

NATIONAL
UNIVERSITY OF PUBLIC SERVICE
Doctoral School of Military Sciences

Valentin CSEH

„Air Defence Alert!”

**Anglo-Saxon Air-Strikes against the Hungarian Oil Industry in
1944/45**

PhD Thesis Introduction

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Supervisor:

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1. Formulation of the scientific problem

Now over seven decades ended World War II. Even though there were military and political winners of this cruel and colossal struggle, but it was redemption for all when the war ended in 1945. In the present doctoral thesis has those American and British air attacks carried out against Hungary been processed, which involved Hungarian oil industry between 3 April 1944 and 27 March 1945. Despite the fact that in connection with the Anglo-Saxon air-strikes against Hungary in 1944-1945 numerous books and professional articles have been published in recent decades, and the stories of air offensives performed against some oil companies are public domain, but the Hungarian military history has been struggling the thorough and summary processing of bombings over the whole Hungarian oil industry. This is the reason of this thesis completed.

It will be presented in the doctoral dissertation the history of bombing carried out – crucially – against the oil refineries, and the military history and political events related to the attacks as well. In addition to this there is a special place in the dissertation on the role of oil in World War II. In addition, it will be presented the position of the national air defense and passive air defense and the opposing air forces in order to better understand the military historical topic.

2. Hypotheses

The following hypotheses were formulated, which proved by the chapters of the doctoral dissertation.

1. After the Treaty of Trianon Hungary became an oil-producing country again by the discovery of Bükkszék and Budafa oil fields in 1937. During World War II our country became an oil exporting country. As a result, Hungarian oil industry was a priority for the German strategists, but - because of the importance of the the Romanian oil industry – until the last period of the war it did not become prime importance.
2. After the Hungarian declaration of war against the United States in 1941 the Allies mapped the Hungarian transport and defense industry targets to the possible extent. As a result, they saw clearly that what was the significance of the Hungarian oil industry within the German allied system. So it was no random why during the so-called oil war were the degree of the largest series of strikes in the domestic oil industry in the summer of 1944. The Allies were also aware of how important the Danube in terms of transport of Romanian oil to Germany. This foreshadowed the mining of the Danube.

3. As a result of air attacks the Hungarian oil industry had suffered very significant damage in 1944-1945, but nevertheless managed to maintain operation of oil refineries and the production process of the South Zala oil fields until the end of the war. The bombing caused a production loss, temporary stoppages, but despite all the difficulties, the production was continued at the refineries and oil fields, if at a lower level.

3. The research objectives

1. To demonstrate the role of oil during the Second World War. This is especially important because it was highlighted the role of the black gold in the First World War, but the another world conflagration was a fully motorized total war. The oil supply of opposing countries decisively determined the outcome of the war. During the presentation of the military and political role of the petroleum the main aim to highlight the role of the Hungarian oil industry within the Axis powers.
2. To shed light on the political, economic and military reasons which led to the bombings against the Hungarian oil industry. To this end, I wish to place particular emphasis on the allied intelligence activities involving the Hungarian oil industry, which was the basis of what oil industry facilities were wanted to attack by heavy bombers of the Allies in Hungary during the war.
3. Presentation of air attacks against the Hungarian oil industry embedded in the Second World War military history in more detail and more complex than ever before. Furthermore, presentation of the role played by the Danube in transporting the Romanian oil to Germany and description of mining of the river in 1944.
4. The air strikes against the Hungarian oil industry caused significant damage. The dissertation is seeking an answer to the impact of the American and British air attacks on the production of the refineries and oil fields. And how could repair the bomb damage and set the refineries into operation again.

4. The research methods

The scientific research is relied on archival sources that could be found mostly in the home (Állambiztonsági Szolgálatok Történeti Levéltára [Historical Archives of the Hungarian State Security], HM HIM Hadtörténeti Levéltár [Ministry of Defence Military Institute and Museum

Military History Archives], Magyar Nemzeti Levéltár Országos Levéltára [National Archives of Hungary], Magyar Olaj- és Gázipari Múzeum Adattár/Archívum [Hungarian Oil and Gas Museum Database / Archives]), a smaller part in the United States (Air Force Historical Research Agency) in addition to the relevant domestic and foreign literature.

The reconstruction of events - where possible - was carried out basically relying on archival sources.

5. The review of the relevant literature

A number of English and Hungarian works have appeared related to the topic, but they basically show the history of the Second World War bombings (Air War) in general. It is essential to mention from the English-language literature Wesley Frank Craven and James Lea Cate multi-volume work of the US Air Force history during World War II (The Army Air Force in World War II.) together with the volume of „The Army Air Force in World War II Combat Chronology 1941-1945” compiled by Kit C. Carter and Robert Mueller.

In addition to these books several volumes (Dorr, Robert F.: B-24 Liberator units of the Fifteenth Air Force, Osprey Publishing, Oxford, 2000., Granfield, Alun: Bombers over Sand and Snow. 205 Group RAF in World War II. Pen & Sword Aviation, Barnsley, 2011., Maurer, Maurer: Air Force Combat Units of World War II. USAF, [Washington], 1986., Munday, E. A.: Fifteenth Air Force Combat Markings 1943–1945. Beaumont Publication, London, without years) and studies and professional articles (Ehrhart, Robert C.: The European Theater of Operations, 1943–1945. In.: Kreis, John F. (editor in chief): Piercing the Fog. Intelligence and Army Air Forces Operations in World War II. Air Force History Museums Program, Washington, D.C., 1996. pp. 171–246., Tillman, Barrett: The Forgotten Fifteenth. In.: Air Force Magazine Vol. 95, No. 09, September 2012 pp. 92–96.) were published, which may be standard in evaluating of the operations of the American and British air forces during Second World War.

In addition to these there are a couple of foreign-language specialist work, which has been published in Hungarian translation and can be leafed through on the topic with great benefits. These include Stephen E. Ambrose, Max Hastings and Janusz Piekalkiewicz works (Ambrose, Stephen E.: Vad égbolt. A B–24-es bombázók fiatal hősei. [Wild Sky – The Young Heroes of the B-24 Bombers] Gabo Publishing Company, without site, 2002., Hastings, Max: Bombázók a brit RAF légi offenzívája Németország ellen 1939–1945 [Bombers - British RAF Air Offensive against

Germany in 1939-1945] Aquila Publishing House, Debrecen, 1999., Piekalkiewicz, Janusz: Légi csaták 1939–1945 [Air Battles 1939-1945] Ventus Libro Publishing Company, [Bp.], 2007.).

The first place to be mentioned in Hungarian literature the two-volume work of Iván Pataky, László Rozsos and Gyula Sárhidai, titled „Légi háború Magyarország felett” [Air War over Hungary], published in 1992. In addition several books of Miklós M. Szabó (M. Szabó Miklós: A Magyar Királyi Honvéd Légierő elméleti – technikai – szervezeti fejlődése és háborús alkalmazása 1938–1945 [The Theoretical - Technical - Organizational Development and War Application of the Royal Hungarian Air Force 1938-1945], Zrínyi Publishing Company, [Bp.], 1999., Miklós M. Szabó: A magyar királyi honvéd légierő a második világháborúban [The Royal Hungarian Army Air Force in World War II], Zrínyi Military Publishing Company, Budapest, 1987.) as well.

These volumes provide insight into the events of the Air War took place in the airspace of our country in 1944-1945 through the presentation of the history of Hungarian Air Force. In addition to this – without the others - a number of studies and professional articles are serving more valuable information about the history of air raids against Hungary (Karsai Elek: Elképzelések és tervek Magyarország bombázására 1944-ben – amerikai levéltári anyag alapján [Visions and plans to bomb Hungary in 1944 - based on US archival material]. In.: Szili Ferenc (ed.): Somogy megye múltjából [Somogy county's past]. Levéltári évkönyv [Archives Yearbook Vol. 16. Kaposvár, 1985. pp. 503–540.], Okváth Imre: Adalékok az Egyesült Államok hadászati légierejének második világháborús tevékenységéhez 1941–1945 [Additives to the activities of the US Air Force during World War II in 1941-1945]. In.: Hadtörténelmi Közlemények [Quarterly of Military History Vol. XXXIV. No. 1987/3. pp. 487–509.], Dr. Pataky Iván: Repülőesemények Magyarországon a csendőrségi jelentések alapján 1944 február 22-től július 30-ig [Flight Events in Hungary According to Gendarmerie Reports from 22 February until 30 July in 1944]. In.: Zainkó Géza (ed.): Repüléstörténeti konferencia közleményei 1996 [Communications of Aviation Conference 1996]. Magyar Repüléstörténeti Társaság [Hungarian Aviation Historical Society, Bp., 1996. pp. 285–300.], Sárhidai Gyula: Újabb adalékok Magyarország vasúti hídjainak amerikai bombázásához 1944-ben [New Additives on the US Bombardment of the Hungarian Railway Bridges in 1944]. In.: Levéltári Szemle [Archives Review Vol. 44. No. 1994/4. pp. 8–18.], Schmidt László: Német aknarobbantó repülőgépek tevékenysége a Duna magyarországi szakaszán 1944–45-ben [German Bomber Aircraft Activities of the Hungarian Section of the Danube in 1944-45]. In.: Haditechnika [Military Technology] A múlt, jelen és jövő fegyverei [The Past, Present and Future Weapons. Vol.

40. No. 2006/1. January-February pp. 72–76.], Szabó Miklós: A magyar légierő a második világháborúban [The Hungarian Air Force in World War II.]. In.: Rácz Árpád (ed.): Nagy képes millenniumi hadtörténet - 1000 év a hadak útján [[Large Illustrated Millenium Military History - 1000 Years by the Army]. Rubicon-Aquila-könyvek [Rubicon-Aquila-Books, Bp., 2000. pp. 409–413], Ury János: Két légitámadás a Péti Nitrogénművek ellen 1944 nyarán [Two Air Raids against Péti Nitrogénművek in the Summer of 1944]. In.: Hadtörténelmi Közlemények [Quarterly of Military History Vol. 107. No. 1994/2. pp. 128–143.], Vajda Ferenc Antal: A magyar légierő és a németországi repülőgépbeszerzés a második világháború végén [The Hungarian Air Force and German aircraft purchases at the End of the Second World War]. In.: Hadtörténelmi Közlemények [Quarterly of Military History Vol. XXXIV. No. 1987/3. pp. 550–554.], Veress D. Csaba: Veszprém megye és a Szövetséges Hatalmak stratégiai légitámadásai a második világháborúban [Veszprém County and the Allied Strategic Air Attacks during World War II]. In.: K. Palágyi Sylvia (ed.): A Veszprém Megyei Múzeumok Közleményei 15 Történelem [Communications of the Veszprém County Museums 15 – History], Veszprém, 1980., Veress D. Csaba: Zala megye és a szövetséges (USA, brit) stratégiai légierők támadásai (1943–1944) [Zala County and the Strategic Air Force Attacks of the Allies (US, UK) in 1943-1944 In.: Degré Alajos (ed.): Zalai Gyűjtemény 16 [Zala Collection 16]. Közlemények Zala megye közgyűjteményeinek kutatásaiból 1980–1981 [Announcements about the Research of the Public Collections of Zala County 1980-1981. Zalaegerszeg, 1981. pp. 151–167.], Veress D. Csaba: Légi harctevékenység a Balaton térségében (1944. október – 1945. március) [Air Combat Activities in the Balaton Region (October, 1944 to March, 1945)]. In.: Töröcsik Zoltán–Uzsoki András (ed.): A Veszprém Megyei Múzeumok Közleményei 16 [Communications of the Veszprém County Museums 16], Veszprém Megyei Múzeumok Igazgatósága [Museum Directorate of Veszprém County], Veszprém, 1983. pp. 413–439.).

In addition, several Hungarian and English books / professional articles have been published, which also deals with the role of the war economy and the oil. They are important because of understanding the background of the air attacks against the Hungarian oil industry

(Medlicott, W. N.: The Economic Blockade Vol. I. His Majesty's Stationery Office and Longmans, Green and Co., London, 1952., Milward, Alan S.: Háború, gazdaság, társadalom 1939–1945. A II. világháború háttérében meghúzódó gazdasági események [War, economy, society 1939-1945 - Economic Events in the Background of World War II]. Aquila Könyvkiadó, Debrecen [Aquila

Publishing House], 2000., Oil as a Factor in the German War Effort, 1933–1945. Office of the Cabinet and Minister of Defence, 8th March 1946, Dombrády Lóránd: A Magyar hadigazdaság a második világháború idején [The Hungarian Economy of War during the Second World War]. Petit Real Könyvkiadó [Petit Real Publishing Ltd], Bp., 2003., Juhász Vilmos: Nyersanyagháború [Commodity War]. Dante Könyvkiadó [Dante Publishing House], Bp., 1940., Louis, Nauwelaerts: Harc a petróleumért [Fighting for Oil]. Királyi Magyar Természettudományi Társulat [Royal Society of Natural Sciences], Bp., 1937., Ránki György: A II. világháború gazdaságtörténete [Economic History of World War II]. Közgazdasági és Jogi Könyvkiadó [Economics and Law Publishing Ltd], Bp., 1990., Szemjonov, Jurij: A Föld kincsei gazdasági földrajz mindenki számára [The Earth's Natural Resources Economic Geography for All]. Athenaeum, Bp., without years, Dr. Bahr, Hans: Das Öl im englischen Krieg. In.: Oel und Kohle 37. Jahrgang Nr. 20. 22. Mai 1941. pp. 353–354., Dr. Kaiser Ferenc: A kőolajhiány – ezen belül a magyar termelés – hatása Németország második világháborús stratégiájának alakulására [The Impact of the Oil Shortage - Including the Hungarian Production - in the Germany Strategy during World War II]. In.: Cseh Valentin (ed.): "Harc a petróleumért" Avagy az olaj szerepe a modern háborúban [“Fighting for Oil” Or the Role of Oil in Modern Warfare]. Magyar Olajipari Múzeum [Hungarian Oil Museum], Zalaegerszeg, 2010. pp. 7–18., Dr. Meskó Géza: A háborús nyersanyagok geopolitikája [The Geopolitics of the War Raw Materials]. In.: Magyar Katonai Szemle [Hungarian Military Review] Vol. XIII. No. 1943/1. pp. 151–162., Udvary Jenő: Az olajkérdés a háború tükrében [The Question of the Oil in the Light of War]. In.: Magyar Katonai Szemle [Hungarian Military Review] Vol. XIV. No. 1944/1. pp. 131–134., Zetelaki Tibor: A kőolaj a háború tükrében [The Oil in the Light of War]. In.: Magyar Katonai Szemle [Hungarian Military Review] Vol. XII. No. 1942/7. pp. 157–163.).

Despite all their value and by intention - all these are only dealing with part problems - which I stuffed into a unified whole.

6. Summary of Conclusions

During the Second World War, the Allies air attacks against the Hungarian oil industry have caused significant damage in all respects, but thanks to the quick restorations the production were managed to maintain - if even small breaks – at a certain level in the oil refineries. If we look at the events from that perspective, the Anglo-Saxon allies suffered a failure as for example the refinery

produced virtually continuously at Pétfürdő until the end of the war. On the other hand, the enormous damage caused by bombings significantly delayed the processing of crude oil, which helped defeat of the Germans. And thus the bombing can be considered successful. Basically great truth is that if the Allies had attacked the Hungarian (German!) oil industry systematically and continuously, it could have led to the complete destruction of the refineries. It is easy to determine the context of the events today, but at that time the decisionmakers saw it differently for various reasons. Nevertheless, no matter how you look at it, the Allies oil war caused significant loss of human life and material goods to Germany and its allies, including Hungary. And therefore the Hungarian oil industry suffered huge damage. Following the war there was a number of Hungarian refinery (eg.: Magyar Petróleumipar, Fanto) that never has been rebuilt because of the extent of their destruction and the political-economic transition was not made urgently necessary to rebuild them.

7. The description of the investigation carried out by chapter

1. ***Chapter I: The military and political situation from autumn 1942 to spring 1944:*** The chapter describes the most important military and political events of World War II between 1943-44 which made the possibility of extending the air strikes against Central Europe and thus our country. Accordingly, the chapter presents the outstanding - in terms of my subject - military events of the Oriental, North African, Sicilian and South Italian theaters of war also it describes the historic conferences of the Allies. At the end of the chapter I outline the situation of Hungary until the first Anglo-Saxon air attack on our country occurred. The period beginning with the battle of Stalingrad was a very busy phase of World War II both militarily and politically, during which the Allies created the conditions for defeating the Axis powers.
2. ***Chapter II: The Hungarian oil industry and its position in the German allied system:*** The chapter outlines the oil situation of the opposing parties, with particular regard to Germany. The chapter discusses the situation of the Hungarian oil industry within the oil industry of Axis powers. This followed the goal to highlight the weight of our country's oil industry during World War II and how it influenced the Anglo-Saxon bombing of Hungarian oil targets.
3. ***Chapter III: The Hungarian air defense (1935-1944):*** This chapter deals with the question of the Hungarian air defense from the moment that the Parliament adopted the Law of air defense, that is, 1935 XII. law article, on the basis of which it was established the National Air Defense

Command (OLP) under the subordination of the Ministry of Defense. Special feature of this chapter that the industrial passive air defense can be demonstrated on the example of an oil company, the Hungarian American Oil Industry Plc. This chapter deals with the passive air defense and it pays attention to the air defense, notably air defense artillery, too.

4. **Chapter IV: The Royal Hungarian Army Air Force from 1919 to 1945:** This chapter provides a brief summary of the development and position of the Royal Hungarian Army Air Force during the war based on literature data. In addition, the Luftwaffe corps are presented that are also active in Hungary thereby making the chapter more complex.
5. **Chapter V: The US 15th Air Army and the British 205th Bomber Group:** It describes the US 15th Air Army and the British Royal Air Force 205th bomber group, and the most important types of aircraft used in the attacks on the basis of American, English and Hungarian literature.
6. **Chapter VI: Allied bombing plans against the Hungarian oil industry:** From the moment that the US Congress declared a state of war against Hungary, there was started the work for exploration of the military, industrial and transportation targets in Hungary. In doing so, the Hungarian oil industry has been the focus of exploration activity, which was analyzed in several reports, and finally determined targets assigned to the bombing.
7. **Chapter VII: The first test flights and bombings from summer 1943 until summer 1944:** The chapter deals with the period when the Anglo-American air force started the overflights over the western counties of Hungary. This was the time when the Anglo-Saxons are not carried out any attack on our country on the basis of existing tacit conventions with the Hungarian government, in return, the Hungarian air defense and air force did not attack the enemy bombers. This state of grace lasted until the German occupation, followed by the systematic bombardment of the country. And already then the Hungarian oil industry also suffered considerable damage.
8. **Chapter VIII: The oil war in the summer of 1944:** After a long struggle with General Eisenhower General Spaatz managed to reach that the Allied air forces could attack oil objects targetedly. The first attack against our country of the campaign started on May 12th, 1944 took place at night 12-13 June 1944. This chapter lists the attacks which hit the Hungarian oil industry in the summer of 1944 and largely destroyed it. The chapter describes the combat that the bombers executed with the Hungarian / German Air Force and with the factories themselves to achieve their goal.

- 9. Chapter IX: Air attacks against the Hungarian oil industry from September 1944 to March 1945:** After that in the summer of 1944 violent attacks were performed against the Hungarian oil industry a relatively quieter period began in the autumn of 1944, from air attacks against the Hungarian oil industry. In this period the Shell refinery in Csepel suffered from the most significant air attacks, on 17 September and from that time, the attention of the Allies was basically diverted from the Hungarian oil industry. There was a role in this that a significant part of our refinery industry was thought to be destroyed. Nevertheless, there were a number of events until the end of the war which affected the Hungarian oil industry so it should be mentioned the air attacks against Almásfüzitő and Szőny oil refineries in the March 1945. These attacks closed the period of the Anglo-American air attacks on our country's oil industry.
- 10. Chapter X: An important subplot of the air raids - mining the Danube in 1944:** The chapter deals with a very important and interesting question about the mining of the Danube. This was a priority for the Allies to prevent the Romanian oil shipments to Germany. As a result of the operation succeeded in reducing the amount of oil shipments significantly on the river, and they sank several ships, thus hindering deliveries.
- 11. Chapter XI: The result of air strikes against the oil industry:** The chapter discusses the circumstances of the creating of small refineries in Hungary and the impact of the bombings on the Hungarian oil industry, which in some cases had an impact on the functioning of the industry several years after the war ended.

8. New results of the dissertation

1. I proved the strategic importance of oil during the Second World War in particular, the role of the Hungarian oil industry within the oil industry of Axis powers.
2. I have explored and summarized the political, economic and military reasons, which led to the 1944-1945 air attacks against the Hungarian oil industry. Particular emphasis was placed on the Allied intelligence activities concerning the Hungarian oil industry, through the reports which were made in that process.
3. I presented the Anglo-American air attacks against the Hungarian oil targets, more fully than ever before, striving to the complexity. And I tried to describe this series of events embedded in the Second World War military history. Significantly surpassing all previous ones, I explored

exhaustive the process of the mining of the Danube, its military-operational significance, which was important in preventing to deliver the Romanian oil to Germany.

4. In my dissertation became evident the damage suffered by the Hungarian oil industry. At the same time it is revealed that how was the industry able to maintain the operation despite repeated US and British air attacks to the end of the Second World War.

9. Recommendations and suggestions for the future

Further research on the history of air attacks against the Hungarian oil industry would be favored if the currently available information can be clarified and expand further with help of the available resources in American and British archives. It definitely requires further research, but this may help to clarify the doctoral thesis which currently contains a number of data.

10. The practical applicability of the results of the research

The results of the research of the thesis for the doctor's degree can be utilized in the field of military science, history and education (as educational materials). In addition, the data in the thesis may provide strong point for investigating the explosives thrown down on the territory of the oil facilities and into the Danube as well as for disaster management tasks, too. The new scientific findings in the thesis for the doctor's degree may contribute to the more thorough understanding of the history of the Second World War, which could benefit for the participants of the Hungarian military higher education.

11. List of Publications of the Candidate

1. A Bázakerettye elleni szövetséges légitámadás. In: Hévíz Művészeti és művelődési folyóirat Vol. XVI. No. 2–3. 2008. pp. 85–90.
2. Kerettye bombázása. Liberatorok az olajmező felett. In: Zalai Napló Vol. XI. No. 9. 28th May 2008. p. 7.
3. Légiriadó! 1. rész: A budapesti és csepeli olajipari létesítmények elleni szövetséges légitámadások. In.: Panoráma, a MOL – csoport belső hírlevele. Vol. 5. No. 15/16. August 2008. pp. 32–33.
4. A zalai olajmezőket ért támadások. In: Panoráma, a MOL-csoport belső hírlevele. Vol. VI. No. 15/18. August-September 2009. pp. 22–23.

5. Álcahaló az objektumokon. Légtalmai intézkedések a zalai olajmezőkön. In: Zalai Napló Vol. XII. No. 16. 10th November 2009. p. 7.
6. Szövetséges légitámadások a MAORT üzemek ellen 1944-ben. In: Cseh Valentin (Ed.): „70 éve alakult a MAORT” - tanulmányok egy bányavállalat történetéről. Magyar Olajipari Múzeum, Zalaegerszeg, 2009. pp. 154–170. / Allied Air-strikes against MAORT's Facilities in 1944. In: Cseh Valentin (Ed.): „MAORT was established 70 years ago” -Studies on the history of a mining company, Museum of the Hungarian Petroleum Industry, Zalaegerszeg, 2009. pp. 171–192.
7. A csepeli Petróleum-kikötő elleni Szövetséges légitámadások a második világháborúban. In.. Rab Virág–Szappanyos Melinda (Ed.): 8. Országos Interdiszciplináris Grastyán konferencia előadásai. PTE Grastyán Endre Szakkollégium, Pécs, 2010. pp. 60–71.
8. Angolszász légicsapások a hazai olajipar ellen 1944-ben. In.: Cseh Valentin (Ed.): „Harc a petróleumért” Avagy az olaj szerepe a modern háborúban, Magyar Olajipari Múzeum, Zalaegerszeg, 2010. pp. 61–102.
9. Az almásfüzitői és a szőnyi finomítókat ért támadások. In.: Panoráma a MOL-csoport belső hírlevele Vol. VII. No. 4. April 2010. pp. 22–23.
10. Légiriadó és a gázkitörés In: Zalai Napló, Vol. XIV. No. 8. 21th June 2011. p. 4.
11. Az Új Magyarország című újság tudósításai az 1943-as szicíliai partraszállásról. In.: Oszetzky Éva–Bene Krisztián (Ed.): Újlatin kultúrák vonzásában. MTA Pécsi Területi Bizottsága Romanisztika Munkacsoport – Pécsi Tudományegyetem Francia Tanszék, Pécs, 2012. pp. 307–315.
12. Az amerikai 15. légi hadsereg bombázóinak tevékenysége a zalai olajmezők felett a második világháborúban. In.: Orha Zoltán–Simmer Livia (Ed.): Zalai Múzeum 21. Közlemények Zala Megye Múzeumaiból, Göcseji Múzeum, Zalaegerszeg, 2013. pp. 199–210.
13. A Petróleum-kikötő – A csepeli olajipari társaságok története 1945-ig, Magyar Olaj- és Gázipari Múzeum, Zalaegerszeg, 2014. 136. p.
14. Olajháború: Célkeresztben az almásfüzitői és szőnyi finomítók 1944/45-ben. In: Kiss Petra (Ed.): A hadtudomány és a 21. század: konferenciakötet. Budapest, 2014. pp. 151–176.
15. A dunai olajszállítások és a folyó 1944. évi elaknásítása. In.: Társadalom és Honvédelem Vol. XVII. No. 3–4. 2014. pp. 87–96.
16. Petróleumszállítás a Dunán 1898-1945. In.: Történeti Muzeológiai Szemle 13. Magyar

- Múzeumi Történész Társulat, Budapest, 2014. pp. 63–89.
17. Hullottak a rombolóbombák. 1944-45-ben a szövetséges erők több légi támadást intéztek a zalai célpontok ellen In. Zalai Hírlap Vol. 70. No. 90. 17th April 2014. p. 13.
 18. Olajháború: Kilencszáznegyvennégy őszén jelentős légitámadások érték a magyar finomítókat. In.: Magyar Nemzet Vol. LXXVII. No. 291. 25th October 2014. p. 39.
 19. Nappali fény éjjel is. A gázfáklya utat mutatott a bombázóknak. In.: Zalai Hírlap Vol. 71. No. 4. 6th January 2015. p. 13.
 20. Az olaj szerepe a második világháborúban. In: Társadalom és honvédelem Vol. XIX. No. 2. 2015. pp. 39–47.
 21. Hasra érkezés: A magyar légvédelem által lelőtt első Liberator. In.: Magyar Nemzet Vol. LXXIX. No. 31. 6th February 2016. p. 26.
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 23. Légi harcok Zalaegerszeg térségében a második világháború idején. In: Molnár András (Ed.): Egerszegi évszázadok. Fejezetek Zalaegerszeg történetéből. Zalaegerszeg Megyei Jogú Város Önkormányzata, Zalaegerszeg, 2016. pp. 162–178.

12. Professional – Scientific Curriculum Vitae of the Candidate

Education

1999–2004: Janus Pannonius University/ University of Pécs Faculty of Humanities – Historian

2003: University College of Teacher Education Vorarlberg, Feldkirch, Austria (Erasmus Student).

2009–2012: Zrínyi Miklós National Defense University Kossuth Lajos Military Science Faculty / National University of Public Service Faculty of Military Sciences and Officer Training Doctoral School of Military Sciences, Date obtaining Absolutorium: 1st September 2012.

Language knowledge

English basic level „C”, 2017. (1862006)

German intermediate level „C”, 2004. (459207)

Positions

2005–2006: „Helikon” Castle Museum, Keszthely, museologist

2006-: *Museum of the Hungarian Petroleum Industry/Museum of the Hungarian Petroleum and Gas Industry*, Zalaegerszeg, historian and museologist.

Award

9th November 2006.: In the literary competition "Sword and the Cross" („Kard és kereszt”) I won the Special Award of General András Havril, the Chief of Defence for my manuscript „The Siege of Belgrade 1456” (Nándorfehérvár ostroma 1456).

Public activities

Member of the Hungarian Historical Society since 2004.

Member of the Society of Hungarian Historians and Museologists since 2006.