found in a document reference 22584/II.inf.III.2 of 27 August 1921.

¹¹ *Ibid.*, p. 147. Among the plants mentioned in the manual were the laboratories of Höcht, the Badische Anilin und Soda Fabrik (BASF), Bayer and Merck. The first three of these, together with the AGFA concern, formed the IG Farben corporation in 1925, which in time came to play an important role in the economy of the Nazi regime in Germany and was complicit in the production of poisonous gases and the crimes of genocide committed in the German extermination and concentration camps.

as well as penetrating the immediate environment of German scientists such as Fritz Haber and the disciples of Emil Fischer¹².

The last point of this section of the manual is significant: *It is important to note all the ways in which foodstuffs and their surrogates are made, cultures of useful micro-organisms (food yeast, glycerine yeast, lemon yeast, etc.), bacteriological work, studies of plague, typhoid and other infectious diseases*¹³.

The tasks assigned to the Prussian area were of a different nature. Among other things, they included determining whether chemical troops were stationed in the area, whether factories producing war gases were located, whether field conditions for their use were being prepared, and whether tanks in which poisonous substances could be stored appeared on the border with Poland¹⁴.

Tasks assigned to the area of the Free City of Gdańsk included the observation of transports of substances that could have been semi-finished products for the production of chemical weapons, such as:

- calcium, sulphur, tin and titanium chlorides,
- liquefied chlorine,
- ethylene,
- carbon tetrachloride,
- alanine,
- ferrocyanide salts,
- chlorhydrin,
- bromine,
- mercury and arsenic derivatives,
- acid-resistant steels,
- explosives,
- organic toxins¹⁵.

¹² SAG, *Organizacja wywiadu...*, ref. no. 1107, *Zadania wywiadu chemicznego w Niemczech. Instrukcja* (Eng. The tasks of chemical intelligence in Germany. Instruction), pp. 147–148. Fritz Haber (1868–1934) – German chemist of Jewish descent, Nobel Prize laureate of 1918, ‘father’ of modern chemical weapons. It is bitterly ironic that a scientist exiled from Germany as part of the anti-Semitic purges was the inventor of Zyklon “B”, with which millions of his fellow Jews were murdered during World War II. Emil Fischer (1852-1919) - chemist and Nobel Prize winner (in 1902). He committed suicide, unable to come to terms with the deaths of his two sons during World War I.

¹³ SAG, *Organizacja wywiadu...*, ref. no. 1107, p. 148.

¹⁴ SAG, *Organizacja wywiadu...*, ref. no. 1107, *Zadania wywiadu chemicznego w Prusach Wschodnich i Mazurach* (Eng. Chemical intelligence tasks in East Prussia and Masuria), p. 149.

¹⁵ SAG, *Organizacja wywiadu...*, ref. no. 1107, *Zadania wywiadu chemicznego w Gdańsku* (Eng. Tasks of chemical intelligence in Gdańsk), p. 150.

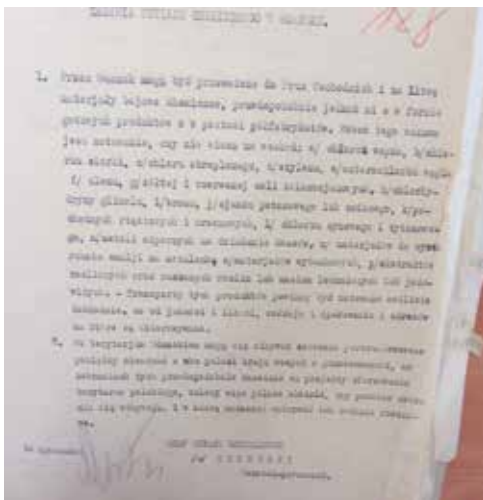


Image 1. Tasks of chemical intelligence in Gdańsk.

Source: State Archive in Gdańsk.

The next assignment, dated 27 August 1921, is a general instruction on the conduct of chemical intelligence in Germany and refers to the previously sent assignments¹⁶. Attention is drawn to the introduction of a sentence in this instruction in which the Second Department admits that it has serious problems in obtaining information on German chemical weapons and is only just working out its working methods.

The next document found in the SAG¹⁷ was written on 8 October 1921 and is addressed to Rittmaster Karol Dubicz in charge of the Gdańsk office of the Second Department¹⁸. Its author was Major Kazimierz Kierzkowski, then head of the Intelligence Unit of the Second Department¹⁹. The first paragraph of this

¹⁶ SAG, ref. no. 1107, *Organizacja...*, letter no. 22584/II.inf.III.2 of the Second Department of the General Staff to Office no. 2 of 27 August 1921, p. 81.

¹⁷ SAG, *Organizacja wywiadu...*, ref. no. 1107, letter from the Second Department of the General Staff to Rittmaster Dubicz, dated 8 October 1921, illegible number, pp. 17–18.

¹⁸ Karol Dubicz-Penther (1892-1945) – a major in cavalry, intelligence officer and diplomat, head of Office no. 7 of the Second Department in Gdańsk. Between 1937 and 1943, he was an extraordinary and plenipotentiary deputy of the Republic of Poland in Lisbon. While serving in Portugal, he was initiated into the intelligence activities of the Continental Action, conducted in that country by Lt. Col. Jan Kowalewski. He died in Lisbon in January 1945.

¹⁹ Kazimierz Kierzkowski (1890-1942) - a major in infantry, intelligence officer, head of the Intelligence Unit of the Second Department of the General Staff. In the years 1940-1941 in the Union of Armed Struggle, arrested by the Germans in July 1941, murdered in Auschwitz in March 1942.

document reads as follows: *In view of the great difficulty of directly observing the state of chemical armaments in East Prussia and the Mazurians, it is necessary to take advantage of the perhaps already meagre indications that can be drawn in this respect from the nature of the transports passing in an easterly direction through the Gdańsk corridor*²⁰. The following paragraph says a lot about the reasoning of the analysts of the Second Department: *Among the materials transported, some may bear witness to certain preparatory procedures preceding the great chemical armament (...)*²¹.

The goods transported were divided into two groups: ammunition and the components used to produce it, and chemicals. The former included:

- ready-made gas masks,
- glasses for them or masses for their manufacture,
- rubber materials or impregnated leather,
- fine coal,
- sheet metal cases or sheet metal for their manufacture,
- flexible or sprung rubber bands,
- waterproof clothing or materials impregnated with oil,
- filled or empty gas grenades or parts thereof,
- filled or empty gas shells,
- steel gas flasks or empty gas bombs,
- parts of mine-throwers or prepared throwers,
- threaded or smooth pipes between 4 and 8 inches in diameter,
- sprayers and hydropults²² of all systems²³.

Among the chemicals, the following were considered to be of interest in the context of studying the issue of chemical weapons:

- chlorine liquefied in flasks,
- sulphur,
- sulphur chloride²⁴,
- ethyl and methyl alcohol²⁵,
- ethylene in gaseous tanks,
- toluol, xylol, benzol,
- concentrated nitric acid,
- liquid bromine or iron bromide,

²⁰ SAG, *Organizacja wywiadu...*, ref. no. 1107, p. 17.

²¹ Ibid.

²² Hydropult - a small hand pump used to extinguish small fires and pump out water.

²³ SAG, *Organizacja wywiadu...*, ref. no. 1107, p. 17.

²⁴ It was used to vulcanise rubber products..

²⁵ In the original: ordinary and woody.

- potassium or sodium cyanide,
- oxalic or formic acid,
- quartz-mercury lamps,
- arsenic,
- potassium or sodium acetate,
- sulphuric and acetic acid anhydrides,
- chlorohydrin,
- aniline,
- diphenylamine²⁶.

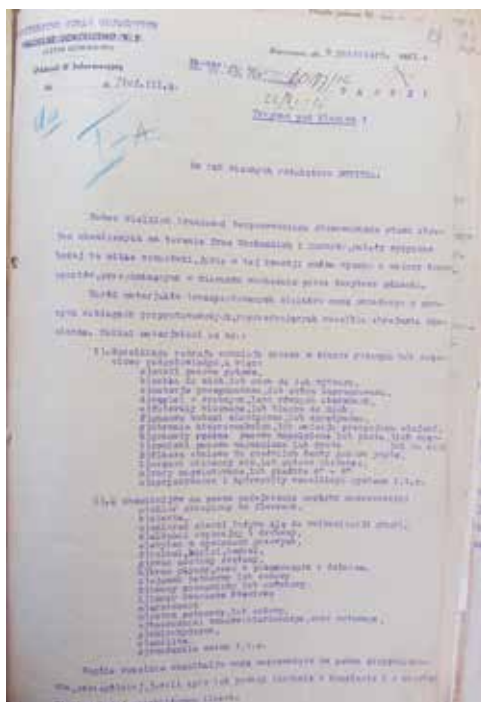


Image 2. Instruction to Rittmaster Karol Dubicz, 8 October 1921, p. 1.

Source: State Archive in Gdańsk.

From the further part of the instructions, it appears that Major Kierzkowski was aware that such a method had its limitations, and that the collection of information itself might not be easy: *When noting down transports, one should not delude oneself too much as to the ease of searching for the necessary clues in this way, as a considerable*

²⁶ SAG, *Organizacja wywiadu...*, ref. no. 1107, p. 17.

part of them might go by sea or pass through the corridor at large intervals in order to confuse their interdependence. Nonetheless, keeping as meticulous a note as possible of the items listed above may prove useful in some cases²⁷.

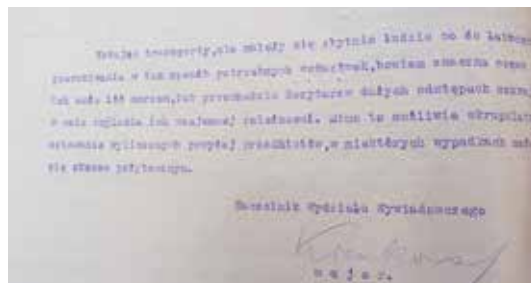


Image 3. Instruction to Rittmaster Karol Dubicz, 8 October 1921, p. 2.

Source: State Archive in Gdańsk.

The SAG also contains information about another, later assignment that may be related to the issue described. On 5 December 1921, Major Kierzkowski instructed Rittmaster Dubicz to obtain the latest edition of a German textbook on organic chemistry published by Beilstein and entitled *Handbuch der Organischen Chemie*²⁸.

Tasks for the Rittmaster Karol Dubicz and indicator analysis

The instructions to Rittmaster Dubicz are a typical task sent from the headquarters of the intelligence service to the capturing apparatus and represent the beginning of a new intelligence cycle. At the same time, they are the result of the completion of another cycle - there is no doubt that the Second Department first had to obtain information on the methods and means of producing chemical weapons. Part of this may have been information gained from experts in the field (e.g. scientists).

The description of the situation presented in the four documents analysed is an accurate reflection of the starting point for the indicator analysis. Due

²⁷ SAG, *Organizacja wywiadu...*, ref. no. 1107, p. 18.

²⁸ SAG, *Organizacja wywiadu...*, ref. no. 1107, letter from the Second Department of the General Staff no. 14074a/II.Inf.III.B.5 to Office no. 2 of 5 December 1921, p. 5 (the correct title of this textbook is *Beilsteins Handbuch der Organischen Chemie*. It was published in 1921 by Verlag von Julius Springer - editor's note).

to the impossibility of obtaining intelligence that constitutes a response to a task (e.g. a document, an order, etc.), HQ decides to start looking for signs of impending change and for facts and phenomena that could be indications of command in this respect.

Exactly as defined by Richard Heuer and Randolph Pherson²⁹ on the basis of historical experience and doctrinal (scientific) knowledge, the Second Department developed a list of phenomena, the possible confirmation of which by Rittmaster Dubicz could provide a premise proving the conduct of chemical armament in the area of East Prussia. This was particularly true of the initial tasks for chemical intelligence in Prussia and the Free City of Gdańsk set in the spring of 1921. They were not concerned with ascertaining the presence of chemical weapons in these two territories and their dislocation to frontline units, but with gaining information either on substrates and intermediates that could be used in the production of chemical weapons, or on logistical preparations in the field (clearing vegetation, deploying tanks). It is interesting to note the very phrase “indication” used in the 8 October 1921 document, which in the given context can be translated into English precisely as indicator. Very significantly, indicator analysis as an analytical method emerged, as mentioned earlier, in the US intelligence community in the 1980s. Meanwhile, Polish military intelligence officers used the indicator category, although they did not formalise it, already at the beginning of the free Republic.

Undoubtedly, the Second Department took the risk of chemical warfare with the Germans seriously. This was, at least in part, the result of the experience of Polish society in the years of World War I, as well as knowledge of the tragic events on the Western Front and the Southern Front. Documents preserved in the SAG show how creatively the emerging Polish military intelligence service tried to develop a methodology for early warning of an attack with weapons of mass destruction. This was only the third year of its existence and, as such, it could not have had a sufficient agent network in enemy territory to gain direct evidence of such a threat. Therefore, an attempt was made to define phenomena that would allow sufficient advance preparation for a possible attack. Using contemporary intelligence terminology, it can be said that officers of the Second Department developed a set of early warning indicators, which they later monitored, analysed and used to assign tasks to the capturing apparatus.

Its consideration of the need to keep track of research into infectious microorganisms, as evidenced by its first set of tasks, should also be regarded as evidence of the great perspicacity and creative thinking of Polish military intelligence. In addition to observing phenomena occurring in German food

²⁹ R.J. Heuer, R.H. Pherson, *Structured Analytic Techniques...*, p. 24.

production during World War I, including the production of synthetic surrogates (German: Ersatz) of food, the Second Department was interested in bacteriological research, recognising the dangers arising from the possibility of their results being used as weapons of mass destruction, in time called biological weapons.

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Associate professor Dominik Smyrgala,
War Studies University

Head of the Department of the History of Intelligence and Counterintelligence at the Institute of Military History, War Studies University. A graduate of the University of Warsaw (2002), he obtained his doctorate at the Institute of Political Studies of the Polish Academy of Sciences (2010), and his habilitation at the War Studies University (2020). His research interests include economic history, international relations, with a particular focus on the history of the special services in the interwar period and during World War II, and especially the analytical output of officers and associates of the Second Department of the General Staff/General Headquarters/Commander-in-Chief.

Contact: dominik.smyrgala@icloud.com