

Art, Industry and War in the Work of Josef Heu



Daisy-Mae Mazzacurati-Newman

dmimn1@st-andrews.ac.uk

Supervised by Dr Shona Kallestrup

School of Art History, St Andrews



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Introduction

In this essay I will be examining ways to situate thirteen works by the Austro-Hungarian war artist and sculptor Josef Heu (1876-1952). The set is made up of watercolours, along with some sketches and drawings in pastel. They largely depict landscapes of destroyed oil infrastructure in Romania during the First World War, and were all created around the time of December 1917. While now held in a private collection, the works once belonged to the physician Stefan Jellinek (1871-1968). Jellinek also owned a second version of many, currently in the Technisches Museum in Vienna.

Very little research has been carried out on Josef Heu – there exists no monograph, and there are only scatterings of biography on webpages and in newspapers. I had the honour, however, of visiting the private family archive of Katharina Heu, granddaughter of Josef Heu, to shape my understanding of Heu's life. At present, his works mostly belong to private collections, besides the public monuments in Vienna and the sculptures in English churches. However, a significant number of Heu's wartime works reside in two Viennese museums: the Heeresgeschichtliches Museum (Museum of Military History) and the Technisches Museum. These collections have provided a wealth of clues about Heu's activities during the First World War, including his travels as an official war artist and his collaboration with the pioneer of electropathology Stefan Jellinek (1871-1968).

My aim in this essay is twofold: (1) interpret the artistic choices Heu has made in the watercolours and (2) determine their broader significance. Achieving the first task will involve focusing on a few visual enigmas. For one thing, the watercolours' inscriptions generally claim that they depict *destroyed* infrastructure, but only a few of the works explicitly show this damage. They are also rather brightly coloured for wartime scenes. For another, while the works tend to feature industrial buildings and machinery, these are often planted deep into the surrounding environment, emphasizing nature just as much as industry. It is important to keep these visual aspects in mind going forward, as they will underpin my argument in the first two chapters.

The second task involves using three simple questions to substantiate the sections of the essay. Firstly, what do the watercolours show? The opening section deals with the choice of Romanian oil infrastructure as subject matter. I will argue that Heu not only illustrates sites

that held enormous economic and strategic value during the war, but that he has reflected this value *visually*.

Next, what can be understood about the paintings given who made them? The second section takes a biographical approach, exploring Heu as an artist both in an official capacity and on his own terms. This will explain certain visual patterns in Heu's works and demonstrate the overarching importance of landscape in his life.

And lastly, where did they end up? To answer this question, I will discuss how the watercolours (along with many other works by Heu) landed in a special war collection belonging to Stefan Jellinek, and how they came to serve Jellinek as a physician, scientist, and educator.

Heu's December 1917 paintings, overall, are illustrations of how industry in wartime was imagined and aestheticized. It will become clear that the works lie at the intersection of conflict, exploitation, and the private sensibilities of an individual artist. They provide us with insight into a little-explored painter and sculptor, and more broadly, artistic production during the First World War.

Background

Heu was born in 1876 in Maribor, Slovenia, the son of Austrian peasants.¹ He was initially destined for life as a priest, but chose to study sculpture at Vienna's Imperial Academy of Art. As a deeply religious individual, he saw making art as his vocation and God-given work.² He quickly rose to prominence as a monumental sculptor and in 1900, won the Prix de Rome for his fountain group 'The Liberation of the Spring' (personally noticed by the Emperor Franz Joseph I).³ In 1902 he became a member of the Hagenbund, an international group of artists championing Central European Modernism.⁴ Just before the First World War, he received a

¹ "Josef Heu," in *Allgemeines Lexikon der bildenden Künstler von der Antike bis zur Gegenwart*, vol. 16, ed. Ulrich Thieme and Felix Becker (E. A. Seemann, 1923), 603.

² Josef Heu, [*Autobiographical manuscript*], unpublished manuscript, Heu family private archive, 1.

³ Lilli Heu, "Professor Josef Heu," in *Professor Josef Heu (Vienna and Ampleforth): Selections from his life work*, exhibition catalogue, (County Borough of Middlesbrough Municipal Art Gallery, 1952).

⁴ Agnes Husslein-Arco et al., *Hagenbund: A European Network of Modernism, 1900 to 1938*, trans. Russell Stockman et al. (Belvedere; Hirmer, 2014), 125.

prestigious commission for the back-gable of Vienna's Parliament House, but the outbreak of conflict prevented him from completing it.⁵

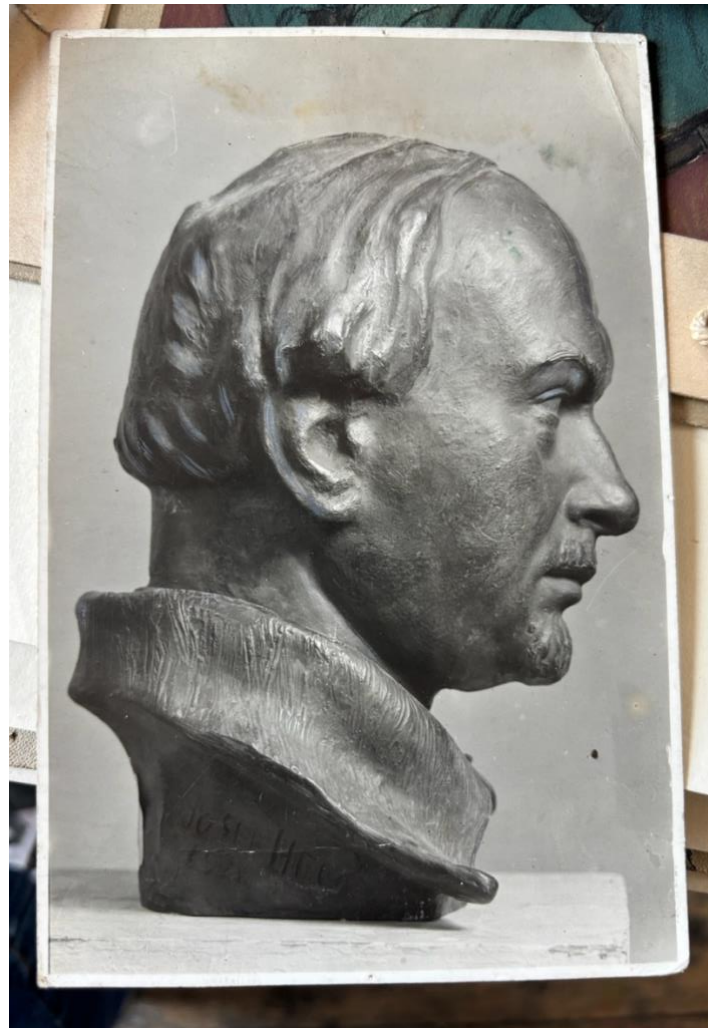


Figure 1. Josef Heu, *Self-Portrait*. 1928. Photograph of bronze sculpture. Heu family archive. Photograph taken by author.

When the War began in 1914, Heu was drafted into the Austro-Hungarian army. To escape difficult life as a soldier he used his connections to become an official artist, serving as a painter from as early as 1915. As he later wrote, the job had “become [his] salvation; [his] mind had begun to be overshadowed with despair”.⁶ Moreover, he noted that he had exchanged “the tools of war for the dearly-beloved tools of art”.⁷ Heu's work over the course

⁵ Heu, *[Autobiographical manuscript]*, 10.

⁶ Heu, *[Autobiographical manuscript]*, 11.

⁷ Heu, *[Autobiographical manuscript]*, 11.

of the conflict allowed him to travel widely – among other places, he visited Serbia, Albania, Ukraine, South-Tyrol, Poland, and of course, Romania.⁸

Becoming a war artist for the Austro-Hungarian Monarchy meant joining the *Kunstgruppe* (Art Group). This was a special division of the *Kriegspressequartier* (War Press Office; KPQ), a department of the Army High Command.⁹ The group contained around 150-160 painters and sculptors,¹⁰ and the works produced by the *Kunstgruppe* were usually intended for official war art exhibitions in Vienna. Afterwards they mostly ended up in the Heeresmuseum (Army Museum).¹¹ Heu's December 1917 works were likely not shown in any such exhibitions, as it seems no copies landed in the Army Museum and rather, two versions were in the possession of Stefan Jellinek during the War. Instead, we can place these watercolours within Heu's "rich overflow". As his wife Lilli Heu remarked in the catalogue for a 1952 exhibition of his paintings, Heu produced works far "beyond the demanded quota" for the *Kunstgruppe*.¹² The next three chapters are dedicated to the meanings coagulated in these surplus works.

⁸ Heu, *[Autobiographical manuscript]*, 11.

⁹ Klaus Mayer, *Die Organisation des Kriegspressequartiers beim k.u.k. AOK im ersten Weltkrieg 1914-1918*, dissertation, Vienna 1963, 3.

¹⁰ Ibid.

¹¹ Mónika Goda, "Maler(ei) im Krieg – Erlebnis und Ausstellungspolitik: Die Tätigkeit der ungarischen Mitglieder der Kunstgruppe des KPQ," in *Kulturmanöver : Das k.u.k. Kriegspressequartier und die Mobilisierung von Wort und Bild*, (Peter Lang, 2015), 231.

¹² Ibid.

Chapter 1. Romania, Oil and the Landscape of Industry

Wartime Romania was in a remarkable state when Heu painted his watercolours in December 1917. By this point, the Romanian campaign of 1916 had mellowed out, and two-thirds of the country had been under occupation by the Central Powers for around a year.¹³ Meanwhile, the regime's administration was working hard to restore Romania's oil industry, which had been deliberately destroyed in November 1916 just prior to the occupation.



Figure 2. Captured oil refineries in Câmpina, probably from summer 1917. Source: Imperial War Museums, IWM (Q 87101).

The infrastructure Heu portrays was fundamental to German and Austro-Hungarian interests in Romania, and I will argue that Heu communicates the significance of these sites *visually* using techniques of landscape and colour. The majority of Heu's paintings feature sites located near the Prahova valley, the most oil-rich part of Romania's Wallachia region. The oilfields of Moreni, Băicoi, Florești and Câmpina, shown in seven out of the thirteen works,

¹³ Pieter M. Judson and Tara Zahra, "The Fortunes of War: Occupation Regimes," in *The Great War and the Transformation of Habsburg Central Europe*, ed. Pieter M. Judson and Tara Zahra (Oxford University Press, 2025), 61.

will be the focus of this essay. From the small number of works that Heu dated, it appears he visited the oil sites in the middle of his Romanian travels, in the first few days of December 1917. Beforehand, Heu visited the capital Bucharest (at the very end of November 1917). He ventured lastly to the Romanian front on the Siret River, where combat had just stalled after the signing of the Armistice of Focsani on 9 December.

Additionally, the *particular* oil sites depicted by Heu warrant a special contextual note. Three of the watercolours are inscribed with the words ‘k.u.k. rohöl-gebiet’, meaning ‘Austro-Hungarian crude oil region’. This is interesting because it places them at the nexus of relations between Germany and Austria-Hungary over Romania’s oil resources. After the occupation apparatus was set up, the Germans made a concerted effort to prevent Austria-Hungary from taking equal advantage of Romania’s oil. The country was divided into three regions – Bucharest, Wallachia, and Dobruja – and while the Germans had exclusive control of the capital and most of Wallachia, the Habsburgs only had a couple of districts in the most resource-rich part of the country.¹⁴ Austria-Hungary made repeated demands for better access to the oil sites, but in the end only a small number of desirable fields were conceded by the Germans.¹⁵ Thus, the fact that some of Heu’s watercolours state Austro-Hungarian control is significant, because these sites would have been hard-won from the Germans.

Romania during the First World War

For the first two years of the war, Romania was neutral. On 27 August 1916, it decided to enter on the side of the Entente, joining in the hopes of securing the much sought-after lands of Transylvania from Austria-Hungary¹⁶. However, the country’s army was small and poorly equipped for this mission. Soon after invading Transylvania, Romanian troops were pushed back by the combined forces of the Germans and the Habsburgs.¹⁷ Despite the support of Russia it took only a few months for the Central Powers to invade Romania in return. From the west, their forces crossed the Carpathian Mountains onto the plains of Wallachia. From

¹⁴ Harald Heppner and Rudolf Gräf, “Romania,” *1914-1918-Online: International Encyclopedia of the First World War*, accessed 19 June 2026, <https://encyclopedia.1914-1918-online.net/article/romania-1-1/>

¹⁵ Lisa Mayerhofer, “Chapter Four. Making Friends And Foes: Occupiers And Occupied In First World War Romania, 1916–1918,” in *Untold War: New Perspectives in First World War Studies*, ed. Heather Jones, Jennifer O’Brien, and Christoph Schmidt-Supprian (Brill, 2008), 143-4.

¹⁶ Wolfram Dornik, “Occupation during and after the War (Austria-Hungary),” *1914-1918-Online: International Encyclopedia of the First World War*, accessed 19 June 2026, <https://encyclopedia.1914-1918-online.net/article/occupation-during-and-after-the-war-south-east-europe/>.

¹⁷ Norman Stone, *The Eastern Front, 1914-1917* (Hodder and Stoughton, 1985), 278.

the south, the Central Powers' troops crossed the Danube River into the region of Dobruja, and began making their way to Bucharest.¹⁸

The destruction of the oil wells and the capture of Bucharest

As the Romanians struggled to defend Wallachia and prepared to yield it to the enemy, a strategic decision was made to torch the region's most valuable assets: grain and oil. These raw materials were desperately needed by the Central Powers to continue fueling their war effort.¹⁹ Entreated by their British allies, the Romanians reluctantly agreed to destroy the resources, and the task was dedicated to British engineer Colonel John Norton Griffiths after meetings in October 1916.²⁰ In November of that year, he toured the oilfields around the Prahova valley of Wallachia and, with the assistance of his team, burned all that he could (Figure 3). The sites were ruined, including those depicted by Heu. While some were less damaged – for example Câmpina, situated in a civilian area – others like Moreni were completely devastated.²¹ In total more than 1,500 wells²² and 70 refineries²³ were destroyed.

¹⁸ Ibid.

¹⁹ David Hamlin, "The Fruits of Occupation: Food and Germany's Occupation of Romania in the First World War," *First World War Studies* 4, no. 1 (2013): 83.

²⁰ Glenn Torrey, "The Romanian Battlefield in World War I," in *Modern War Studies* (University Press of Kansas, 2011), 151.

²¹ Ibid.

²² Gheorghe Buzatu. *O istorie a petrolului românesc* [History of the Romanian oil]. 2nd ed., revised and enlarged, (Demiurg, 2009), 39.

²³ Alina Dana Tulucan et al, "History of the Oil and Gas Industry in Romania," *Geological Society, London, Special Publications* 465, no. 1 (2018): 194, <https://doi.org/10.1144/SP465.15>. Drawing from Mihail Pizanty, *Le pétrole en Roumanie*. (Ateliers Graphiques 'Eminesco', 1931).



Figure 3. Fire at oil refineries. Buzau, 1916. Source: Imperial War Museums, IWM (Q 76072).

When Bucharest itself came under imminent threat, the Romanian government, court and army were forced to flee to the northeastern region of Moldavia. Bucharest was taken at the beginning of December 1916, and this left two-thirds of the country to the Central Powers.²⁴

The Central Powers' occupation 1916-1918

As Judson and Zahra note, military authorities “viewed occupied territories primarily as treasure chests: a source of resources that could make the difference between defeat and victory”.²⁵ Romania was no exception for the Central Powers. The goal of the occupation was clear from the outset: to take as much from the country as possible. This exploitative sentiment was prominent during early planning for the occupation, at the October 1916 meetings in Berlin.²⁶ The occupation’s representative, Major Kessler, claimed the military administration was under “obligation to use all its powers to ensure that what can be gotten

²⁴ Judson and Zahra, “The Fortunes of War,” 61.

²⁵ Judson and Zahra, “The Fortunes of War,” 62-63.

²⁶ Hamlin, “The Fruits of Occupation,” 82.

out of the land is gotten out”.²⁷ Oil and grain were prioritized, with the Military Administration delegating its *Verwaltungsstab* (Administrative Staff) to extraction of oil and its *Wirtschaftsstab* (Economic Staff) to the exploitation of grain.²⁸ Grain was equally important to the Central Powers for feeding their starving populations on home territory.²⁹

In order to benefit from Romania’s oil resources, however, the Central Powers first had to reverse the damage inflicted in 1916. By the time Heu’s watercolours were painted a year later, the undertaking was successful and many of Romania’s oil wells and refineries were revived. By the end of 1917, a total of 335 wells had been repaired and production was back to 51.5% of its previous levels.³⁰

This oil was among many critical resources for the Central Powers. Stone argues that without Romanian intervention, the following occupation and exploitation, the Germans and Habsburgs would have been unable to continue the conflict into 1918.³¹ Moreover, the Central Powers were interested not only in repairing the infrastructure but also understating the damage. In discussions over the 1916 operation, Golubinov notes that while the Allies often exaggerated its severity, “the Central Powers, in turn, were inclined to underestimate it”.³² This perhaps explains why the evidence of destruction in Heu’s paintings is subdued. A key feature of his oil subjects is the suppression of damage through colour, even if such damage is expected from the description attached – for example, ‘burnt oil boilers’ or ‘destroyed refinery’.

Heu’s depiction of the ‘destroyed engine house’ at Moreni, dated 4 December 1917 (Figure 4) exemplifies this. A large cog-like machine in the center of the work is surrounded by other miscellaneous equipment, and the viewer is buffeted by the colourful arrangement of mechanical parts in blues, oranges and yellows. Behind the machine is a large cloud of smoke, signalling industrial production and possibly hinting at the restoration attempts by the Central Powers. The destruction noted in the work’s inscription is toned down in two ways. Firstly, Heu’s use of rich gouache is enough to distract from the idea of ruin, and secondly,

²⁷ Quoted by Hamlin, “The Fruits of Occupation,” 83.

²⁸ Mayerhofer, “Making Friends,” 120-1; David Hamlin, “Occupations,” in *Germany’s Empire in the East: Germans and Romania in an Era of Globalization and Total War* (Cambridge University Press, 2017), 220.

²⁹ Hamlin, “The Fruits of Occupation,” 81.

³⁰ Hamlin, “Occupations,” 222.

³¹ Stone, “The Eastern Front,” 265.

³² Yaroslav Golubinov, “Oil as a Resource and Element of Defence: The Cases of Galicia in 1915 and Romania in 1916,” in *The Great War and the Anthropocene*, ed. Kerstin S. Jobst, Oksana Nagornaia, and Kerstin von Lingen (Brill, 2024), 118.

the damage is both literally and figuratively mystified by the smoke. This work captures both the *desire for* and *actuality of* Romania's restoration by the Central Powers, indicating an understanding of the country as a landscape of resources.



Figure 4. Josef Heu, *View of destroyed engine house in Moreni*. 1917. Gouache painting. Private collection.

Moreover, this sense of desire and opportunity is reinforced elsewhere in Heu's paintings of Romanian oil infrastructure, not only through the same idealizing use of colour but also his treatment of landscape. Consider, for example, his depiction of burnt oil boilers in Florești, a site in an Austro-Hungarian crude oil region (Figure 5). The viewer is greeted by a glowing field, which slopes across most of the painting while the burnt buildings stand in the background. Heu renders the scene in bright, thick gouache – custard yellows, brick reds and oranges, with the sky awash in light blue. He paints on black paper for an added sense of contrast, but there is little chiaroscuro within the work itself. The abundance of colour makes this site of destruction appear rather promising; even the parts of the buildings that are burnt seem to glint pleasingly. Bolstering this is Heu's use of landscape to frame the industrial buildings. He emphasizes the natural environment just as much, if not more, than the actual oil infrastructure, and it is significant that in several paintings he harnesses a *field* to do so.

The field here evokes Wallachia's prized grain and paired with the oil infrastructure, Heu creates a dual symbol for Romania's valuable material wealth.



Figure 5. Josef Heu, *View of burnt oil boilers in Floresti (Austro-Hungarian crude oil region)*. 1917. Gouache painting. Private collection.

Overall, Heu conveys the opportunistic attitude towards Romania on the part of the Central Powers. It is clear that Romania's resources were of immense use to Germany and Austria-Hungary; the abundance they saw in Wallachia came to be expressed in Heu's artistic choices. Through his strong treatment of colour, use of gouache, and landscape, Heu communicates the broader value of the sites he paints and reflects a wider perception of Romania as *treasure chest*.

Chapter 2. Heu's Visual Ethos in a World of Instability

Next, we may look beyond the general view of Romania and more towards what Heu *himself* may have seen in the landscape (Figure 6). This section aims to show that Heu's vision of art, especially art in wartime, offers an alternative interpretation about why the watercolours look the way they do. It will become apparent that the features setting the watercolours apart and driving this essay can be attributed to Heu's conceptions of art as peace, joy, and the everlasting. I will also argue that the landscape format was personally significant for Heu, as a refuge throughout his life in times of disruption. For this, I will use the beginnings of Heu's autobiography – with a version translated from German by either his wife or son.³³



Figure 6. General view of the Romanian landscape during the First World War. Source: Imperial War Museums, IWM (Q 77541).

Firstly, Heu understood artmaking as creating a separate, private world, and this emerges in the watercolours again through his use of colour and landscape. Heu writes that dedicating

³³ Access provided courtesy of Katharina Heu.

himself to art, mastering his skills in painting and sculpture, allowed him to create a sanctuary for himself. Spending time in this “exquisite world of beauty” meant that he would not be “worried by the evergrowing noise of engines and technical improvement” and “would have a peaceful world of [his] own”.³⁴ This sentiment was especially strong during the First World War, where becoming a war artist removed him from the frontlines as a combatant and placed him among the familiar tools of art. Heu’s December 1917 watercolours are an extension of this: even though the oil sites might represent the “evergrowing noise” of industrial production, Heu has nonetheless cultivated a sense of peace within them.

This is most evident in Heu’s depiction of Câmpina (Figure 7), by far the most picturesque of the December 1917 works and completed in pastel rather than gouache. In the foreground of the work, simple outlines of rocks are scattered loosely over an expansive field. The viewer’s eye scrapes over them and enters the broad landscape, where the scene becomes increasingly smooth. The palette is soft; pastel is gently applied in the primary colours and white, creating a sense of invitation. A pair of tall electricity pylons are set on opposite sides of the land, with a low railing and a building in between. Drifting beyond the slanted field, past the towers and over the railing, we reach the mountains in the background – the Carpathians – as blue as the sky. The clouds hang low and are gently shaded for a sense of volume. Overall, the landscape entices the viewer with its quiet harmony, bright and internal.

³⁴ Josef Heu, [*Autobiographical manuscript*], 7.

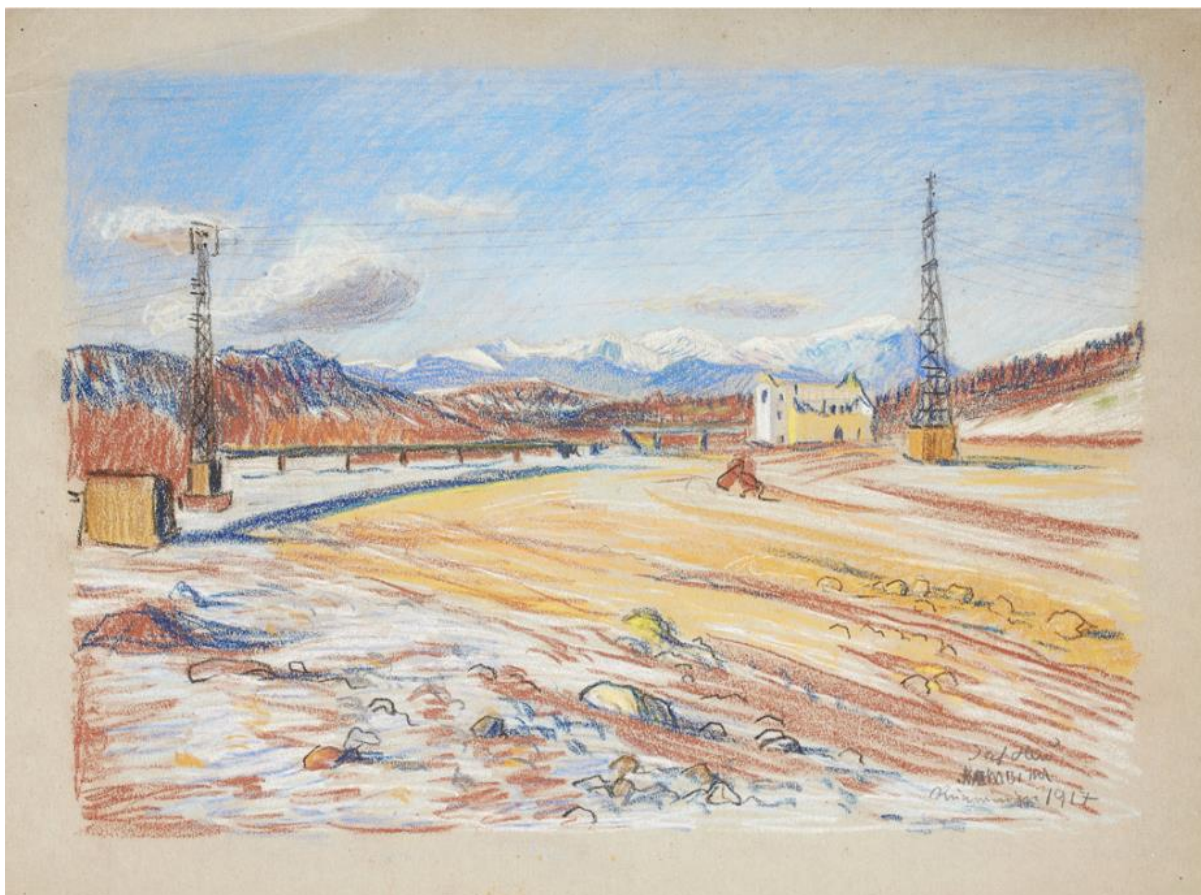


Figure 7. Josef Heu, *View of Campina*. 1917. Pastel drawing. Private collection.

Secondly, Heu described art as “sunshine to the human soul”, something capable of bringing joy to “people of all classes and nations” despite the conflicts between them.³⁵ Certainly, it cannot be denied that there is a sense of warmth about the watercolours. For one thing, Heu seems to favour yellow and orange in intense forms. Even in his Bucharest subjects, which show more pervasive destruction than at the oil sites, he uses warm brown paper and leaves the foregrounds largely unpainted for this to come through. Moreover, this warmth can be even subtler, as exemplified by his depiction of the yard-like area of Bucharest’s arsenal (Figure 8). While the painting is crowded with strewn debris, further into the work the sun peaks over one of the buildings, casting a small patch of pure orange gouache on the roof beside it. And so, Heu’s perception of the richness of art appears to manifest in various ways across the works.

³⁵ Josef Heu, [*Autobiographical manuscript*], 1.



Figure 8. Josef Heu, *View of Bucharest arsenal*. 1917. Gouache painting. Private collection.

Thirdly, Heu envisioned the purpose of art as *immortalising* beautiful forms. For him, nature held everlasting features which could be captured through painting,³⁶ and the watercolours are a testament to this in their use of landscape. The Romanian oil infrastructure is often enveloped by the broader environment, and the *damage* suffered by these industrial buildings – evidence of fragility and impermanence – is largely enveloped too. Furthermore, this immortalizing act through art is also replicated in the use of colour. From the mellowness of the pastel in the Câmpina work to the brightness of the gouache in the others, Heu draws little attention to shadow, which might otherwise mark a particular moment in time and allude to its passage. The lack of chiaroscuro thus gives the paintings an almost eternal or timeless feeling.

Overall, Heu's notions of art arguably inform the visual features of his 1917 works in Romania. Underlying this, however, is another immense and recurring force influencing Heu as an artist: landscape. Heu's emphasis on the "everlasting features of nature"³⁷ demonstrates the unity he saw between landscape and art. In wartime, he expressed the land as something

³⁶ Ibid, 11.

³⁷ Ibid, 11.

stable he could portray amidst the chaos and ruins of war. This was not an uncommon response to the horror of conflict, and indeed, it was conventional for war artists to use landscape painting as a form of retreat, including in the *Kunstgruppe*.³⁸ One of the five artistic genres that Liselotte Popelka outlines for KPQ war artists is fabulous, brightly coloured landscapes,³⁹ and Heu's works readily conform to this. However, landscape arguably had a broader significance for Heu beyond the confines of the war years. This connection not only stretched back to his childhood, but also forward into his years in exile in Britain during and after the Second World War. As will be demonstrated, Heu returned to landscape in moments of upheaval across the span of his life.

Firstly, Heu's connection to the land began in his childhood. He wrote about his native region – southern Styria in the Austro-Hungarian Empire – with immense fondness, describing the land as bountiful and abundant with its meadows, fields and orchards.⁴⁰ When Heu was young, his father died and his mother decided to remarry. His new stepfather, prone to violence during bouts of drunkenness, frequently caused Heu and his mother to flee to the woods in hiding. He wrote that “My mother would often have to take me in her arms and run and hide in the nearby woods, to save our lives, and we cowered there for hours until she dared to come home when the drunken man was deep in sleep”.⁴¹ Most crucially, he says that “It would have been a tragic childhood if we'd not had the freedom of movement in such a beautiful landscape”.⁴² In Heu's early life, the landscape was a shelter from violence.

Secondly, past the years of the First World War and into his years of exile during the Second, Heu painted the land that received him. Because of his wife's Jewish heritage, the 1938 Anschluss forced his family to flee Austria. Heu managed to secure a new home for them in Britain. He had the help of the surgeon Sir Harold Stiles, whom he had met in Vienna and who brought Heu to Scotland for a commission. From there Stiles used his connections to obtain a permit of permanent stay for Heu and his family,⁴³ and they settled in Ampleforth, Yorkshire, where Heu died in 1952. When he visited Stiles in Scotland, Heu painted his

³⁸ Veronika Trubel, “Die Künstler und der Krieg. Der erste Weltkrieg und die österreichischen Maler der Kunstgruppe des k.u.k. Kriegspressequartiers,” (unpublished master's thesis, University of Vienna, 1996), 50-51.

³⁹ Liselotte Popelka, *Vom 'Hurra' zum Leichenfeld. Gemälde aus der Kriegsbildersammlung, 1914–1918* (Heeresgeschichtliches Museum, 1981), 5-6.

⁴⁰ *Ibid.*, 1.

⁴¹ Josef Heu, [*Autobiographical manuscript*], unpublished manuscript (German), Heu family private archive (translation courtesy of Katharina Heu).

⁴² *Ibid.*

⁴³ Heu, “Professor Josef Heu.”

surroundings in vibrant watercolour – for example Gullane Beach near Edinburgh, where Stiles lived (Figure 9). Here, illustrating nature can be understood as his response to uncertainty, and the sense of being uprooted and needing to “break up [his] life” a second time because of a war.⁴⁴



Figure 9. Josef Heu, *View of Gullane Beach*. 1938. Watercolour painting. Heu family archive. Photograph taken by author.

In conclusion, it is apparent that from childhood, through war and through exile, Heu saw landscape as a sanctuary and turned to paint it in moments of violent change. A rich interpretation of the December 1917 works emerges from inquiring into Heu’s artistic character. His perspectives on art and landscape, during and beyond wartime, allow us to place the works under question within a broader lifelong pattern.

⁴⁴ Heu, [*Autobiographical manuscript*], p12.

Chapter 3. On the Margins of Electropathology: Heu's work for Stefan Jellinek

As well as instantiating a motif in Heu's life through landscape, the watercolours also serve to join one sphere of Heu's artistic production to another during the First World War. Namely, they embody Heu's collaboration with the scientist Stefan Jellinek (1871-1968). Jellinek once owned two copies of most of the works under discussion, and in this section, I will first explore who Jellinek was and where among his vast collection the paintings found themselves: his special wartime collection. Next, I will establish the supplementary position of Heu's December 1917 works within this collection. They ultimately guide us towards more direct contributions by Heu to Jellinek's First World War agenda.



Figure 10. Stefan Jellinek in army uniform during the War. Source: Vienna Technical Museum, Archive.

From the beginning of his medical career, Jellinek devoted himself to the study of the harmful effects of electricity on the body, pioneering a field known as ‘electropathology’. He balanced his scientific investigations with educating the public on electrohygiene (the practice of staying safe with electrical equipment). He was just as keen on preventing electrical accidents as to understanding the injuries they caused.⁴⁵ Moreover, Jellinek was no stranger to the use of art in documenting and promulgating his scientific research. Over the course of his career, he commissioned dozens of artists to help him communicate the more destructive side of electricity, through illustrations of electrical injuries and graphics on electrical safety.⁴⁶

The majority of these works ended up in the Electropathological Museum, a vast collection Jellinek accumulated over four decades of his career.⁴⁷ Its items range from models and specimens to moulages, drawings and damaged electrical components. Most of it is now in the Technisches Museum Wien (TMW), held there since 2005.⁴⁸ Within the Electropathological Museum, there are copies of the watercolours and many other works by Heu, located in a specialised subsection that Jellinek began creating in 1916. Entitled the ‘Electrohygienic War Collection’, it currently contains around 50 images, 28 of which are by Heu.⁴⁹

The Collection and the December 1917 watercolours

The Electrohygienic War Collection can be understood as serving a symbolic, rather than purely scientific, function. When Jellinek started the collection in 1916, he initially envisioned it as “highly significant for research”.⁵⁰ However, it seems the collection did not fulfil the scientific purpose Jellinek had anticipated: by December 1918 he had cut it down significantly, depositing six crates of items at the Army Museum.⁵¹ The collection once contained plenty of war images and many electrically damaged objects as case studies, but

⁴⁵ Helmut Lackner, “Stefan Jellinek, Franz Maresch,” in *Achtung Strom: Stefan Jellinek und das Elektropathologische Museum* (Naturhistorisches Museum Wien, Technisches Museum Wien, 2013), 14.

⁴⁶ “Anhang,” in *Achtung Strom: Stefan Jellinek und das Elektropathologische Museum* (Naturhistorisches Museum Wien, Technisches Museum Wien, 2013), 208.

⁴⁷ Christian Klösch, “Der Entzug des Museums,” in *Achtung Strom: Stefan Jellinek und das Elektropathologische Museum* (Naturhistorisches Museum Wien, Technisches Museum Wien, 2013), 42.

⁴⁸ Klösch, “Der Entzug des Museums,” 42.

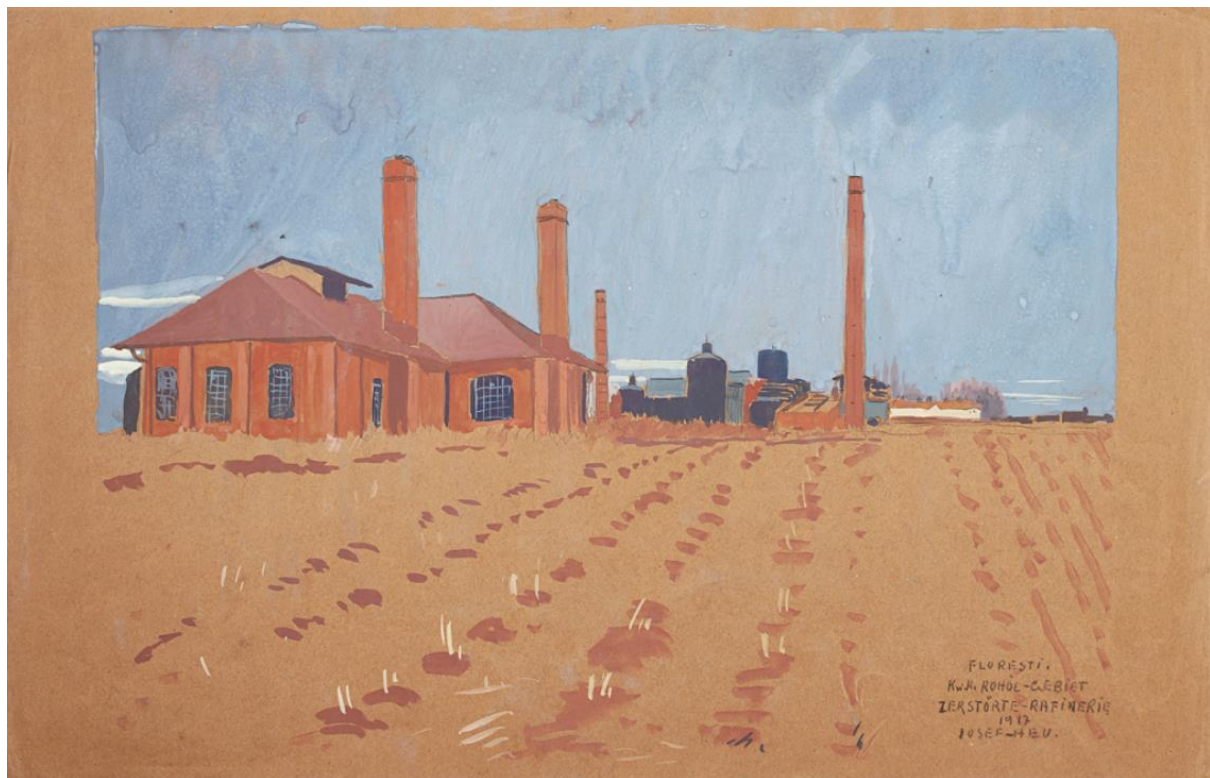
⁴⁹ Technisches Museum Wien, Archiv, Sammlung EPM, BPA-01-03.

⁵⁰ German original: “die wissenschaftliche Forschung von hoher Bedeutung.” As quoted in Lackner, “Stefan Jellinek, Franz Maresch,” 27.

⁵¹ As quoted in Lackner, “Stefan Jellinek, Franz Maresch,” 27.

only around 100 war images remained after its reduction.⁵² The TMW has only about half of these now. What remains of the Electrohygienic War Collection might better represent Jellinek's diverse activities during the War, as opposed to generating electropathological knowledge (more the role of the wider Museum).⁵³

The fact that Heu's December 1917 watercolours survived this downsizing (and that Jellinek once possessed two copies of them) seems significant, though they do not appear to serve a particular purpose within the collection. For one thing, they do not depict electrical injuries, hazards, or accidents, and the only link to electricity is generic, in that there is electrical infrastructure underlying the oil buildings. While the works might loosely represent 'industry', which Jellinek saw as an important domain for the application of electrohygiene,⁵⁴ it is hardly obvious that they might relate to electricity, let alone electrohygiene or electropathology. This is mainly due to their emphasis on landscape over the inner workings of the infrastructure (Figure 11).



⁵² Technisches Museum Wien, Archiv, Sammlung EPM, BPA-013549/1, Karton 1, Mappe 1. As quoted in Lackner, "Stefan Jellinek, Franz Maresch," 27.

⁵³ Hans-Georg Hofer, "Achtung, Strom!" in *Achtung Strom: Stefan Jellinek und das Elektropathologische Museum* (Naturhistorisches Museum Wien, Technisches Museum Wien, 2013), 63.

⁵⁴ Lackner, "Stefan Jellinek, Franz Maresch," 14.

Figure 11. Josef Heu, *View of destroyed refinery in Floresti (Austro-Hungarian crude oil region)*. 1917. Gouache painting. Private collection.

In addition, the paintings of Romania have no direct link to Jellinek's extensive activities during the War. Their only substantial tie is through the *other* works by Heu in the collection, which are direct products of their collaboration. Heu documented a variety of Jellinek's undertakings – medical, scientific, and educational – up until 1918, and the works produced were absorbed into the Electrohygienic War Collection. It is highly likely that the two copies of the December 1917 watercolours found their way into Jellinek's possession because of the established relationship between the two individuals. Therefore, examining Heu's oeuvre within Jellinek's Electrohygienic War Collection allows us to better understand Heu's wartime activities, and contextualise the December 1917 paintings further.

Electricity during the First World War

The impetus for Jellinek's wartime collection was no doubt that the First World War broadened the scope of electropathology. During the War, Jellinek's field garnered substantial attention and he received a wealth of opportunities to advance it. Jellinek remarked in 1919 that "Our electropathological experience gained in peacetime has been confirmed, but also extensively expanded, in wartime".⁵⁵ The reason for this was simple: the use of electricity had been scaled up.

Electricity was newly applied to all the technology necessary for the war effort, from telephone lines and radios to high-voltage trains, making it increasingly ubiquitous.⁵⁶ Furthermore, unpredictable field conditions made electrical safety regulations harder to follow, and sometimes these regulations did not exist to begin with.⁵⁷ As a result, the use of electrical devices was often improvised, and all of these factors hiked up the likelihood of fatal accidents. Naturally, then, there was a great demand for knowledge of electrical safety and first aid measures, generating government interest in Jellinek's work.⁵⁸

⁵⁵ Stefan Jellinek, "Elektrohygiene in Krieg und Frieden," in *Elektrotechnik und Maschinenbau* 37 (1919): 262. ÖNB-ANNO.

⁵⁶ Günther Luxbacher, "Elektrizität als Gefahr – Elektrizität als Waffe," in *Achtung Strom: Stefan Jellinek und das Elektropathologische Museum* (Naturhistorisches Museum Wien, Technisches Museum Wien, 2013), 85.

⁵⁷ Stefan Jellinek, "Elektrohygiene im Feld," in *Elektrotechnik und Maschinenbau* 37 (1919): pp. ÖNB-ANNO.

⁵⁸ Hofer, "Achtung, Strom!" 66.

Furthermore, the First World War also prompted a completely new use of electricity: as a *weapon*. After trench warfare escalated in 1915, Germany and Austria-Hungary became interested in creating electrical wire obstacles to use against the enemy and deserters.⁵⁹ The entanglements developed were charged up 1000V and installed on the frontlines, including in Romania.⁶⁰ This new technology was highly consequential for Jellinek's work because it stressed the hazardous potential of electricity. He noted that "the use of electricity as a dangerous weapon has high educational value because it drastically demonstrates the danger even to the most sceptical."⁶¹ Thus not only did the need for electrohygienic knowledge generally increase, but it was also better received. Jellinek was able to take full advantage of this.

Jellinek's medical activities

In terms of medical responsibilities, Jellinek was assigned to Garrison Hospital II in Vienna, where he mainly used electricity therapeutically to treat soldiers for 'war neuroses' (now PTSD).⁶² He also treated electrical injuries there, and several illustrations by Heu of such injuries are the earliest evidence of partnership with Jellinek, from summer 1917.⁶³ Within the war collection, for example, there is a work by Heu of a soldier with an electrical injury to the elbow (Figure 12). The infantryman stands in the nude with his injured arm crossed over his shoulder, uniform tucked under the other arm. He gazes forward, with specificity in his expression and an almost sculptural pose (perhaps because Heu was also a sculptor). This is typical of the medical illustrations Heu did for Jellinek: rather than simply depicting the affected area, Heu paints the person in all their idiosyncrasy. This conveys artistically Jellinek's insistence that "every electrical injury is different", and exemplifies how Heu served Jellinek's medical agenda through painting.⁶⁴

⁵⁹ Robert Pollack R. Rudin, *Die Elektrotechnik im Kriege*, (Berlin 1919), 5.

⁶⁰ Jellinek, "Elektropathologie in Krieg und Frieden," 262.

⁶¹ German original: "*gerade die Verwendung der Elektrizität als gefährliches Kampfmittel hat hohen erzieherischen Wert, weil auch den Ungläubigsten die Gefahr in drastischer Weise vor Augen geführt wird,*" in Jellinek, "Elektrohygiene im Felde," 61.

⁶² Hofer, "Achtung Strom," 66.

⁶³ Technisches Museum Wien, Archiv, Sammlung EPM, BPA-015737 (burns on hands)

⁶⁴ German original: "jeder elektrische Unfall [ist] anders". Vgl. Ders.: *Der elektrische Unfall*. Leipzig, Wien 1925, S. 17.

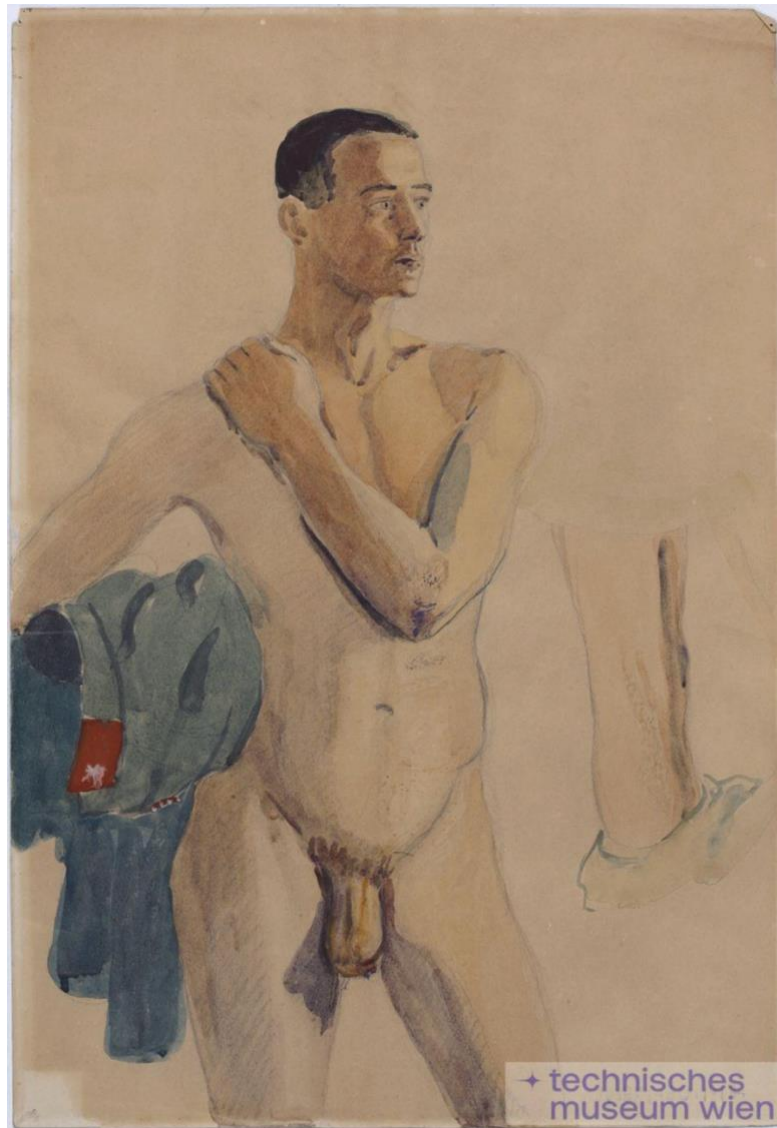


Figure 12. Josef Heu, *Male nude, Soldier with electric shock to the elbow*. 1917. Watercolour painting.
Source: Vienna Technical Museum, Archive.

Jellinek's scientific and educational activities

During the War, Jellinek was given two main objectives by the War Ministry: to educate soldiers on electrical safety and to investigate the effect of electrical wire obstacles on the body.⁶⁵ Jellinek was involved with a consortium of two governmental institutions to achieve these tasks. When Austria-Hungary began exploring the implementation of electric entanglements as a weapon, they set up a dedicated site for testing at Rosenhügel near Vienna.⁶⁶ This is also where they trained soldiers going into the field as electrical sappers

⁶⁵ Luxbacher, "Elektrizität als Gefahr – Elektrizität als Waffe," 90.

⁶⁶ Ibid, 88.

(combat engineers who installed and maintained the obstacles). The Rosenhügel site was partnered with the Vienna University of Technology for an academic foundation in electrical engineering.⁶⁷

At the university, Jellinek gave lectures to soldiers and devoted himself to teaching first aid.⁶⁸ He undertook practical exercises with the electrical sappers, and created his own ‘Electrical Rescue Kit’, with ten numbered items to help in an emergency.⁶⁹ The set of six step-by-step images to accompany it was painted by Heu (prints of which reside in the war collection) (Figures 13).⁷⁰ This demonstrates a direct contribution by Heu to Jellinek’s educational pursuits.

⁶⁷ Ibid, 89.

⁶⁸ Ibid, 90.

⁶⁹ Jellinek, “Elektropathologie in Krieg und Frieden,” 264.

⁷⁰ Technisches Museum Wien, Archiv, Sammlung EPM, BPA-013378.



Figure 13. Josef Heu, *First aid illustrations for Stefan Jellinek's Electrical Rescue Kit (freeing a soldier from the electric fence using pliers and resuscitation measures)*. 1914-1918. Heu family archive.
Photograph taken by author.

At Rosenhügel, Jellinek was assigned to the War Ministry's 8th department to investigate electric wire entanglements. He writes that he was "entrusted with establishing the conditions a current must meet to prove fatal when powering high-voltage barriers".⁷¹ For this mission, he was allocated his own "Electrophysiological Laboratory", where he could continue researching questions he'd been interested in since the beginning of his career – namely, how much electricity could seriously harm a human being, and what environmental or bodily conditions could affect this amount.⁷² He tested different voltages of direct and alternating current on cats, dogs, and foxes, and his laboratory was known as the "electric torture chamber".⁷³

In the war collection, Heu depicts this laboratory in all its ominousness (Figure 14): under dark orange light, a man operates a device while an animal lies dead on a nearby table.⁷⁴ (It must be remarked that Heu's oeuvre within the war collection is far less picturesque than his December 1917 works.) The Rosenhügel laboratory was the closest that Jellinek came to a dedicated centre for electropathological research during his career. Indeed, he noted in 1919 that his field had generally always been a matter of "private initiative", and his persistent efforts to create a dedicated electrohygienic research and teaching institute were ultimately unsuccessful.⁷⁵ Thus, Heu's sketch of the Rosenhügel laboratory represents a savoured moment of official institutional presence for Jellinek's field.

⁷¹ German original: "...mit der Aufstellung der Bedingungen betraut, die ein Strom zu erfüllen habe, um bei der Speisung der HH tödlich zu wirken." Quoted in Luxbacher, "Elektrizität als Gefahr – Elektrizität als Waffe," 90.

⁷² Luxbacher, "Elektrizität als Gefahr – Elektrizität als Waffe," 90.

⁷³ Ibid.

⁷⁴ Technisches Museum Wien, Archiv, Sammlung EPM, BPA-013487.

⁷⁵ Full quote, German original: "das ganze Forschungsgebiet der Elektropathologie und Elektrohygiene der Privatinitiative überlassen bleibt und daß eine öffentliche Lehr- und Versuchsstelle hierfür nicht vorhanden ist," in Jellinek, "Elektropathologie in Krieg und Frieden," 264; Hofer, "Achtung Strom," 70.



Figure 14. Josef Heu, Electrohygienic room. Circa 1917. Gouache and coloured pencil. Source: Vienna Technical Museum, Archive.

Ultimately, through their absorption into the Electrohygienic War Collection, the December 1917 watercolours lead us beyond Heu's role as an official war artist and into a special – equally underexplored – area of Heu's artistic practice during the War. These works intertwine art and science, preservation and expansion. Whether they connect to electricity directly or not, their presence in the collection marks them as *artefacts* of this crucial period for Jellinek's field, a moment of awakening and cultural shift in attitudes towards electricity. This lends Heu's paintings of Romania yet another layer of symbolic importance, demonstrating how works can accrue new meanings over time.

Conclusion

The crux of this essay has been an investigation of three key features of Heu's December 1917 works: his colour technique, his emphasis on landscape, and the sense of subdued destruction pervading these portrayals of Romanian oil infrastructure. I have argued that we can take two main routes to interpret these features: understanding them within the context of Romania's exploitation by the Central Powers, and through the lens of Heu's perspective on art during wartime. This was supplemented with an exploration of the particular noteworthiness of landscape in Heu's life.

Most broadly, these watercolours allow us to appreciate how the violence of conflict can be absorbed, refracted, and softened through art. Moreover, they reveal how *attitudes* towards war – whether official narrative or individual perception – can also be evinced through a painting. In his quiet, bright and strangely hopeful works, Heu's attempt to make sense of the destruction is part of a broader cultural struggle to portray the War, but is also a deeply personal effort. Heu negotiates the destruction for himself, armed with his own understanding of art.

After handling these interpretations, I proceeded to contextualize the paintings of Romania with others by Heu, turning to a special war collection created by Stefan Jellinek. Once part of a scientific collection, the watercolours directed us to a different mode of Heu's work as an artist during the First World War. With the watercolours as “overflow” – just outside of official propaganda, complete artistic freedom, and scientific collaboration – they represent the special mix of Heu's pursuits during the War, and how he moved fluidly between realms of work. These works join three elements: the perception of resources, the expression of personal artistic identity, and the network between an artist and scientist. Overall, Heu's illustrations of Romanian oil infrastructure allow us a glimpse into the vast cultural machinery of wartime.

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