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Teofil Lawgmin (1922–2010) – Founder of the Chemists' Circle

Teofil Lawgmin (1922–2010) – założyciel Koła Chemików

Abstract

Teofil Lawgmin played a pivotal role in the advancement of chemical education in Zamość through the integration scientific research with a deep commitment to teaching. As the founder of the Chemists' Club, he established an institutional framework that enabled young scholars to develop their skills and gain practical laboratory competencies.

The present study examines the historical development and educational significance of the Chemists' Circle, with particular attention devoted to Lawgmin's lasting impact on the academic community. The analysis is based primarily on personal recollections of his former students, it explores his pedagogical approach, unwavering dedication, and the personal qualities that made him an inspiring teacher and mentor.

Furthermore, the article evaluates both his scientific and educational contributions and highlights Professor Lawgmin's role in shaping future chemists and his remarkable ability to cultivate scientific passion among youth.

Keywords: Teofil Lawgmin, Chemistry Circle, teacher, master

Streszczenie

Teofil Lawgmin odegrał kluczową rolę w rozwoju edukacji chemicznej w Zamościu poprzez integrację badań naukowych z głębokim zaangażowaniem w działalność dydaktyczną. Jako założyciel Koła Chemików stworzył instytucjonalne ramy umożliwiające młodym adeptom nauki rozwijanie swoich umiejętności oraz zdobywanie praktycznych kompetencji laboratoryjnych.

Niniejsze opracowanie analizuje historyczny rozwój oraz znaczenie edukacyjne Koła Chemików, ze szczególnym uwzględnieniem trwałego wpływu Lawgmina na środowisko akademickie. Analiza, oparta przede wszystkim na wspomnieniach jego byłych uczniów, pokazuje jego podejście pedagogiczne, niezłomne zaangażowanie oraz cechy osobowości, które czyniły go inspirującym nauczycielem i mentorem.

Ponadto artykuł przedstawia zarówno jego wkład naukowy, jak i dydaktyczny, podkreślając rolę profesora Lawgmina w kształtowaniu przyszłych chemików oraz jego niezwykłą zdolność do rozbudzania pasji naukowej wśród młodzieży.

Słowa kluczowe: Teofil Lawgmin, nauczyciel, mistrz, koło chemików

Introduction

Despite his significant contribution to the development of chemical education, Teofil Lawgmin[1] remains a relatively little-known figure today. Nevertheless, he served as an inspiration to numerous students, educators, and members of the Chemistry Club he supervised. He educated many Olympiad laureates, future scientists, and specialists, while his dedication and innovative teaching approach were reflected both in his students' achievements and in their lasting memories of his educational work.

The aim of this article is to examine the circumstances surrounding the establishment of the Chemistry Club, the pedagogical methods employed by Lawgmin, and his influence on the educational and professional trajectories of his students. The study is based on former students' recollections- Zbigniew Brzózka[2] and Zbigniew Piskorski,[3] archival materials, and Lawgmin's publication *Żołnierska droga i nauczycielski sukces*.

The article is divided into three sections: a biographical overview of Teofil Lawgmin, an analysis of the Chemistry Club and his teaching methods, and a discussion of the significance of his legacy for the local community and the broader development of chemical education.

Biographical Outline

Teofil Lawgmin (born 22 November 1922 in Vitebsk;[4] died in 2010) was a chemist, educator, officer of the Polish Army, and a long-serving secondary school teacher in Zamość. He was the founder and supervisor of the Chemistry Club, the author of publications devoted to the didactics and methodology of chemistry teaching, and a mentor to numerous gifted students in the field of the natural sciences. He was born into a railway worker's family of Polish- Lithuanian origin. His mother, Jadwiga Majewska, was Polish, whereas his father was of Lithuanian[5] nationality. During his

[1] T. Lawgmin, *Żołnierska droga i nauczycielski sukces*, Lublin 1979; Private collections of Professor Z. Brzózka; Interview with Z. Brzózka conducted on 26 November 2024; Private collections of M.Sc. Eng. Z. Piskorski; Interview with Z. Piskorski conducted on 8 November 2024; State Archives in Zamość; Branch Archive of the Institute of National Remembrance in Lublin.

[2] Prof. Dr. Hab. Eng. Zbigniew Brzózka, Warsaw University of Technology, Faculty of Chemistry, Department of Medical Biotechnology; https://orcid.org/0000-0001-9738-6920. Born on 11 February 1953 in Zamość.

[3] M.Sc. Eng. Zbigniew Piskorski, born in 1945, graduated from Wrocław University of Science and Technology in 1969 with a degree in Plastic Processing Technology; former employee of the Pronit Plastics Plant in Pionki, currently retired.

[4] In the territory of the Russian Soviet Federative Socialist Republic (RSFSR), now Belarus.

[5] AIPN (hereinafter: the Archive of the Institute of National Remembrance in Lublin), Honorary Court, ref. no. IPN BU 0193/8269, p. 2; State Archives in Zamość (hereinafter: APZ), Presidium

childhood and adolescence, he lived in Vitebsk, where he attended a Polish primary school, graduating in 1937. He subsequently continued his education in a Russian-type secondary school and obtained his secondary school diploma in 1940.[6] His formative years coincided with a period of escalating political tensions and the outbreak of the Second World War, which significantly influenced the course of his later life.

In May 1941, Teofil Lawgmin was conscripted into the Red Army, where he served as a telegraph operator. He participated in the defence of Kyiv and took part in military operations on the Eastern Front, including the Battle of Moscow; he also witnessed the Siege of Leningrad. The wartime experiences of the years 1941–1943[7] played a crucial role in shaping his personal values, discipline, and professional sense of responsibility. In 1943, Lawgmin joined the Union of Polish Patriots in Moscow and, at his own request, was subsequently transferred to the 1st Tadeusz Kościuszko Infantry Division.[8] Between 1943 and 1945, he was associated with military education, serving as an instructor in radiotelegraphy.[9] He conducted classes, among others, at the officers' communications school in Ryazan and participated in the organization of a communications school in Zamość. Despite considerable organizational and infrastructural difficulties characteristic of wartime conditions, Lawgmin demonstrated a high level of commitment and diligence in carrying out his assigned duties. In recognition of his exemplary service, he was awarded the Silver Cross of Merit and promoted to the rank of lieutenant.[10] In subsequent years, he served in the Border Protection Troops, attaining the rank of captain and, in 1970, that of major. The deterioration of his health, resulting from his wartime experiences, prompted Teofil Lawgmin to undergo sanatorium treatment and gradually transition from active military service to civilian employment.

In 1949, he was granted Polish citizenship and settled in Zamość,[11] a city with which he remained closely associated throughout his subsequent family and

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of the District National Council in Zamość, Department of Municipal Economy and Housing, ref. no. 148, p. 13; AIPN (hereinafter: the Archive of the Institute of National Remembrance in Lublin), Honorary Court, ref. no. IPN BU 0193/8269, p. 2; Archive of the Institute of National Remembrance in Lublin (hereinafter: AIPN in Lublin), Honorary Court, ref. no. IPN BU 0858/91, p. 5.

[6] AIPN (hereinafter: the Archive of the Institute of National Remembrance in Lublin), Honorary Court, ref. no. IPN BU 0193/8269, p. 1; T. Lawgmin, *Żołnierska droga*…, Lublin 1979, p. 15.

[7] T. Lawgmin, *Żołnierska droga*…, Lublin 1979, p. 14.

[8] See: *70 lat temu rozpoczęto formowanie 1 Dywizji Piechoty im. Tadeusza Kościuszki*, 2013, https://dzieje.pl/aktualnosci/70-lat-temu-rozpoczeto-formowanie-1-dywizji-piechoty-im-tadeusza-kosciuszki (12.03.2025).

[9] AIPN (hereinafter: the Archive of the Institute of National Remembrance in Lublin), Honorary Court, ref. no. IPN BU 0193/8269, pp. 4–5.

[10] Cf. *Krzyż zasługi*, https://www.prezydent.pl/prezydent/kompetencje/ordery-i-odznaczenia/odznaczenia/krzyz-zaslugi (10.03.2025); AIPN (hereinafter: the Archive of the Institute of National Remembrance in Lublin), Honorary Court, ref. no. IPN BU 0193/8269, p. 5.

[11] In 1949, after a three-month stay in the Soviet Army, Lawgmin was placed at the disposal of the Ministry of National Defence of the Polish People's Republic, and only then did he receive

professional life.[12] He then began his teaching career at the I Liceum Ogólnokształcące im. Hetmana Jana Zamoyskiego and at the Economic Technical School, where he initially taught defence education, the Russian language, and science-related subjects.

Simultaneously, he pursued further education in the fields of pedagogy and chemistry.[13] After obtaining a reissued secondary school diploma, he enrolled at the Higher School of Pedagogy in Łódź, where he acquired formal teaching qualifications and subsequently completed first-cycle higher education studies.[14] From 1952 onward, he devoted himself exclusively to teaching chemistry, a discipline which, as he himself emphasized, provided him with particular professional satisfaction.[15] Over time, he became one of the most recognizable chemistry teachers in Zamość.

In 1963, Lawgmin began master's studies at the Maria Curie-Skłodowska University in Lublin while simultaneously pursuing an intensive teaching career. His research, conducted in the Department of Physical Chemistry under the supervision of Andrzej Waksmundzki, focused on chromatography and resulted in a master's thesis of an experimental nature. His collaboration with the academic community facilitated active engagement in scholarly activities and publications. From the late 1960s onward, Lawgmin published works on chemistry education and teaching methodology, contributing to both scientific and popular science literature.[16] He was also deeply involved in the education of gifted students, founding and supervising the Chemistry Club, where he mentored students and prepared them for academic competitions and chemistry Olympiads.

In recognition of his outstanding contributions to chemistry education, Lawgmin was awarded the Honorary Badge of the Polish Chemical Society in 1984, as well as the Jan Harabaszewski Medal.[17] Although he formally retired in 1987,

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Polish citizenship following several requests submitted to his superiors. Only after the matter concerning improper conduct toward Senior Rifleman Mleczko had been clarified did Teofil Lawgmin receive an official reprimand, and the Public Security Bureau sent him back to the Soviet Union on 28 June of that year. The document was confirmed by the Head of the Personnel Department of the Main Inspectorate of Border Protection, Major Geringfeld; Archives of the Institute of National Remembrance in Lublin (hereafter: AIPN in Lublin), Court of Honour, ref. no. IPN BU 0858/91, p. 15.

[12] State Archives in Zamość (hereinafter: APZ), Presidium of the District National Council in Zamość, Department of Municipal Economy and Housing, ref. no. 148, p. 1.

[13] T. Lawgmin, *Żołnierska droga*…, pp. 14–16.

[14] *Ibidem*, p. 16.

[15] *Ibidem*, pp. 17–18.

[16] A. Waksmundzki, T. Lawgmin, *Perspektywa i własności jonowymienne polifosforanu cyrkonylu*, "Maria Curie-Skłodowska University Annals" (Annales UMCS) 1976/1977, Section AA, Vol. 31/32, pp. 355–362.

[17] *Polish Chemical Society*, https://ptchem.pl/pl/honors/honored-with-the-honorary-medal-of-ptchem (20.03.2025).

he continued his teaching activity until 1992, remaining an active member of the educational community.[18]

Teofil Lawgmin died in 2010 and his achievements in the fields of education, scholarship, and mentorship were commemorated with a memorial plaque at the I Liceum Ogólnokształcące im. Jana Zamoyskiego in Zamość.[19]

In the collective memory of his students and colleagues, Lawgmin remains a demanding yet exceptionally devoted teacher who combined solid scientific knowledge with practical experience and a strong ethos of service.

Teacher and Founder of the Chemistry Club

Within pedagogical discourse, a teacher is understood as an individual who "must be fully aware of the nature of their guiding role"[20] in the process known as teaching. Teaching itself may be defined as the "organization of learning and the guidance of students' learning processes,"[21] intended to "lead to desired outcomes."[22] It is therefore an exceptionally complex process, as evidenced, among other things, by the "dialectical contradiction – which in reality constitutes the source of didactic progress – between the effort to ensure the teacher's guiding role in this process and, simultaneously, the preservation of students' full independence in thought and action."[23] It was precisely this aspect of education that guided Teofil Lawgmin in his work with gifted students. By broadening his competencies to include psychological knowledge, he recognized that gaining insight into the individual needs and personalities of his students was essential for supporting their intellectual and personal development.[24]

As a chemistry teacher at the I Liceum Ogólnokształcące im. Jana Zamoyskiego in Zamość, Lawgmin exerted a profound influence on his students through his distinctive pedagogical approach and his passion for chemistry, as emphasized in an interview by Professor Zbigniew Brzózka. According to Brzózka, Lawgmin was perceived not only as an authority figure in the field of chemistry, but also as a role model who not only taught but also inspired students to pursue deeper intellectual inquiry.

Professor Lawgmin was able to instil a lasting fascination with chemistry, which the author of the recollections identifies as a decisive factor in choosing a scientific

[18] A. Kędziora, *Lawgmin Teofil (1922–2010) nauczyciel chemii, major rez. WP*, 2024, https://www.zamosciopedia.pl/index.php/hasla-alfabetycznie/l/la-le/2624-lawgmin-teofil-1922-2010-nauczyciel-chemii-major-rez-wp (21.03.2025).

[19] A. Kędziora, *Lawgmin Teofil*…

[20] C. Kupisiewicz, *Podstawy dydaktyki ogólnej*, Warszawa 1994, p. 21.

[21] *Ibidem*.

[22] *Ibidem*.

[23] *Ibidem*.

[24] T. Lawgmin, *Żołnierska droga*…, pp. 29–30.

career path. He employed diverse teaching methods, with particular emphasis on chemical experiments that stimulated students' curiosity and active engagement in learning. He was recognized as a patient educator who ensured a thorough understanding of the subject matter. Lawgmin motivated students through both traditional forms of encouragement and the cultivation of trust-based interpersonal relationships. Through the extracurricular Chemistry Club, he prepared students for chemistry Olympiads and competitions, in which they achieved notable success. He also fostered independent learning skills that proved valuable in their subsequent educational and scientific careers.[25] The author of the memoirs emphasizes that this skill became invaluable in his later academic development:

Professor Lawgmin possessed enormous patience and great authority, and he motivated students to study chemistry in many ways – both through traditional methods such as grades and praise, and through less conventional but equally effective approaches. Beyond his didactic abilities, he was always exceptionally well prepared for his lessons. Some of the more difficult topics he explained several times, but above all we felt that the teacher genuinely cared about whether students understood the material being discussed. This passion was especially evident during the chemical experiments with which he frequently illustrated particular areas of chemistry. It may sound like a truism to say that chemistry is learned most effectively through experiment and demonstration, yet I still remember the Professor's classroom experiments, during which he drew our attention to the colours of compounds and solutions, to the 'smells' of many common volatile substances, and also to laboratory safety. Thanks to such chemistry lessons, many students 'caught the chemistry bug,' which often ended with the Professor encouraging them to attend the Chemistry Club sessions he conducted in the afternoons and evenings.[26]

An interview conducted with another of Professor Lawgmin's former students, engineer Zbigniew Piskorski, indicates that Lawgmin was a person who established clearly defined rules and expected commitment as well as a serious approach to the study of chemistry: "He was uncompromising when it came to educational priorities. He required students to remain fully focused on the subject, which was crucial in developing our skills."[27] Such accounts demonstrate that Lawgmin was perceived not merely as a teacher transmitting scientific knowledge, but also a mentor who inspired students to undertake deeper intellectual exploration and to approach scientific inquiry with seriousness and responsibility. Former students frequently emphasised that his pedagogical authority was grounded both in his extensive subject knowledge and in his personal example.

[25] Interview with Z. Brzózka conducted on 26 November 2024, in the private collection of the author of the article.

[26] *Ibidem*.

[27] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

The methods employed by Professor Teofil Lawgmin in his educational work included, among others:

Chemical experiments – he made extensive use of a variety of chemical experiments that stimulated curiosity and promoted experiential learning. He emphasized the importance of sensory aspects, such as the colours and odours of substances, which made lessons more engaging and intellectually stimulating.

Patience and authority – he was a patient educator who repeatedly explained complex scientific concepts, ensuring that students achieved a satisfactory level of understanding the provided material.

Motivation – he motivated students both through traditional methods, including assessment and praise, and through less conventional approaches aimed at fostering trust and authentic interpersonal relationships.[28]

Lawgmin's students achieved considerable success in chemistry Olympiads, which not only confirmed his effectiveness as an educator but also encouraged young people to pursue further intellectual and academic development. As Zbigniew Piskorski stated during an interview: "Professional preparation for Olympiads, based on practical learning and a deep understanding of chemistry, opened the way for students toward further education and scientific careers."[29] Lawgmin was portrayed as a highly demanding and disciplined educator who placed chemistry above all other subjects and did not tolerate distractions. His teaching emphasized practical experimentation, including occasionally risky demonstrations, as a means of reinforcing theoretical knowledge. He maintained high expectations, especially for students preparing for Olympiads, and although he was not openly warm or demonstrative, he motivated learners through rigor, consistency, and a strongly authoritative approach. By organizing supplementary classes and Chemistry Club activities, he created an environment conducive to intensive study and advanced problem-solving. Despite the severity of his methods, they were effective and widely respected, as reflected in his students' success in chemistry competitions.[30]

Lawgmin himself argued that: "A teacher, almost involuntarily, begins to adopt a conformist attitude, quickly falls into routine, and performs his duties mechanically. He obediently follows the curriculum 'from cover to cover' and remains satisfied with himself".[31] He further maintained that: "Young and talented students facing the choice of entering the teaching profession have often heard from such teachers that schoolwork is not creative activity at all, but merely repetitive drilling

[28] Based on the interview with Z. Piskorski conducted on 8 November 2024; based on the interview with Z. Brzózka conducted on 26 November 2024, in the private collection of the author of the article.

[29] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

[30] *Ibidem*.

[31] The same T. Lawgmin, *Żołnierska droga*…, pp. 19–20; these words were a statement made by Lawgmin after a reduction in staffing at the Economic Technical School, which in 1955 changed its profile into the Technical School of Industrial Crop Production.

of the same information into successive generations of students. Yet it is clear that in every profession, including teaching, professional **ambition** [emphasis in original R.M.] should prevail, as it constitutes the driving force that pushes one beyond the obligatory norm (…) Everything depends on the teacher: whether he is a **professional** [emphasis in original R.M.], and whether – and to what extent – he possesses the creativity, energy, and ambition to rise above the required minimum and strive toward the highest attainable level."[32]

Chemistry and chemical studies, which had been his passion since secondary school, motivated him to organize the Chemistry Club, officially established on 1 September 1958. However, the club had already begun its activity four years earlier, when the first meetings and classes took place. Initially, it functioned as an extracurricular initiative intended for students who were particularly passionate about chemistry.[33]

The primary aim of the Chemistry Club's activities was to deepen students' knowledge, develop previously formed interests, encourage active participation in the independent acquisition of knowledge, and identify individual talents and abilities among students. Nevertheless, the overriding objective in organizing the club's work and selecting its subject matter was the preparation of students for the Chemistry Olympiad. The Olympiad thus functioned as a means of developing intellectual abilities and shaping active and creative attitudes among participants.[34]

According to Lawgmin's students, the curriculum of the Chemistry Club did not fundamentally differ from regular chemistry lessons. What distinguished it, however, was, above all, "the dedication of time exclusively to this activity, as well as practical engagement in experiencing these chemical wonders and, naturally, understanding the experiments themselves."[35]

The exceptional character of the Chemistry Club classes in comparison with regular chemistry lessons is also confirmed in archival documents from the Państwowe Liceum i Gimnazjum im. Hetmana Jana Zamoyskiego, specifically in the schoolwork plans for the academic years 1954–1955 and 1955–1956, when the author argues that practical student exercises are the most effective method of teaching chemistry because they develop independent thinking and interest in the subject. However, the overloaded curriculum and limited teaching hours often force teachers to use demonstrative methods instead. The text also criticizes shortcomings in the second-year curriculum, particularly the insufficient treatment of hydrolysis and the lack of adequate time for revision and problem-solving activities.[36]

[32] *Ibidem*, p. 20.

[33] State Archives in Zamość (hereinafter: APZ), State Secondary School and Gymnasium named after Hetman Jan Zamoyski in Zamość, School work plan 1954–1955, 1955–1956, ref. no. 131, pp. 2, 8.

[34] T. Lawgmin, *Żołnierska droga*…, pp. 21–26.

[35] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

[36] State Archives in Zamość (hereinafter: APZ), State Secondary School and Gymnasium named after Hetman Jan Zamoyski in Zamość, School work plan 1954–1955, 1955–1956, ref. no. 131, pp. 36–37.

Lawgmin's observations regarding the chemistry curriculum and the work of the Chemistry Club in first- and second-year secondary school classes remained consistent in 1959. By that time, he had already trained the first laureates of the nationwide Chemistry Olympiad. He was fully aware that the profile of the club's work and the experiences gained there by both students and himself required considerable effort, particularly because no substantial methodological materials existed at the time. It was therefore necessary to rely largely on intuition in determining the general direction and subject matter of the club's work in the context of Olympiad preparation. Students developed practical laboratory skills as well as competence in chemical calculations. Lawgmin prepared them to qualify for district-level competitions and ultimately for the national finals.[37]

Lucjan Nędzyński,[38] a researcher affiliated with Maria Curie-Skłodowska University, examined the issue of fostering students' interest in chemistry, emphasizing the significant educational role of subject Olympiads in the assessment of teachers' work. He argued that students' achievements in the Chemistry Olympiad constitute evidence not only of effective Olympiad preparation, but also of the high overall quality of the teacher's educational practice within the broader school context. Furthermore, Nędzyński maintained that the defining characteristic of an effective teacher lies not merely in the transmission of curricular content, but also in the capacity to cultivate students' genuine intellectual interest in the subject.[39]

The author of the above quotation presents a concept of didactic work with gifted students in which preparation for subject Olympiads constitutes an important element in improving the quality of education and professionalizing the teaching profession. This activity is portrayed as a systematic and purposefully organized process requiring the application of diverse teaching methods, including both individualized instruction and group activities carried out within subject clubs. Particular emphasis is placed on advanced substantive work and laboratory experimentation as fundamental tools for developing students' cognitive competencies.

The chemistry laboratory and the activities of the Chemistry Club played a significant role not only in the development of students' research competences, but also in fostering key personal and intellectual attributes, including responsibility, systematic work habits, independence, and perseverance. Preparation for chemistry Olympiads contributed to the enhancement of analytical thinking and the deepening of scientific interests. Through its regularly conducted extracurricular sessions, the Chemistry Club constituted an important component of the school's didactic and

[37] *Ibidem*.

[38] R.M. Janiuk, *Chemia i dydaktyka w chemii w UP. Sylwetki polskich dydaktyków chemii*, https://uatacz.up.krakow.pl/~wwwchemia/zdch/index.php/zyciorysy-dydaktykow-chemii/115-nedzynski-lucjan (19.03.2025).

[39] *Ibidem*, pp. 23–24. Cf. L. Nędzyński, *Rozwijanie zainteresowań chemicznych uczniów poprzez olimpiady chemiczne*, "Chemia w Szkole" 1976, No. 5, pp. 262–267.

educational mission, supporting the development of students' talents, improving overall educational outcomes, and preparing participants for further academic progression and scientific careers.[40]

The activities of the Chemistry Club, the lessons themselves, and above all, Lawgmin as a teacher, remained deeply ingrained in the memories of his students: "It was our scientific club. I remember his lessons to this day – perhaps not every detail, but I particularly remember the smell after an ammonia explosion during one of the experiments. The Professor had prepared ammonia water. A tube was directing the ammonia into another vertical tube. He, the Professor, stood behind the teacher's desk and ordered us all: 'Step away from the desk!' Then it exploded, the glass shattered across the classroom, and yet no one was harmed. Oh, there were many such chemical experiments."[41]

In *Żołnierska droga i nauczycielski sukces*, Teofil Lawgmin described several methods of orally assessing students' knowledge. These included "individual questioning of students at the blackboard,"[42] not only during Chemistry Club sessions but also in regular chemistry classes, "questioning students from their seats during whole-class discussions,"[43] and "student responses during the introduction of new lesson topics."[44] He regarded individual questioning as "the most methodologically difficult"[45] form of assessment, since it often evolved into a dialogue between teacher and student while the remainder of the class remained passive. In order to prevent this, he "attempted to maintain self-control, divide his attention effectively, and conduct lessons with a watch in hand."[46]

At every lesson, he employed short oral questioning sessions in order to "verify the assimilation of previously covered material"[47] and prepare students for new topics. He also planned which students would be examined thoroughly and which only superficially, paying particular attention to less systematic students in order to "stimulate them toward more effective work."[48] During questioning, he sought to maintain the activity of the entire class – students "were allowed to intervene whenever their classmate provided an incorrect answer."[49] Assessment was conducted continuously, and after each response the teacher "provided a brief evaluation of

[40] T. Lawgmin, *Żołnierska droga*…, pp. 32–33; APZ, State Secondary School and Gymnasium named after Hetman Jan Zamoyski in Zamość, School organization and academic year 1968–1969, ref. no. 180, p. 9.

[41] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

[42] T. Lawgmin, *Żołnierska droga*…, p. 65.

[43] *Ibidem*.

[44] *Ibidem*, p. 66.

[45] *Ibidem*, p. 65.

[46] *Ibidem*.

[47] *Ibidem*.

[48] *Ibidem*.

[49] *Ibidem*.

the student's knowledge, assigned a grade in the register, and announced it aloud before the class."[50] An excellent grade required an answer that was "complete, sufficiently justified, correct, and stylistically well formulated."[51]

Students' knowledge was also assessed during the implementation of new curricular material, when they analysed phenomena, solved problems, and wrote chemical equations. Laboratory exercises and computational tasks constituted additional opportunities to evaluate students' independence and analytical thinking.[52] As one former student recalled: "Written assessments usually lasted from fifteen to twenty minutes – the so-called short quizzes, which the Professor administered quite frequently. There were also hour-long tests; if I remember correctly, perhaps four during the school year."[53]

Lawgmin also applied experimental methods of assessing students' knowledge and practical skills. Experimental evaluation was conducted primarily through laboratory activities and the solving of experimental tasks. Students performed experiments in a manner that enabled the entire class to observe and analyze the occurring phenomena. Such an approach made it possible to assess both their laboratory competencies and their theoretical understanding.

Within this framework, the school played a crucial role in developing students' individual talents, both during regular lessons and through extracurricular activities such as scientific clubs. An especially effective teaching strategy was the problem-based approach, which engaged students in independent thinking and in formulating their own answers. The teacher was expected to provide students with opportunities to express their reflections and ideas freely, thereby strengthening both their interest in the subject and their motivation to learn.

Gifted students required particular attention; therefore, it was considered valuable to devote part of the lesson to discussing more advanced or broader issues. Certain topics could also be assigned for independent study, enabling students to deepen their knowledge through the use of scientific literature. At the same time, it remained important to engage the entire class, including weaker students. This could be achieved by assigning talented students the role of mentors who assisted their peers in learning. Students with average or weaker academic performance often required additional support from the teacher in the form of detailed explanations and guided discussions. Such an approach made learning more effective: students participated more willingly in lessons, asked questions, and actively sought answers to problems that interested them.[54]

[50] *Ibidem*, p. 66.

[51] *Ibidem*.

[52] *Ibidem*, p. 66–67

[53] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

[54] Cf. T. Lawgmin, *Żołnierska droga*..., pp. 68–71.

Even after retiring from school teaching, Professor Lawgmin continued his educational activities, among others by conducting additional classes and Chemistry Club sessions, which testified to his dedication to teaching and his enduring passion for chemistry. Lawgmin's influence on his students was also reflected in their professional choices. Many of them chose to continue their education in the field of chemistry, inspired by the intellectual and personal guidance they had received from him.

Master for His Students

A master is capable of perceiving diverse features of ideas, works, and social goals, appreciating both innovative and classical forms. He situates them within their historical and social context while simultaneously communicating their significance to others. Through experience, he recognizes imperfections in creative works and helps refine them, without diminishing the value of the original creator, but rather emphasizing its importance. His evaluation becomes a source of motivation for further development and contributes to the promotion of both the creator and the work itself. At the same time, the master, by engaging in the creative process, develops personally and discovers new areas of knowledge.[55]

Teofil Lawgmin was regarded by his students precisely as such a master. From a retrospective perspective, Zbigniew Piskorski stated that: "He was an authority not only for me, but a master's in chemistry and in the way of transmitting this knowledge to us."[56] When asked about the legacy Professor Lawgmin left to his students and future generations, he responded: "Certainly, a great one. Professor Lawgmin had a significant influence on his students, including Chemistry Olympiad laureates, which is an important part of his legacy. He prepared students for competitions and Olympiads, and some of them achieved high results, which was a source of pride both for the school and for him personally. The Olympiads were, for many students, a gateway to further academic and professional careers, and the success of his protégés testifies to the effectiveness of his methods."[57] It can therefore be concluded that one of the most important aspects of his legacy are precisely those students who, thanks to his demanding teaching, achieved distinction and continued their education at a high level – among them, for example, Professor Zbigniew Brzózka and Zbigniew Piskorski.

[55] Cf. J. Górniewicz, *Mistrz, nauczyciel, wychowawca pokoleń*, "Pedagogika Społeczna" 2017, No. 2(64), p. 20, https://pedagogikaspoleczna.com/wp-content/uploads/2018/01/PS220179-32.pdf (20.03.2025).

[56] Interview with Z. Piskorski conducted on 8 November 2024, in the private collection of the author of the article.

[57] *Ibidem*.

Professor Andrzej Waksmundzki described Teofil Lawgmin as a role model who "like a catalyst acts on a substrate (…) is able to manipulate the human substrate and influence it catalytically in the field of chemical sciences."[58]

Lawgmin left behind not only a solid foundation of chemical knowledge among his students, but also the ability to think analytically and a sustained motivation for intellectual development. During his career, he educated 40 finalists of the national Chemistry Olympiad, including 33 laureates and distinguished participants.[59] Through well-organized extracurricular activities, Lawgmin promoted perseverance, experimental inquiry, and independent thinking. A substantial proportion of the Chemistry Club's activities possessed an almost research-oriented character, as students engaged in work related to chromatography, adsorption, catalysis, and electrochemistry.

Lawgmin's work at the I Liceum Ogólnokształcące im. Jana Zamoyskiego, together with his broader didactic activity, contributed to raising the standard of education in the region. By creating a strong scientific environment, he inspired successive generations to pursue higher education and professional careers in chemistry and related scientific disciplines. Moreover, his methods became a point of reference for teachers in the region, while the achievements of his graduates contributed to the academic prestige of both the school and the city of Zamość.

Professor Lawgmin played a key role in shaping the scientific mindset of his students. He introduced them to the principles of experimental investigation and encouraged a creative approach to chemical problems. He did not confine himself to traditional teaching methods – he gave science a practical and engaging character, which prepared students for academic and professional challenges. He was not only an outstanding educator but also he contributed to the professional development of teachers. Through pedagogical publications issued in Poland and abroad, he disseminated innovative teaching methods and reflections on didactics of chemistry. His approach to didactics has been compared to the function of a chemical catalyst, as it stimulated students' intellectual development and facilitated the discovery of their talents. His legacy remains a valuable source of inspiration for future generations of educators, especially those who aim to engage students in learning through practical experimentation and scientific inquiry.[60]

Teofil Lawgmin received expressions of appreciation from his former students emphasising the high level of education and preparation they had received under his supervision. One such testimony was provided in a letter from his former student, Alicja Matias, a Master of Biology, graduate of the Adam Mickiewicz University in Poznań in 1972. In her correspondence, she expressed her gratitude

[58] A. Waksmundzki [in:] T. Lawgmin, *Żołnierska droga*…, p. 5.

[59] Secondary School named after Jan Zamoyski in Zamość, *Laureates*, http://1lo.com.pl/o-szkole-86/laureaci-123 (19.03.2025).

[60] A. Waksmundzki [in:] T. Lawgmin, *Żołnierska droga*…, pp. 5–6.

for his outstanding preparation in chemistry that she had acquired. The following is an excerpt from the letter included by Lawgmin in his book *Żołnierska droga i nauczycielski sukces*: "I would like to thank you for the chemistry preparation I received in secondary school. I appreciated it already during my preparation for university entrance examinations, and later during the exam itself. (…) While attending chemistry lectures at university, I often compare them with lessons in this subject at school. How much better those school lessons were! I often supplement my lecture notes with knowledge gained during Professor's classes, as some topics were covered in secondary school in a significantly better and sometimes even broader way than here."[61]

In his memoirs, Teofil Lawgmin included a letter of gratitude written by his former student Teresa Kuna, who, reflecting on her secondary school education years later, emphasized his exceptional dedication to teaching chemistry and his profound influence on her intellectual and personal development. She highlighted that it was through his teaching methods, commitment, and encouragement of systematic work that she developed a lasting interest in chemistry and ultimately chose to pursue a professional career connected with the subject. Kuna also described Lawgmin as a role model whose example continued to inspire her long after completing her education.[62]

Conclusion

Teofil Lawgmin was an outstanding chemistry teacher and the founder of the Chemistry Club, who, through his passion, high expectations, and innovative didactic methods, inspired students to pursue learning and develop independent thinking. His life experiences, including those shaped by the Second World War, formed his character, making him a disciplined, persevering, and highly committed individual.

As a teacher, he combined knowledge transmission with the development of students' curiosity and experimental skills, which translated into their success in chemistry Olympiads. He was a demanding yet fair mentor who had a significant impact on the intellectual development of his students.

His educational and formative activity left a lasting legacy, and many of his students owe their subsequent academic and professional achievements to his guidance. His pedagogical approach combined high expectations with individualized support, fostering the holistic development of learners. To this day, he is regarded as a model educator who effectively integrated teaching, upbringing, and inspiration.

A concluding reflection, which may be regarded as a tribute to Teofil Lawgmin for his lifelong work, are the words of Professor Zbigniew Brzózka: "Most of us

[61] As cited in: T. Lawgmin, *Żołnierska droga*…, pp. 92–93.

[62] *Ibidem*, p. 93.

encounter, in our lives and professional work, someone who has a significant influence on our achievements and development – someone we call a Master. I was fortunate in my education to have met Professor Teofil Lawgmin, who was my first Master's in chemistry and who permanently instilled in me a passion for it, as well as the conviction that it is worth dedicating one's studies and professional career to this field. Thank you, Professor!"[63]

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[63] Interview with Zbigniew Brzózka conducted on 26 November 2024, in the private collection of the author of the article.