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Luigi Negrelli (1799 –1858): a Tyrolean engineer at the heart of the Suez Canal project

Abstract:

This essay is based on the abundant documentation left by Luigi Negrelli (Primiero 1799 – Vienna 1858), which is kept at the *Technisches Museum* in Vienna and was transcribed and analysed at the Department of Economics and Management of the University of Trento. The study highlights the key role that the engineer played in the development of 19th century transport systems, which has for a long time been overshadowed by debates on his ethnicity and national allegiance. In the first half of the 20th century, nationalist literature produced both north and south of the Alps distorted Negrelli's image, presenting him alternately as an Italian Risorgimento hero and a German innovator. His writings shed light on his deep understanding of the technical and economic workings of communication networks and on his international achievements, with particular regard to Central European railway projects and – first and foremost – the Suez Canal.

Key-words: Luigi Negrelli, civil engineering, Société d'Études du Canal de Suez, International Commission for the piercing of the isthmus of Suez, Habsburg Monarchy.

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Luigi (or Alois) Negrelli's key role in the planning of the Suez Canal, which the *Compagnie universelle du canal maritime de Suez* built under the guidance of Ferdinand de Lesseps, was extremely clear at the time of the structure's realisation 150 years ago. However, over the following years, his name slowly slipped into an oblivion from which it only re-emerged during the first half of the 20th century, when a small number of methodologically rigorous studies allowed an all-round recovery of his life story.¹ At the same time, abundant literature marred by ideological approaches of a markedly nationalist nature distorted his image and role. During the interwar period, scientific publications and government propaganda alike credited Negrelli with being an "Italian genius". Even studies conducted with strict methodology succumbed to this bias, forcing the concept of nationality on him with no regard for the historical and cultural context in which this concept had gradually taken shape and thus painting a completely misleading portrait. The same was true for some Austrian literature with similar nationalist intent, which claimed that the engineer had a distinctly German heritage.²

¹ Negrelli's most accurate and well documented biography is a fundamental read: Birk 1915, 1925. See also: Birk/Müller 1925.

² Leonardi 2020 has extensive references to works that have improperly described Negrelli as either Italian or German.

This attitude persisted well into the second half of the 20th century, when the disastrous outcome of exasperated nationalism should have allowed biographers to carry out their research in a climate free from ideological preconceptions. Yet, many post-war studies on Negrelli are not based on the ample documentation that he directly produced,³ but instead on misleading works that failed to take first hand sources into account and thus continued to amplify the distortion of his image.⁴ Very few works have succeeded in framing Negrelli's role within the European context of the Habsburg monarchy in which he operated.⁵ Even some very recent studies, produced and published in different European countries, are approximate, imprecise and totally inadequate for the purposes of profiling him.⁶

This paper is based on 1,597 documents that constitute the main body of the Negrelli *Nachlass*, a collection consisting of 2,435 documents of various nature housed in the *Technisches Museum* in Vienna, that a research group based at the Department of Economics and Management at the University of Trento has made its object of study.⁷ The aim of this project is to bring Luigi Negrelli's role in the planning of the Suez Canal to the fore and to refute the anachronistic and fallacious traits ascribed to him, including in modern mass media, once and for all.⁸

³ The following works are at least partly based on primary sources: Scaglione 1971, 1972; Leonardi 1990, 2006; Deihsen 1993; Bussjäger/Concin/Gerstgrasser 1997; Marzani Prosser 1999; Gatani 2000, 2005.

⁴ Leonardi 2020.

⁵ Deihsen 1993; Gatani 2000; Helps 2005; Leonardi 1990, 2020.

⁶ Piquet 2008, pp. 256, 389; Idem 2018, p. 219 are imprecise and erroneous on Negrelli. Other recent works (Moghira 2002; Bonin 2010) completely ignore his role.

⁷ The *Nachlaß* Negrelli in the Archive of the *Technisches Museum* in Vienna contains 1,597 documents that include letters by and to Negrelli, a series of reports, service dispatches and notes of various kind dated 1815-1858 and a further 838 documents retrieved in a search coordinated by A. Leonardi. All documents are available online <https://negrelli.primiero.tn.it/it/archives/index/>.

⁸ The "Italian" Negrelli of most websites is a prime example of this.

In order to create a truthful portrait of the man and the eminent scientist and to make him, his work and the context within which he lived and operated known in the most appropriate and extensive way possible, it is necessary to take the documentation he directly produced as a starting point. The archival research and document analysis carried out up until this point have allowed the scrutiny of various parts of his life and work, lifting the veil of privacy in which the figure of Negrelli was for a long time shrouded and have revealed a personality that was particularly rich, dynamic and open to new ideas.

Negrelli's education and first projects

Luigi Negrelli was born on January 23rd 1799 in Primiero, which had been part of the Habsburg Empire since the 14th century.⁹ A firm belief in Catholicism and an unwavering loyalty to the monarchy characterised the family environment in which he grew up. This conservative atmosphere did not prevent Negrelli from displaying, from a young age, a clear receptiveness for supranational ideals, albeit in a spirit that always aimed at being of service to his Austrian fatherland, as he more than once described it. In his private correspondence, Negrelli frequently professed his allegiance to the emperor.¹⁰ Yet, at the same time, his letters give prominence to his cosmopolitan ideas, seeking to support elements of contact and cooperation between

⁹ A series of autobiographical documents settled the controversy about his date of birth. See: Appendix to Francesconi to Negrelli, 7 January 1843, TMW, NN, 05_0198_000.

¹⁰ Negrelli to Caroline Negrelli, 11 December 1854, TMW, NN, 11_1112_000. The letter's most important passage reads: "Whatever the future may hold, in the present I am fulfilling my duty as faithful servant of the Emperor and eager Austrian, carefree about what that time will bring".

peoples, including profoundly different ones. It was against this backdrop that Negrelli's interest in the realisation of the Suez Canal took shape.¹¹

After completing his primary school studies in Primiero and attending a gymnasium in Feltre, Negrelli's family sent him to Innsbruck with the twofold aim of mastering the German language, which from that point onwards became his habitual language of use, and – most importantly – to train as an engineer. At that time, rather than attending university courses, aspiring engineers followed an educational pathway that involved the study of mathematics and physics as well as an internship of several years under the guidance of an expert.¹² Once this process was completed, the candidate had to undergo an examination to prove his calculus and design skills and thus obtain permission to practice the profession.¹³

Negrelli passed the state exam in Innsbruck in October 1820, becoming a qualified *Zivilingenieur* and joining the Imperial Austrian Civil Service.¹⁴ Between 1821 and 1824 he worked in several Tyrolean valleys, following road and waterway regulation works.¹⁵ His planning and management skills, together with the effective nature of his projects, soon led his reputation to exceed the boundaries of the Austrian Empire. In 1832, Negrelli was appointed Inspector of Road and Waterways in Switzerland, where he remained until 1840, overseeing the construction of numerous roads, bridges and hydraulic structures.¹⁶

¹¹ Negrelli to Escher, 30 December 1854, TMW, NN, 11_1118_000. His declared intention was for the canal to create new relations between peoples.

¹² On his mentor Joseph Duile see Negrelli 1837.

¹³ Birk 1915, pp. 7-9.

¹⁴ Francesconi to Negrelli, 7 January 1843, TMW, NN, 05_0198_000.

¹⁵ Deihsen 1993, p. 21.

¹⁶ Birk 1915, pp. 72-81; Bussjäger/ Concin/ Gerstgrasser 1997, pp. 75-84; Gatani 2000, pp. 87-127.

The interest for railways

It was during his Swiss period, following an assignment for the study of the layout of a railway line between Zürich and Basel, that Negrelli started to develop an interest in railway technology.¹⁷ To resolve a series of doubts concerning the effectiveness of mechanical traction, as opposed to the animal one, in 1836 Negrelli undertook a study trip to France, Great Britain and Belgium, where railways were already a tangible innovation. The book he published on his experience abroad, the most sizeable work of his ever printed, states that his main interest was not in railway theory, of which he was evidently fully aware, but in all the implications that accompanied the construction.¹⁸ Negrelli drew a precise conclusion from his travels, which he summarised in these terms: "For industrial nations, railways are indispensable, just as factories are indispensable".¹⁹

To those who were sceptical about the construction of railways in mountain areas, because of the excessive costs that these would entail compared to the lines running through European and American plains, he replied that there were no technical or economic obstacles to having trains in the Alpine region. Negrelli strongly believed that the Alpine area should become a hub for trade and travellers, if it was to continue to play a mediating role between the various parts of Europe. He advocated a reorganisation of Alpine communication routes that would allow them to function as a link between different countries and peoples and to smoothly connect the ports of the Mediterranean with Central Europe.²⁰

¹⁷ Brugger 1909, pp. 27-28.

¹⁸ Negrelli 1838, pp. 6-7.

¹⁹ Ibidem, p. 192.

²⁰ Leonardi 2016.

Although he enjoyed, and felt very much appreciated in, Switzerland, Negrelli wanted to return to Austria and did so in 1840, accepting a challenging job from the most important private railway company of the monarchy, the *Kaiser Ferdinand Nordbahn*. After two years of intense work, he entered the state service as Inspector General of the state railway, at a time when the Austrian railway network was going through a phase of rapid expansion.²¹

From the railways to the Suez Canal

Negrelli followed several projects during this period, starting with the *Nordbahn* line Lundenburg – Olmütz – Prague in the Czech provinces, as well as the preliminary studies for the Galician railway and for the Lemberg – Czernowitz section in modern day Ukraine.²² The design, construction and management of these railway lines were not just proof of his undeniable technical skills; they highlighted that Negrelli was a civil engineer, in the broadest sense of the term. He analysed transport networks in their entirety, paying particular attention to the economic and functional characteristics of railway lines. Looking at both German and French engineering cultures, Negrelli successfully combined "the ability of an engineer and the perspicacity of a transport technician and economist".²³

In the midst of this phase of intense planning, supervision and consultancy in the railway sector, Negrelli started to draft his first projects for cutting the Isthmus of Suez, into which he had first started to enquire between 1837 and 1838 during his

²¹ Francesconi to Negrelli, 23 March 1843, TMW, NN, 05_0175_000. See also: Birk 1915, pp. 169-170. Sandgruber 1987.

²² Joseph to Negrelli, 22 March 1842, TMW, NN, 05_0174_000. The long viaduct next to Prague is still known today as the "Negrelli viaduct". Leonardi 2016.

²³ Contro 1990.

stay in Switzerland²⁴. He forged contacts with some of the leading exponents of Saint-Simonianism, who were particularly active in advocating the construction of the canal, and began corresponding with them.²⁵ Amongst the movement's followers, the railway engineer Barthélemy Prosper Enfantin, who had organised a scientific expedition to Egypt to study the feasibility of cutting the Isthmus of Suez in 1833, became a prominent backer of the project. The geognostic and topographical surveys that the expedition produced – which hypothesized a difference of about ten metres between the levels of the two seas – provided the bases for various preliminary canal projects.²⁶ The most significant was that of the French engineer in the service of the Egyptian viceroy Louis Maurice Linant de Bellefonds (Linant Bey), who envisaged a direct connection, with locks at each end, between the two seas.²⁷

Karl Ludwig von Bruck, the Austrian minister of commerce and finance, and chancellor Metternich himself endorsed the idea of the canal, as their numerous letters preserved in the Nachlaß testify.²⁸ This led Negrelli to intensify his international efforts to realise the project.²⁹ Thus, when Enfantin presided over the foundation of the *Société d'Études du Canal de Suez* in Paris on November 27th 1846, Luigi Negrelli was a co-founder. The Société was composed of three groups: the "German group", and not "Austro- German- Italian", as most Italian historians wrongly labelled it,³⁰ which included, in addition to Negrelli, the Leipzig based bankers Albert Dufour Féronce and

²⁴ Negrelli 1856.

²⁵ See: Jouve 2001; Coilly/ Régnier 2006.

²⁶ Bono 2006, p. 412. On the age-old quest for a connection between the Red Sea and the Mediterranean see: Bono 1990.

²⁷ Mazuel 1937.

²⁸ The correspondence between Negrelli and von Bruck in the Nachlaß consists of over 80 documents, dating from 3 October 1846 (TMW, NN, 06_0259_007) to 26 March 1858 (TMW, NN, 12_1457_000).

²⁹ Agstner 1995.

³⁰ This "nationalistic" misrepresentation has affected also prominent scholars like Angelo Sammarco, and Armando Levi Cases.

Louis Sellier; the "French group", which, besides Enfantin, included François Barthélemy Arlès-Dufour and the three brothers Jules, Léon and Paulin Talabot, while the "English group" was composed of Robert Stephenson and Edward Starbuck.³¹

As a result of the establishment of the *Société d'Études* Negrelli became more committed than ever to the project, especially since the three heads of each group, Paulin Talabot, Stephenson and Negrelli, each had specific tasks to carry out. The German group's assignment was to survey the Mediterranean coast in order to find the ideal location for the outlet of the canal. The French group was to study the terrain where the canal layout was to be excavated, and the English group was responsible for examining the canal's outlet in the Red Sea, in the proximity of the port of Suez.³²

Many documents from the *Nachlaß* give evidence of Negrelli's care and enthusiasm in preparing for the mission in Egypt. Asking his close friend, the Swiss architect Felix Kubli, to be his right-hand man during the trip, Negrelli wrote: "I cannot offer you a reward, because we will sacrifice our services on the altar of Europe and Europe will be grateful to us only if the canal will be built".³³

A series of obstacles, which included the revolutions of 1848 as well as the divergences with Stephenson, who kept on postponing the date of departure, prevented the three head engineers from travelling to Egypt. Some historians have interpreted Stephenson's behaviour as an attempt to boycott the canal project, given that, like his country's government, the English engineer feared a potential French dominance over the project but backed the construction of a railway link between Alexandria and Suez,

³¹ Charles Roux 1901, vol. 1, pp. 208-209.

³² Ibidem.

³³ Negrelli to Kubli, 14 November 1847, TMW, NN, 07_0469_000. Felix Kubli (1802-1872) accompanied Negrelli to Egypt in 1855.

which was completed in 1857.³⁴ Negrelli nonetheless arranged for a group of technicians, the so-called “German brigade”, to travel to the Mediterranean shores. In July 1847, the brigade had finished the survey of 7,000 *Klafter* of coast around the point identified as the ideal location for the canal outlet and was about to bring the survey and cross-section of the area’s seabed to an end.³⁵

Negrelli concerned himself also with the financial side of the project, considering how the work could be funded without appearing like a predominantly French enterprise. This possibility was causing concern in Britain as well as in Egypt, where the Khedive or Viceroy Mohammed (or Méhmét) Ali was growing increasingly sceptical of the project.³⁶ Dufour Féronce, founding member of the German group, recounts this in the first letter regarding Suez found in the *Nachlaß*, dated November 13th 1845: “(...) everyone who is interested in the project believes that the best thing would be for Germany to take the lead. The whole affair would thus appear to be purely commercial, given that the two great German powers [Prussia and Austria] do not have notable navies and cannot give rise to concerns anywhere”.³⁷

Following this advice, Negrelli started to press for the involvement of the Habsburg monarchy and of big Central European financial groups in the canal project. Within the German group of the *Société d’Études*, Negrelli was able to secure five out of ten places for Austria and to find as many institutions willing to invest in the project.³⁸ In regard to the financing of the work, Negrelli corresponded assiduously both with

³⁴ Algardi 1988, pp. 33-34; Gatani 2000, pp. 248-257.

³⁵ Jaßnäger to Negrelli, 1 June 1847, TMW, NN, 08_0554_000. Jaßnäger to Negrelli, 16 June 1847, TMW, NN, 08_0555_000. The *Klafter* is a Central European unit of length that corresponds to 1,89 m.

³⁶ Treue 1970; Lo Giudice 1981, pp. 38-65.

³⁷ Dufour-Féronce to Negrelli, 13 November 1845, TMW, NN, 06_0259_002.

³⁸ Negrelli to Thurn, 21 January 1847, TMW, NN, 07_0496_000. The institutions were: the municipality and the chamber of commerce of Trieste, the Austrian Lloyd, the Viennese union of industries and the chamber of commerce of Venice (which was part of Austria).

Dufour Feronce and the Triestine banker Pasquale Revoltella, who would go on to play a key role in the Austrian funding of the project and whom traditional Italian historiography has wrongly labelled the “Italian” promoter of the Suez canal.³⁹

The experience in the Lombardo- Venetian Kingdom and the evolution of the Suez Canal project

The turbulent events of 1848 that wreaked havoc all over Europe impacted on the planning of the Suez Canal in two ways: they caused the trip to Egypt of the three head engineers of the *Société d'Études* to be indefinitely postponed, as well as indirectly leading to a slowdown of the whole project. In the aftermath of the war of that year, the Austrian government appointed Negrelli to oversee the reconstruction of the heavily damaged infrastructure of the Lombardo-Venetian kingdom, the Italian “province” of the empire.⁴⁰ The move to Verona enabled Negrelli to establish relations with all the technicians working on the realisation of a railway network in North and Central Italy. Amongst them was Pietro Paleocapa, an engineer and minister of the Kingdom of Sardinia, who was following the progress of the Suez Canal.⁴¹ In 1849, while in Verona, the Emperor elevated Negrelli to the nobility on account of his railway projects and he took on the title of Ritter von Moldelbe.

The correspondence of this period shows that Negrelli’s attitude towards the protagonists of the Risorgimento was not in the least sympathetic to the cause of

³⁹ The correspondence with Dufour-Féronce lasted from 1845 to 1855. The relationship between Negrelli and Revoltella is documented in the Nachlaß by more than 200 documents. After Negrelli’s death, his daughter accused Revoltella of being co-responsible of the theft of her father’s project. See: Scaglione 1971, Introduction, pp. XIX-XXVI.

⁴⁰ Birk 1925, pp. 12-38. Bernardello 1997; Leonardi 2006.

⁴¹ Birk 1925, p. 238.

Italian unification, like many Italian historians affirmed in the interwar period and still do today.⁴² In February 1848, shortly before the outbreak of the First Italian War of Independence, Negrelli wrote from Vienna to his friend Martin Escher: “ We want to remain the masters of Lombardy of and of Venice, no matter what happens anywhere else in Italy and Mazzini and company have to be careful not to attack us within our borders. Austria’s patience is immense but so is its power and woe to those who come to disturb its peace”.⁴³

In the light of these and other similar statements it is clear that Negrelli’s removal from his position, which occurred in 1855, had nothing to do with his alleged pro-Italian stance, as some authors have uncritically maintained, but was related to professional antagonisms.⁴⁴ In other words, the Suez Canal project was about to turn into reality and, as the author of the plan that was tipped to be the definitive one, Negrelli was swiftly gaining a reputation as the most famous Austrian engineer. His rivals aimed at bringing him into disrepute and at the same time hindering the whole project.⁴⁵ Less than five months after his destitution, he was reinstated in the state service and made Inspector General of the State Railways.

The expedition to Egypt and the project for the Suez Canal

Following Negrelli’s removal from Verona and his return to Vienna, the Suez Canal project gained new momentum at the onset of 1855. The previous year, international developments had finally led to a breakthrough in the long-standing issue of the canal.

⁴² Sammarco 1939, pp.66-68. Algardi 1988, pp. 145-158.

⁴³ Negrelli to Escher, 1 February 1848, TMW, NN, 08_0589_000.

⁴⁴ Deihsen 1993, pp. 219-233. The author has reconstructed the whole affair using documents from Vienna’s Verkehrsarchiv.

⁴⁵ Deihsen 1993, pp. 219-233; Birk 1925, pp. 165-184.

Mohammed Ali, the Egyptian viceroy who had taken an interest in the enterprise had died in 1849. His successors, his son Ibrahim and his grandson Abbas, were not particularly keen on the project and were more concerned with the railway line between Alexandria and Suez.⁴⁶ When Abbas was murdered in 1854, his next-in-line was Mohammed Said, who counted a very entrepreneurial man amongst his acquaintances: Ferdinand de Lesseps, an extremely well-connected French diplomat who had taken the canal matter into his own hands when the *Société d'Études* appeared to be going through a period of inactivity. Lesseps, who had previously served as the French general consul in Egypt, succeeded in piquing the new viceroy's interest in the project and in getting him to issue a "firman", that is a mandate for the realisation of a waterway between the Red Sea and the Mediterranean, in 1854.⁴⁷

Before moving on to the next phase of the project, it was necessary to overcome the Egyptians' distrust, who feared that the canal might turn into a Trojan horse for a French colonial conquest of the country. The Viceroy demanded that the executive company tasked to build the canal would not rely exclusively on French money, but instead on a truly international capital, thus giving strategic importance to the participation of Austria and Prussia.⁴⁸ Mohammed Said also asked for an international commission of experts to examine all the projects that had hitherto been developed. The commission consisted of the most prominent engineers from seven countries, including Negrelli as the Austrian representative.⁴⁹ Their first action was to send a sub-

⁴⁶ Sammarco, 1935.

⁴⁷ Edgar Bonnet 1951, pp. 132-144; Pudney 1969, pp. 34-36; Algardi 1991.

⁴⁸ Cervani 1990.

⁴⁹ As well as Negrelli, the international commission included: F.W. Conrad, Chief Engineer of the Water-Staat, The Hague; Capt. Harris, East India Company's Navy, London; Capt. Jaures, Imperial French Navy, Member of Council of French Admiralty; M. Lentze, Chief Engineer of Works on the Vistula, Berlin; M. Lieussou, Hydrographical Engineer, Imperial French Navy; J.R. Mac Clean Civil Engineer, London; C. Manby; Civil Engineer, London; M. Montesinos, Director of Public Works,

commission, of which Negrelli was also part, to Egypt to settle unresolved issues through appropriate field investigations. Negrelli thus undertook his first and only trip to Egypt from November 10th 1855, to January 11th of the following year, eight years after having first started to plan this journey.⁵⁰

On January 5th 1856, juggling multiple priorities with extreme confidence, Lesseps was able to attain a new concession agreement. This one contained a clause that required Lesseps to secure the consent of the Ottoman sultan and the approval of the statutes of the *Compagnie Universelle du Canal Maritime de Suez*, which he went on to found on December 15th 1858 to carry out the building works.⁵¹ After the trip to Egypt, the commission was due to give its opinion on the project to be adopted. Ahead of their meeting, in May 1856, Negrelli published a book in support of his project. The final part of this work described the environmental and geological characteristics of the land on which the excavation was to be carried out, as well as the characteristics of the future canal. The volume is entitled: “Egypt’s present means of transport and communication in regard to the proposed piercing of the Isthmus of Suez” and was published in both German and French.⁵² In Vienna there was widespread optimism about the realisation of the project, as transpires from a lecture that the geologist Franz Foetterle coordinated in 1856 at the k.k. Geographical Society on behalf of a highly regarded committee that also included Negrelli.⁵³ The talk detailed all the steps of the planning process, identified the various protagonists of the different phases of

Madrid; P. Paleocapa, Minister of Public Works, Kingdom of Sardinia; A. Renaud, Inspector General, Ponts et Chaussées, France; J.M. Rendel, Civil Engineer, London; Rear-Admiral Rigaut de Genouilly, Imperial French Navy; Foetterle 1857, p. 10.

⁵⁰ Birk 1925, pp. 238-250.

⁵¹ Maltese 1978, pp. 63-69.

⁵² The volume was published as an appendix to the weekly *Austria*, the French version appeared in the *Journal des Deux Mers*.

⁵³ Foetterle 1857.

study and survey and recognised Negrelli's authorship of the project of the lock free canal.

In June 1856, in Paris, the commission chose Negrelli's project as the most outstanding and worthy of being realised. The day after the final meeting, June 26th 1856, Negrelli summarised the debate and its outcome in a letter to Revoltella: "As you know my project was always about an open canal, free from hindrances, without locks and supplied with seawater. The English brought their own project. It was a raised canal, supplied with Nile water and only accessible through six locks. The French wanted a canal like mine, but with two locks, one at each end. Holland was also inclined towards the locks, but wanted to erect them as a precautionary measure only and otherwise leave them free. The discussion was long and animated. The representatives of the English and French navies and the Sardinian minister Mister Paleocapa supported my idea, which was finally given preference and adopted by the commission. The programme is now over and we are preparing the details. Afterwards, we will publish the general proceedings and the Viceroy of Egypt will dispatch his Foreign Minister to Constantinople to obtain the exequatur of the Sublime Porte with Austria's and France's backing".⁵⁴

This letter sheds light on a series of elements that have until now been open to conflicting interpretations: the French and British navies' support for Negrelli's plan, despite the British government's aversion for the canal; the support of the Sardinian minister Paleocapa; and Austria's key financial role in the project's success.⁵⁵ The letter depicts a situation in which the die was cast and Istanbul's ratification of

⁵⁴ Negrelli to Revoltella, 26 June 1856, TMW, NN, 12_1336_000.

⁵⁵ The Nachlaß contains one letter from Paleocapa to Negrelli, 6 June 1857, TMW, NN, 13_1407_000.

Austria's and France's adhesion to the project was the only thing missing. A letter written to his wife on the same day also offers evidence of how friendly Negrelli was with the other main participants in the enterprise, whom he describes as treating him like a "brother".⁵⁶ The engineer's long-standing efforts appeared to be crowned with full success.

Negrelli's project had prevailed over all the others and the International Commission had embraced it. "We believe" record the Commission's proceedings "that the direct route, which we will briefly outline, meets all requirements as fully as possible and in every respect. We will justify this opinion by going into the project's details. We have to add that Mister de Negrelli had devised the direct route in 1847 and that his studies of that time have found a solution to the problem that is very similar to the one brought forward by the gentlemen Linant Bey and Mougel Bey".⁵⁷

Yet, 1857 and 1858, the last two years in the short life of the Tyrolean engineer, were full of upheavals, given that in England there was manifest opposition to the realisation of the canal. Robert Stephenson, the former member of the *Société d'Études*, launched a virulent attack on Negrelli's project and Lord Palmerston followed suit in the political arena.⁵⁸ Their objections were not technically motivated, as Negrelli believed that the tidal flow would prevent the canal from silting up. Instead, the politically driven criticism originated largely from the English governmental and financial milieu, which was little inclined to give space or means to the enterprise.⁵⁹ Paleocapa intervened in the debate to defend Negrelli and the latter

⁵⁶ Negrelli to Caroline Negrelli, 26 June 1856, TMW, NN, 12_1337_000.

⁵⁷ The commission's proceedings are in: Dupin 1858, pp. 21-22.

⁵⁸ Birk 1925, pp. 279-284. Gatani 2000, pp. 274-277.

⁵⁹ Algardi 1988, pp. 317-334.

refuted Stephenson's observations, in a courteous but firm manner, via two articles published in Vienna's *Österreichische Zeitung*.⁶⁰

Luigi Negrelli never saw the work he had designed, dying on October 1st 1858. Two months after his death, Lesseps founded the *Compagnie Universelle du Canal Maritime de Suez*, which started excavating the canal in 1859 and completed it in 1869. Lesseps turned Negrelli's most ambitious project into reality and much literature undeservedly credits the former with technical merits that are entirely due to the Tyrolean engineer.⁶¹ Luigi Negrelli fell into oblivion until 30 years after his death, when his daughter Maria Grois sued the *Compagnie Universelle* and Lesseps's heirs, accusing the latter of having passed her father's project off as his own.⁶² The trial went on for years and, despite acknowledging Negrelli's authorship of the design, it did not award anything to his heirs. The court case however triggered a political-ideological competition between Italy and Austria, which both claimed the figure of Negrelli as their own, giving rise to a series of misrepresentations that persist until today.⁶³

Conclusions

The eventful life of Luigi Negrelli, his studies, his *Weltanschauung* led him to seek a way of uniting different peoples, firstly the multinational Austrian state, then Europe and, last but not least, different continents. The fact that this happened at a time when the prevalent trend was to highlight elements of division rather than reasons for

⁶⁰ Paleocapa 1857; Negrelli 1858a; Negrelli 1858b. Birk 1925, pp. 264-293.

⁶¹ Kirsch 1971; Algardi 1988, pp. 334-350.

⁶² Scaglione 1972, pp. XIV-XXVII; Algardi 1988, pp. 334-350.

⁶³ In 2018 the exhibition *L'épopée du canal de Suez. Des pharaons au XXI siècle* at the Institut du Monde Arabe in Paris did not mention Negrelli at all. The articles on this exhibition in the Italian press rightly pointed out Negrelli's role but still labelled him "Italian". Fuganti 2018.

cooperation between people of different cultures and languages, makes his contribution even more remarkable.

Negrelli's work was not limited to providing high-level technical support for railway, road and hydraulic works; it transcended the boundaries of pure engineering and manifested itself in a marked curiosity for the context in which his projects were to be integrated. This curiosity, experienced in a pragmatic way, prompted Negrelli to study the economic and organizational aspects of many projects he was responsible for, in the belief that they largely determined the effective utility and social importance of the work.

Negrelli successfully combined the roles of talented professional and upstanding official, despite the obscure plots hatched against him while he was in Verona and from which, although cleared of all charges, he emerged profoundly disappointed. He was always careful to operate observing a strict distinction between private and public interests. The *Weltanschauung* that motivated him was a combination of the Christian values to which he had been exposed since childhood and the wealth of knowledge he had drawn from the scientific and epistemological debate of his time.

His own first-hand experiences led him to identify with the mechanisms of progress that the society he lived in was creating and to offer a scientific contribution to the advancement of peoples in Europe and worldwide. Against this backdrop, Negrelli's greatest work, the study and project of the Suez Canal, is the peak of a decade-long engineering career.

Abbreviations

TMW, Technisches Museum Wien

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