

**“NOTHING IS MORE IMPORTANT THAN HEALTH”
EDUARD SUESS (1831-1914)
THE 1ST VIENNA HIGH SPRINGWATER MAIN AND
THE REGULATION OF THE DANUBE**

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Introduction

Eduard Suess not only played an important role as a professor of paleontology and geology at the University of Vienna, but as a member of the Vienna City Council he also submitted his expertise on the two century projects of the city of Vienna.

The partial estate of Eduard Suess in the Geological Archive of the University of Vienna contains some important documents of the participation of E. Suess in important projects of the city of Vienna: the construction of the first Vienna Springwater main and the regulation of the Danube river in the city of Vienna.

The 1st Vienna Springwater main

In 1862, the Vienna city government set up a water supply commission with the aim of providing healthy and sufficient water for the Viennese population. Eduard Suess was one of the experts in this commission. The rapid population increase, the infections with dysentery, typhus and cholera in 1855 were a significant problem, also poor water quality and a lack of sewerage. Suess was elected to the City Council of Vienna in 1863 and he took part in the meetings of the city of Vienna on water supply starting 1863. In the winter of 1863 there was a meeting with the mayor Andreas Zelinka (1802-1868) and the vice mayor Cajetan Felder (1814-1894), in which Suess presented his plan for the construction of the main.

Eines Tages war ich im Vorzimmer des Bürgermeisters bemüht, einigen Kollegen und dem Bürgermeister selbst die Vorzüge dieses Plans zu erläutern. Da erhob er sich mit den Worten: “Sie sind ein Narr“, und begab sich ins sein Arbeitszimmer. An einem folgenden Tage gab es ein ernstes Gespräch zwischen Zelinka und Felder. Ich wurde herbeigerufen. “Sie haben sich für die Ablösung der Gaswerke von den Engländern interessiert“, so sprach der Bürgermeister mich an, „ und Sie wollen eine so große Wasserleitung bauen. Das ist zu viel für unsere Kräfte. Was halten sie für dringender?“

„Nichts“, erwiderte ich, „ist dringender wie die Gesundheit.“

„Gut,“ antwortete Zelinka, „so wollen wir in Gottes Namen die Wasserleitung bauen.“ (Suess 1916, p. 154).

One day in the mayor's office I was trying to explain the benefits of this plan to some colleagues and the mayor himself. Then he rose and said: „You are a fool“ and went into his study.

On a following day there was a serious conversation between Zelinka and Felder.

[...] The mayor spoke to me: [...] ”and you want to build such a big water main. This is too much for our strength. What do you think is more important?”

„Nothing,“ I replied, „is more important than health.“ I was summoned.

„Good,“ answered Zelinka, „so in God's name let's build the water main.“

In the Archive of the Geological Institute at the University of Vienna exist handwritten notes by E. Suess between 1861 and 1869 dealing with the meetings of the Vienna City Council with regard to the quality of the water for the city and, as a result, the health of the population.

These are five sheets, one of them is transcribed here and reproduced with its punctuation.

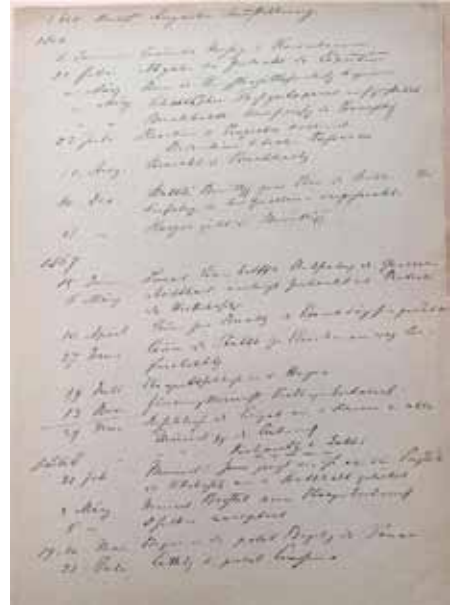
	<p>Translation</p> <p>1866 6th of January in the spring of Kaiserbrunn - it was a donation of the emperor to the municipality of Vienna- the technical works for the main started March a special waterpipeline was built - „Ringstrassenwasserleitung“ 23rd of July the springs were examined</p> <p>1867 19th of July the private spring – Stixenstein – the owner was Graf von Hoyos (1830-1903) was given to the City of Vienna 19th and 20th of May start of the political inspection of the route 31. Juli The political consens was given</p> <p>1870 construction work for the distribution pipe network was initiated</p>
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Figure 1: Eduard Suess Manuscripts, Geological Archive, Estate Suess, Box 8. Size: 34x22cm

The spring Kaiserbrunn in the Höllental (Valley of Hell) has been in operation as a water spring since Emperor Karl VI (1685-1740) and his daughter Archduchess Maria Theresia (1717-1780). The pure water was transported to the imperial court in Vienna in barrels and carts.

As a member of the water supply commission Suess gave a speech to the members of the city council on 10th of July 1864:

Ich erlaube mir im Namen der Kommission den Bericht über die Erhebungen der Wasserversorgungskommission an der Gemeinderat er Stadt Wien ihrer freundlichen Aufmerksamkeit und ihrer Studien zu empfehlen. [...] Ich hoffe, dass binnen kurzem die Geschichte der Stadt Wien einen Beschluss zu verzeichnen haben wird, welcher ihrer selbst gar sehr zum Wohle und ihrer Vertretung vor der ganzen Welt zu Ehre gereicht (Suess, 1864).

On behalf of the Commission, I would like to recommend the report on the Water Supply Commission's surveys to the City Council of the City of Vienna to your kind attention and studies. [...] I hope that within a short time the history of the City of Vienna will record a decision which will be a great credit to the city and to its representation before the whole world.

On 12th of July 1864 the members of the council of Vienna gave approval for the project to build a new main. The application was approved by the local council with 94 votes to only 2 against.

On May 1, 1865, the Kaiser officially gave the city of Vienna the Kaiserbrunn spring on the occasion of the opening of the Vienna Ringstrasse.

In the Geological Archive exist another letter from the major Cajetan Felder about fossils and rocks that were found during the construction of the main building (GA, Geschichte des Geologischen Institutes, K1, Box 7).

Euer Wohlgeboren!

Der Gemeinderath der Stadt Wien hat in seiner Plenarsitzung den 31. Oktober d. J. beschlossen, daß diejenigen beim Bau der Hochquellenwasserleitung vorkommenden Funde, von naturhistorischen, insbesondere von paläontologischen oder geologischem Interesse sind, unentgeltlich an die k. k. Wiener Universität abgegeben werden.

Hievon beehre ich mich, Euer Wohlgeboren mit dem Bemerken Mittheilung zu machen, daß deren Ausführung dieses Beschlusses unter einem das Geeignete veranlaßt wird.

Wien, dem 4. November 1872.

Der Bürgermeister

C. Felder

An Wohlgeboren den Herrn Vorstand des geologischen Museums der k. k. Wiener Universität.

Between 1869 and 1873, a 90 km long canal was initially built from the Kaiserbrunn and Stixenstein springs to the water towers in the city of Vienna. The water reaches at Vienna after 24 hours.



Figure 2 a,b: Rudolf Stadler, Map of the River- and spring areas for the water supply of the City of Vienna. Watertower in Favoriten. Foto: Margret Hamilton

On October 24, 1873, the Springwater main was officially opened and the high-jet fountain on Schwarzenbergplatz was put into operation.



Figure 3: A. Drenning (1973), High-jet fountain at the Schwarzenberg Palais.

Eduard Suess wrote in his “Erinnerungen” (Memories) that he was standing at the opening of the water main in front of the fountain

... neben dem Bürgermeister [Cajetan Felder] und der Gemeindevertretung am Rande der Terrasse vor dem Schwarzenbergschen Palaste; in unserer unmittelbaren Umgebung befand sich der Kaiser.

„Per tot discrimina ...“ dachte ich bei mir, und gab das Zeichen mit dem Tuche.

Die Augen der Menge sind auf die Mitte des Wasserbeckens gerichtet. Es ist nichts. Eine peinliche Pause.

Nach wenigen Minuten wiederhole ich das Zeichen.

Wieder nichts. Eine noch peinlichere Pause. Eine, zwei, drei Minuten [...]. Eben, indem ich im Begriffe bin, ein drittes Zeichen zu geben, zeigt sich ein Aufsprudeln an der Mündung des Steigrohres. Höher immer höher erhebt sich in schwankendem Spiel der schaumweiße Strahl. [...]. Ein vieltausender Ruf des Staunens füllte den weiten Raum [...] Dann führte mich Felder zum Kaiser. Nach äußerst gütigen Worten der Anerkennung sagte der Kaiser: „Ich danke Ihnen.“ Ich gab meiner Freude darüber Ausdruck, daß dieses Werk angewandter Naturforschung unter der Regierung Sr. Majestät zustande gekommen sei. (Suess, 1916, p. 243).

..... next to the mayor [Cajetan Felder] and the municipal council on the edge of the terrace in front of Schwarzenberg’s palace; the Kaiser was in our immediate vicinity.

„Per tot discrimina...“ [against all odds] I thought to myself and gave the sign with the cloth.

The eyes of the crowd are focused on the center of the pool of water. There is nothing. An awkward pause.

After a few minutes I repeat the sign.

Again nothing. An even more awkward pause. One, two, three minutes [...]. Just as I am about to give a third sign, there is a bubbling up at the mouth of the riser. Higher and higher the foamy white ray rises in swaying play. [...]. A shout of amazement from many thousands filled the wide space [...] Then Felder took me to the Kaiser. After extremely kind words of appreciation, the Emperor said, „Thank you.“ I expressed my delight that this work of applied natural research had been accomplished under His Majesty’s government.

The two springs are marked in the bottom center, the southern part of the map: Kaiserbrunn and Stixenstein springs, to the east of this is the supply line to the Alta source, further along the line via Baden to Vienna to the Rosenhügel, the reservoirs on the Schmelz, the Wiener Berg and the Laaer Berg (Figure 3a,b).

The rapid growth of the population in Vienna from 1890 led to a greater need for fresh water. Since the increased flow rates of the first water main did not always remain constant, the Vienna City Council decided to build a second water main.

On August 11, 1900, the foundation stone was laid for Vienna’s second mountain spring water main, which was ceremonially opened on December 2, 1910.

On the occasion of the opening of the first Vienna Springwater main, Eduard Strauss (1835-1916), member of the Strauss Dynasty, composed a Polka-Mazur for orchestra in 1873/4. The piece is dedicated to the initiator of the first Vienna spring water main Professor Eduard Suess. At the Museum in Kaiserbrunn there exist a letter from Eduard Strauss to Eduard Suess from 30th April 1874. Strauss apologizes for the delay of the music piece, because the publishers printed the piece too late.

This music piece is a very lively piece in the measure of $\frac{3}{4}$ with the Title “Die Hochquelle” - The Highspring. The Polka-Mazur combines two folkdances, Polka originally from Bohemia and Mazurka originally from Poland. In the second part of the 19th century it was common to take the name of a folkdance of a country and compose a new music piece for entertainment. The Polka is a very lively and fast dance and the Mazurka a little bit more quieter. These two characters are typical for the music piece “The Highspring”. The melody with its punctuation represents the lively water from the springs.

The original score for orchestra is available in the Vienna City Library. This music piece later was transposed for piano.



Figure 4a,b: E. Strauss, Polka-Mazur „Die Hochquelle“ – Partitur for Orchestra. Vienna City Library, Estate E. Strauss, Inv. Nr. 12590. Music piece for piano, Frontispiece. Private collection M. Hamilton.

Eduard Strauss, member of the famous Strauss dynasty and brother of Johann (1825-1899) and Josef (1827-1870) Strauss, also was the conductor of the Strauss Orchestra.

At the Vienna City library and at the Geological Archive exist some letters of the correspondence between Eduard Strauss and Eduard Suess without any hint to the correspondence about this music piece. But at the museum of Kaiserbrunn in the Valley of Hell the letter from Strauss to Suess about the “Highspring” is exhibited. From the content of the letter Strauss apologises for the delay of the music piece – the date is from 30th April 1874.

The regulation of the Danube river bed in Vienna

The second major project to improve water quality and thus improve the health of Vienna's population was the regulation of the Danube bed.

In „Memoirs“ Suess talks about a very significant event, the flooding of the Danube river in 1862, when the flood water penetrated the basement of his house on Afrikanergasse in Vienna's 2nd district.

With the Danube Regulation Commission established in 1868, not only should the devastating floods of the Danube river be prevented, but also new facilities for the creation of shipping and trade should be made possible.

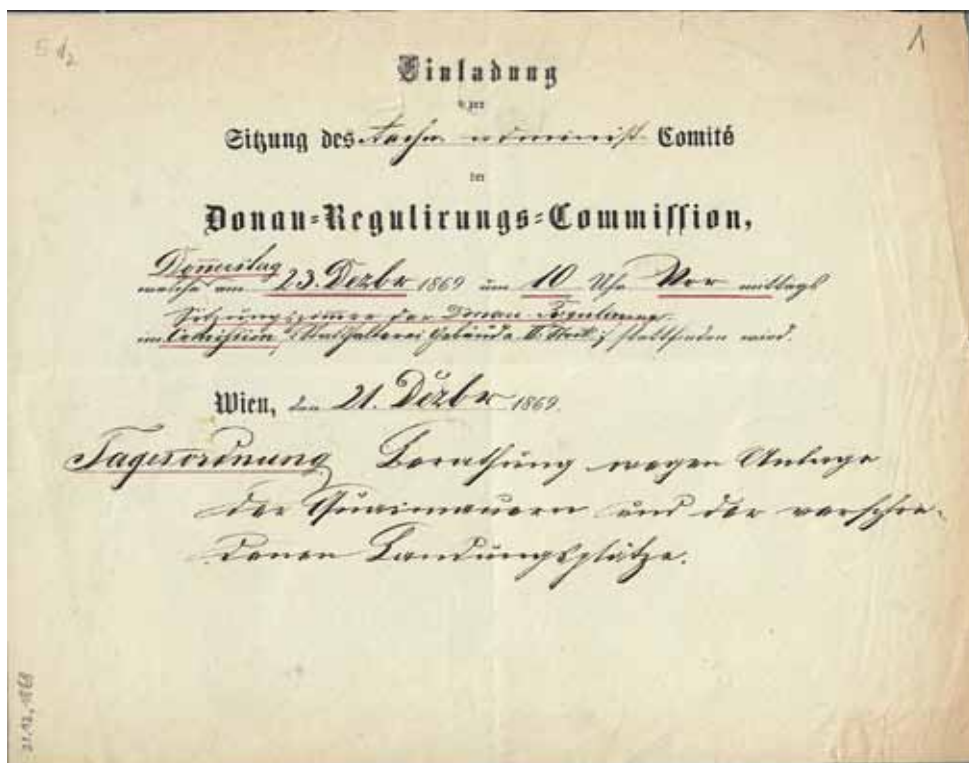


Figure 5: Invitation to the meeting of the technical administrative Comité of the Donau-Regulierungs-Commission. Geological Archive, Estate E. Suess, Box 8. Size: 22,5x17,5cm.

There were suggestions and many discussions for the regulation of the Danube. One suggestion was of the engineer Florian Freiherr Pasetti von Friedenburg (1793-1875), who opposed the river straightened. His argument was the current of the river to become too intense. He recommended keeping what was then the main bed, reinforced by dams in the area of today's old Danube. After his retirement in 1869 the Danube-Regulation-Commission started again the discussions and negotiation. Mayor Felder campaigned for the project of the breakthrough, i.e. a seven kilometer long straight course of the river bed from north to south. Suess described the Danube as a torrent with a large amount of transport material in the depths of the

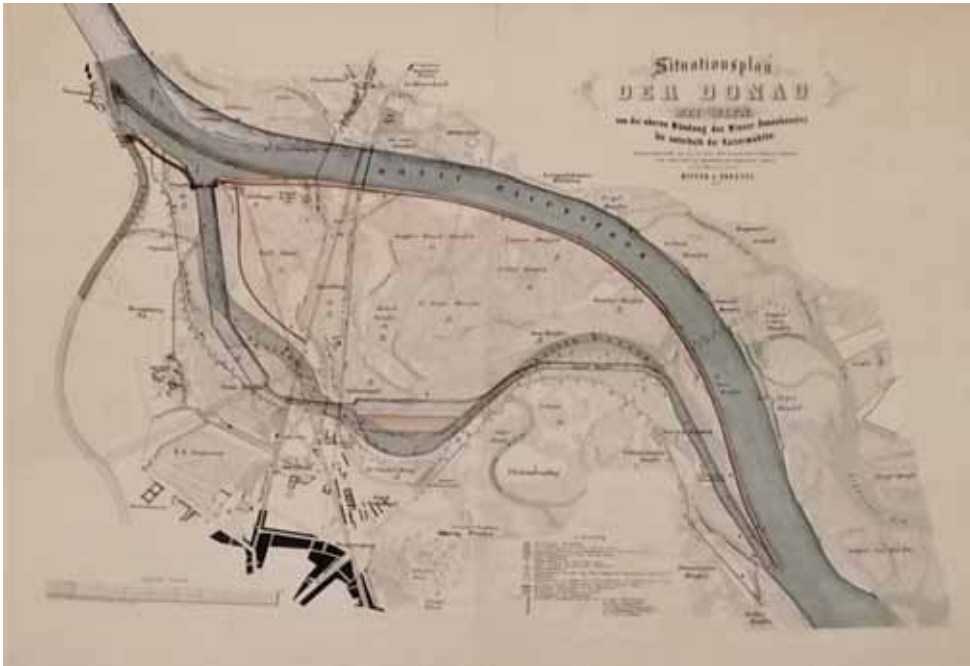


Figure 6: Florian Pasetti: Danube Regulation draft, 1864. Lithograph, Wien Museum (68415).

river. In his “Erinnerungen”, he describes his concerns and hopes for regulating of the Danube as he preferred the offer of the French company Castor, Couvreur, Watel und Hersent, the engineers of the Suez Canal. Their construction machines could be used again here in Vienna after the work on the Suez Canal was completed in 1869.

Work began on May 14, 1870 in the presence of Emperor Franz Josef I, and just 5 years later, on April 15 and 16, 1875, the two breakthroughs were made on the north and east of the Danube.

In the Geological Archive exist three soil maps of Vienna from the years 1873-1875 showing the course of the Danube in the old and new beds. In Figure 6 the third map is presented with the settlements (in red colour) along the new Danube river bed. This three maps are part of the publication of the “Donau-Regulierungs-Commssion”.

A copy of a letter from the Emperor to Eduard Suess from 18th of May 1911 has also survived, in which the Emperor praised Suess for his achievements for the benefit of the people of Vienna.

Lieber Herr Suess!

Ihr hohes Alter hat Sie bestimmt, von der Stelle des Präsidenten von der kaiserlichen Akademie der Wissenschaften zurückzutreten. So wenig ich den Beweggrund zu erkennen vermag, so tiefbedauere Ich den Entschluß. Die Gebildeten auf dem ganzen Erdball kennen Ihren Namen als einen der glänzendsten und die Welt der Gelehrten sieht ihn unter ihren Besten. Sie haben die Akademie auf die ihr bestimmten Höhe



Figure 7: Map of the regulation of the river Danube in Vienna (1875). Geological Archive, KS 1/4. Size:68x60cm.



Figure 8: Letter from the emperor Francis Joseph I. to Eduard Suess. Geological Archive, Estate E. Suess, Box 5.

gehoben, sodass sie unter Ihrer Leitung die bedeutendsten Aufgaben erfolgreich lösen konnte. Sie haben ihr Aufgaben mächtig zu fördern gewusst und sich selbst in den Geschichten der Akademie einen Ehrenplatz für alle Zeiten gesichert.

Für die Reichshauptstadt Wien haben Sie mit der ersten Hochquellen-Wasserleitung ein Werk geschaffen, das ihre Bewohner jeden Tag als Wohltat empfinden und welches über die Grenzen des Reiches hinaus so vielfache Nachahmung gefunden hat. Sie haben aber auch sonst Ihre unerschöpfliche Kraft in hervorragendem Maße in den Dienst des öffentlichen Lebens gestellt und mit Ihrer immer festgehaltenen selbstlosen Bescheidenheit ein weithin leuchtendes Beispiel gegeben.

Ich spreche Ihnen für Ihre bedeutenden, von bleibendem Erfolge gekrönten Leistungen Meinen allerwärmsten Dank aus und versichere Sie in ehrender Würdigung all' Ihrer Verdienste Meiner dauernden Wertschätzung und Meiner unwandelbaren Güte.

Gödöllö, am 18.Mai 1911

Franz Josef.

Dear Mr. Suess!

Your advanced age has determined you to resign from the position of President of the Imperial Academy of Sciences. As little as I can recognize the motive, I deeply regret the decision. The educated people all over the world know your name as one of the brightest, and the learned world considers it among their best. You raised the academy to the height it was intended for, so that it was able to successfully solve the most important tasks under your direction. You have known how to promote your tasks powerfully and secured yourself a place of honour in the history of the Academy for all time.

With the first High Springwater main, you created a work for the imperial capital of Vienna, which its residents feel to be a blessing every day and which has found so many imitations beyond the borders of the empire. But you have also put your inexhaustible strength in the service of public life in the most outstanding measure and with your selfless modesty, which you always maintained, you have set a shining example.

I express my warmest thanks to you for your significant achievements, crowned by lasting success, and I assure you of my lasting appreciation and my unchanging kindness in honoring all your merits.

Gödöllö [Hungary], May 18th, 1911

Francis Joseph

Conclusion

Eduard Suess took part in two major projects of the City of Vienna. He was one of the experts in the council of Vienna. The two projects of the High Springwater main and the Regulation of the river Danube had a significant impact on the health of the people of Vienna. The water quality improved immensely thanks to the 1st Vienna Springwater main. The devastating floods in the city could be prevented by the regulation of the river Danube. We can still enjoy the achievements of these century projects, today.

Handwritten documents, maps and letters exist in the Geological Archive. They bear witness of these projects in the 19th century.

Acknowledgement

Many thanks to Walter Hamilton for the support.

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