

# **Semmering Railway. The History and Financial Aspects Then and Today**

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## **1. Introduction**

In the period between the founding of the "Imperial and Royal First Private Austrian Railway Company" in 1825 and the publishing of the 2nd edition of Carl von Ghegas' "Pictorial Atlas of the Railway over the Semmering" in 1855, all of the significant features were already in place that 150 years later would shape discussions on railway systems, if we disregard the changes in linguistic practice that have ensued since. For example

- a "railway company" founded with "privately subscribed shares" and with a "concession" from the State,
- which received a "licence" for a limited period to build a "railway route" approved by the State and
- for which the State under certain "conditions" provided "guaranteed interest",

is today known as a PPP model (Private-Public-Partnership-Model).

This confirms the common view that nothing is new. For instance, in the 19th century Dirninger is quoted on state loans and railways saying that state loans are used in three ways by those involved in railways: <sup>196)</sup>

1. by covering general deficits,
2. through loans that the State provides directly for railway interests,

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<sup>196)</sup> Vgl. Christian Dirninger, Staatskredit und Eisenbahnwesen in den österreichischen Ländern im Verlaufe des 19. Jahrhunderts, in: Eisenbahnbau und Kapitalinteressen in den Beziehungen der österreichischen mit den südslawischen Ländern, Richard G. Plaschka, Anna M. Drabek, Birgitta Zaar (Hrsg.), 1993, S, 191

3. through liabilities passed on to the State as a result of taking over private railways in debt.

If we add the guaranteed interest or the assumption of risks by the State as a fourth option here, this completes the circle which has essentially remained unchanged for 100 years.

## **2. Financing the first railways**

### **2.1. Imperial and Royal First Private Austrian Railway Company**

On 7 September 1824, Franz Anton Ritter von Gerstner received a "Privilege Deed" from Kaiser Franz 1. "for Professor Franz Anton Ritter von Gerstner to build a wooden and iron railway between the Moldau and the Danube". According to the contract dated 12 March 1825-. von Gerstner handed over this right to a "share company" of Messrs Johann Friedrich Baron von Geymüller, Simon Georg Sina von Hodos and Johann Mayer, who sought to implement the project with the Imperial and Royal First Private Austrian Railway Company".

The construction costs were estimated at 900,000 fl. C.-M. (florins Conventions-Münze), up from the 800,000.- fl. C.-M. originally assessed by von Gerstner. To raise the capital a subscription of shares was called, within the framework of which a sum of 850,000 fl. C.-M. was subscribed within a couple of days. As a result of the rise in construction costs, at the general meeting on 14 April 1826 it was decided to raise the necessary capital through a capital increase to 1,200,000 fl. C.M.<sup>197)</sup>

The initial share certificate of the Imperial and Royal First Private Austrian Railway Company from 24 May 1831 bears all the hallmarks of a "modern" share certificate: Designation as share, name of company, determination of nominal value, holder rights, place and date of issue, signed on behalf of company. The

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<sup>197</sup> Hermann Strach, Geschichte der Eisenbahnen Oesterreich-Ungarns. Von den ersten Anfängen bis zum Jahre 1867, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, 1. Band, Nachdruck Wien 1999, S. 94 ff.

vignette with the "horse-drawn train" is particularly interesting, which was obviously to impress the new transport technology onto the public.

The procedure chosen by von Gerstner and the "share company" corresponds to the "classic principles of project management" (if these expressions had been known at the time):

- determining an overriding objective and a description of all possible measures to achieve this objective
- presentation of all the facts that advocate for and against the project
- choice and recommendation of the project that obviously suits the best
- announcement of a thorough project plan including construction costs
- information to the public and formation of a proponent, consortium
- creation of the organisational requirements for implementing the project by setting up a company limited by shares
- obtaining the initial funds through the paid up contributions of shareholders (=equity)
- broadening of financial basis by issuing bonds (= external capital)
- start of technical implementation
- continual reporting to shareholders on the progress of the project.<sup>198</sup>

A further fact barely taken into consideration is particularly remarkable in terms of the railway policy: the construction and running of the railway were not inevitably controlled by the same person. Von Gerstner and his son handled the construction, while Adalbert Lanna as the, lessee of the horses initially ran the

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<sup>198</sup> Diese Vorgangsweise erinnert an den Ablauf, der zur Gründung der Brenner-Eisenbahn-Gesellschaft (BEG) im Jahre 1996 geführt hat.

business.<sup>199</sup>) This meant that a principle was "put to the test" with the very first railway in Austria, which was only introduced in the country after various revisions of the railway, law.<sup>200</sup>

The cost of the horse-drawn railway from Linz to Budweis in the end totalled 1,654,322 fl. C.M., and was thus clearly over the initial estimates.

## **2.2. Railways from Prague to Pilsen and Prague to Lana**

On 30 July 1827 a "concession" was given for the Prague - Pilsen railway based on an exclusive right for 50 years. This was to link Westböhmen with the navigable Moldau river, and for this purpose a company was established in 1825 (1826?) to construct the railway line. The preparations for the construction began as early as 1826. In 1831 construction costs of 255,130 fl. C.M. were accrued and the Prague-Lana section (60 km) was completed. This is why this railway is also known as the Prague-Lana railway.

The procedure for implementing this project corresponds to that applied for the Linz - Budweis railway and the Imperial and Royal First Private Austrian Railway Company. The financial side of things ensued differently, however, as in 1834 the by then completed line was auctioned off for only 55,000 fl. C.M. to Prince Fürstenberg" who then proceeded to lease it to a third party with the task of making the railway operational. In 1839 Prince Fürstenberg was relieved from the obligation of continuing to construct the railway, meaning that it remained a "fragment" of its potential size until further use.<sup>201</sup>

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<sup>199</sup> Hermann Strach, Geschichte der Eisenbahnen Oesterreich-Ungarns. Von den ersten Anfängen bis zum Jahre 1867, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, 1. Band, Nachdruck Wien 1999, S. 104

<sup>200</sup> Siehe als Basis die EU-Richtlinien 91/440 und 95/19 sowie darauf beruhend § 1a (1) Eisenbahngesetz aus 1998, der in Eisenbahninfrastrukturunternehmen, Eisenbahnverkehrsunternehmen, Eisenbahnverkehrsunternehmen und integrierte Eisenbahnunternehmen unterscheidet.

<sup>201</sup> Hermann Strach, Geschichte der Eisenbahnen Oesterreich-Ungarns. Von den ersten Anfängen bis zum Jahre 1867, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, 1. Band, Nachdruck Wien 1999, S. 107 ff

Without going into further historical aspects of this railway line, in financial terms it appears from this second railway project that

- the purchase price and construction costs need not be in accordance,
- railway lines can also be auctioned,
- major projects cannot be implemented without "interested investors" or state guarantees (we would say today) and
- there were also attempts with this project to separate the owner from the construction and operational matters.

### **2.3. Imperial and Royal Private Kaiser Ferdinands-Nordbahn**

The implementation of the "Kaiser Ferdinands-Nordbahn" project ensued in three steps:

- detailed justification of the necessity to construct this planned railway,
- founding of a company limited by shares and therefore the raising of initial capital
- attempts to obtain a "licence" (= approval from the State) for the construction of the planned railway line.

In comparison to the procedure followed when establishing the Imperial and Royal Private First Austrian Railway Company or the Prague-Lana railway, this sequence of events tells us nothing new; even the process of implementing the Brenner tunnel project in 2004 follows the same principle.<sup>202)</sup>

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<sup>202</sup> Durchführung vieler Studien und Einholung mehrer Gutachten, Unterzeichnung eines Staatsvertrages über die Notwendigkeit und die Finanzierung eines Brenner-Basistunnels durch die, Verkehrsminister Österreichs und Italiens, Gründung einer europäischen Aktiengesellschaft, welche die Aufgabe hat, ein baureifes Projekt mit allen Genehmigungen zu erarbeiten.

On 4 March 1836 the S. M. v. Rothschild House obtained the right to establish a railway from Vienna to Bochnia". A significant difference here is that the committee set up to found the company was from today's perspective chosen "cleverly", as it comprised "well-known names". The "programme on forming a company limited by shares to implement a project building a railway from Vienna to Bochnia in Galicia" is marked in particular by the presence of Samuel Biedermann, Baron D. v. Eskeles, Baron H. v. Geymüller, Count Heinrich von Larisch, Johann Mayer, Franz Riepel, Heinrich Sichrovsky, Baron v. Sina and Leopold v. Wertheimstein.

In this respect little has obviously changed. This is why when planning the PPP financing of the Semmering Tunnel the Ministry of Transport targeted the involvement of as many international construction firms as possible, the largest Austrian construction companies and banks as well as consultants who boast an "international reputation".

The project got off to a successful start: "After the preliminary talks the total capital required by the company, not including the side tracks, was set at 11,360,000 fl. ' For this purpose 12,000 shares at 1000 fl. each were to be issued, of which, however, only 8,900 were subscribed, as 4,000 were already snapped up beforehand. As a precaution though further subscriptions for another 2 million were approved..."<sup>203</sup>

Subsequent events surrounding the development of the Kaiser-Ferdinands-Nordbahn were rather more "turbulent": overstepping construction costs, missing deadlines, contemplations on revoking or at least limiting the concession, application to expand the concession, rejection of an attempt to acquire a State guarantee by the Imperial Court Treasury, etc.<sup>204</sup>) From a financial perspective the example of the Kaiser-Ferdinands-Nordbahn shows that one single investor

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<sup>203</sup> Hermann Strach, Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVHI, II. Band, Nachdruck Wien 1999, S. 10

<sup>204</sup> Siehe z.B. Alfred Horn, Die Kaiser-Ferdinands-Nordbahn. Die Bahnen Österreich-Ungarns, Band 2, Wien 1970, S. 15 ff.

who is financially strong is able to push a project through, even under unfavourable circumstances (as we would say today):

#### **2.4. Imperial and Royal Railway from Vienna to Raab and Vienna to Gloggnitz**

Baron von Sina had strong economic support from the Hungarian side of the empire (tobacco and bridge toll monopoly, large-scale land-holding, shareholder in the Danube Steamboat Company (DDSG), etc.). To achieve his goals Georg Baron von Sina was given "... provisional approval to lay a railway line [from Vienna] via Schwechat and Bruck to Raab and Bratislava, then from Vienna via Wr.-Neustadt to Gloggnitz, including all side tracks to Mödling, Laxenburg and Helenenthal, and finally from Wr.-Neustadt via Sopron to Raab, with side tracks heading to Neudörfl and Brennbach".<sup>205</sup>)

The investment capital required for the Imperial and Royal Private Vienna - Raab Railway was estimated to be 12.5 million florins C-M. (for a planned railway track totalling 255.7 km) and was to be raised by issuing 25,000 shares at 500 fl. a share, payable in 50 fl. instalments. "The benefits of the company seemed so plausible that apparently 17,000 shares were issued before the subscription even opened..."<sup>206</sup>

Despite this initial euphoria from the public, the development of the project ensued differently to what was originally planned. "The reason for the sudden abandonment of the construction works for the Raab line was a decision of the Hungarian state parliament to support a new project to build a railway line on the left bank of the Danube between Pest, Bratislava and Vienna ... The anticipated difficulties undoubtedly persuaded Sina to give priority to constructing the

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<sup>205</sup> Hermann Strach, Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, II. Band, Nachdruck Wien 1999, S. 34

<sup>206</sup> Hermann Strach, Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, U. Band, Nachdruck Wien 1999, S. 38

Gloggnitz line, and only following repeated calls for urgency on the part of the government did the work finally begin on the Bruck line."<sup>207</sup>)

Because of restrictions in the economic catchment area of the planned railway line - north of the Danube due to the Kaiser-Ferdinands-Nordbahn and in Hungary due to the emerging Hungarian central railway - Sina considered that his plans for the further construction of railways in Hungary were doomed to failure and thus lost all interest in building the Raab line too... An attempt by the company to obtain a State guarantee for the construction of the Raab line was rejected."<sup>208</sup>

For various reasons and as a result of financial difficulties it was ordered on 17 December 1842 that the die Vienna Raab Railway Company had to change its name and the registration of the new company name, "Vienna-Gloggnitz Railway Company" was to ensue at the Mercantile and Exchange Court of Lower Austria. "The nominal value of the 25,000 subscribed shares of 500 fl. each was also reduced by 100 fl. to 406 fl."<sup>209</sup>) Consequently the cost estimate was over-shot by around 44 %. Schönerer called this ... simply an unpleasant outcome that happens with all magnificent construction projects."<sup>210</sup>) This justification sounds familiar even today.

When the railway was completed over the Semmering pass, the State made use of its right of redemption, recorded in the concession for the Vienna - Gloggnitz railway, and bought this on 4 August 1853 effective from 30. August 1853 with the State taking over the running of the railway from 1 October 1853, whereupon the Vienna - Gloggnitz Railway was once again "re-baptised" the

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<sup>207</sup> Alfred Horn, Die "Wien-Raaber (Gloggnitzer) Bahn" und ihre Lokomotiven, Wien 1971, S. 7

<sup>208</sup> Ohne Autor, 1841-1991. 150 Jahre Südbahnstrecke Wien-Wiener Neustadt, Wien 199 1, S. 8

<sup>209</sup> Hermann Strach, Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, II. Band, Nachdruck Wien 1999, S. 56

<sup>210</sup> Hermann Strach, Eisenbahn mit Dämpfbetrieb, in--Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, II. Band, Nachdruck Wien 1999, S. 50

Vienna - Raab Railway and continued to run the branch line to Bruck/Leitha that was completed back in 1846.<sup>211)</sup>

### **3. General Authority for the State Railways**

#### **3.1. Basic considerations**

Although the financial development of the first railways was "turbulent", there was often the intention to take advantage of the financial assistance of the State and it seemed that completing a project without the commitment of the State was impossible. However, in the end there were many rejected requests for financial support by the State and although delayed the railway lines were in the end completed.

One railway line that could only be assured of completion with the involvement of the State was the line from Venice to Milan. In order to ensure the construction of this railway line, the State had to guarantee that in the event the financial means of the construction company were exhausted, the building would continue to completion at the expense of the State. Later on the State took over the railway by redeeming the preference stocks and shares by issuing a 4 % public bond for this purpose. Therefore this was the first nationalisation of a railway.<sup>212)</sup> The reason for this was principally due to the fact that by means of a priority construction of the railway infrastructure (to use modern terminology) the State was promised a stronger presence and easier access to the "unsafe" Italian provinces.

Therefore-mentioned consideration and desire for a better transport link to the port of Trieste made bridging the Semmering pass a top priority (as we would say today). The knowledge gained from the private financing of railways and the expertise obtained during the Milan-Venice project could be deemed significant

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<sup>211</sup> Herbert Dietrich, *Die Südbahn und ihre Vorläufer*, Wien 1994, S. 17

<sup>212</sup> Christian Dirninger, *Staatskredit und Eisenbahnwesen in den österreichischen Ländern im Verlaufe des 19. Jahrhunderts*, in: *Eisenbahnbau und Kapitalinteressen in den Beziehungen der österreichischen mit den südslawischen Ländern*, Richard G. Plaschka, Anna M. Drabek, Birgitta Zaar (Hrsg.), 1993, S. 194

for the policy of considering strategically important railways (both from an economic and transport policy perspective as well as in terms of strategic military requirements) involving high financial risk (completely new mountainous stretch over the Semmering) to be a duty for the State and ruling private capital out from the very beginning. This combats the risk that an incomplete railway project must indeed be financed and completed by the State after the original company exceeds both construction times and costs by far.<sup>213)</sup>

### **3.2. The Semmeringbahn as a project for the General Authority**

Obviously the idea of a state-run railway prevailed over a privately financed railway. Because although financial instruments in the private economy were developed and had already been used in railway projects, the financing of the Semmeringbahn was to ensue using public finances. Based on the hand-written letter from the Kaiser dated 19 December 1841, the Chancellery decree enacted on 23 December 1841<sup>214)</sup> assigned the newly formed General Authority for State Railways in Austria - as an independent technical and administrative authority and subordinated to the Imperial Court Treasury<sup>215)</sup> the task of establishing the following railway lines:<sup>216)</sup>

- a) From Olmütz, following on from the Kaiser Ferdinands-Nordbahn to Prague and Bodenbach;
- b) From Brünn to Böhm.-Trübau on the Kaiser Ferdinands-Nordbahn line at Olmütz and from there to Prague and Bodenbach;

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<sup>213</sup> Diese Überlegungen aus der Zeit um 1840 erinnern an die grundsätzlichen Diskussionen aus der Zeit um 1990, wie die Eisenbahnverbindung zwischen Frankreich und England am besten zu finanzieren wäre.

<sup>214</sup> Stichwort Österreichische Eisenbahnen, in: Enzyklopädie des Eisenbahnwesens, zweite, vollständig neu bearbeitete Auflage, Freiherr v. Röhl (Hrsg.), Band 7, Berlin, Wien 192 1, S. 427

<sup>215</sup> Hermann Strach Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, H. Band, Nachdruck Wien 1999, S. 72

<sup>216</sup> Aloys Freiherr von Czedik, Der Weg von und zu den Österreichischen Staatsbahnen 18 14-1854/1858 \* 1882 - 1910, Teschen, Wien, Leipzig 1913, Band 1. S. 39

c) From Gloggnitz to Mürzzuschlag (Semmeringbahn), and then to Graz - Cilli - Laibach and Triest..."

Using contemporary language we would say that the General Authority was commissioned to draft and implement a "general transport concept". The following should be noted in this respect: The railway line from Wiener Neustadt to Sopron in Hungary was not permitted for political reasons.<sup>217)</sup> This view seemed to change, see the discussion on the construction of the south-east link through Hungarian national territory as an alternative for the Semmering Tunnel.

The Semmeringbahn was financed by public means through issuing government bonds. The term of these bonds was 3 months and they were made out to the bearer.<sup>218)</sup> This is an extremely short-term form of financing on the money market, which is solely aimed at acquiring liquid funds to cover immediate expenses (as we say today, cash-in-cash-out).

#### **4. The costs of the Semmeringbahn**

##### **4.1. On a florin basis**

In the first edition of the "Pictorial Atlas" von Ghega only provides an overview of the construction costs of all the railway lines and "withheld" the construction costs of the Semmeringbahn. This could also be due to the fact that at the time his book appeared the construction costs had not yet been totalled up. Von Ghega only provided more details in the second edition that appeared shortly after the first. At times though the remarks do not give the impression of commemorating the events but more justifying them. This is probably the result of the hostilities not only surrounding the construction but also the overstepping of the construction cost budget. Niel quotes from the journal of the Minister of Police, Field Marshall Baron Kempen von Fichtenstein: The Semmering railway

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<sup>217)</sup> Stichwort Semmeringbahn, in: Enzyklopädie des Eisenbahnwesens, zweite, vollständig neu bearbeitete Auflage, Freiherr v. Röhl (Hrsg.), Neunter Band, S. 29, Berlin, Wien 1921

<sup>218)</sup> Hermann Strach, Eisenbahn mit Dampfbetrieb, in: Geschichte der Eisenbahnen der Oesterreichisch-Ungarischen Monarchie, Wien, Teschen, Leipzig, MDCCCXCVIII, H. Band, Nachdruck Wien 1999, S. 72

line is to cost over 20 million florins and he considers this to be a potential charge against the whole ministry.<sup>219)</sup>

Table 1: Overview of the railways in operation Source: Carl Ritter von Ghega, Pictorial Atlas of the Railway over the Semmering Pass, Vienna 1854, p. 10

Von Ghega attempted later on to look at the 14.464 million fl. C. M. cost for the substructure of the Semmeringbahn as the largest cost of his project - in relative terms, by comparing it with other railway lines in a cost-per-mile calculation, but even this approach clearly showed the high construction costs of the Semmeringbahn:

#### **4.2. Converting florins to euros and schillings**

Converting the value of one florin Conventions-Münze to schillings and euros is not easy, particularly since the values of objects compared by purchasing power are close to one another or when the living standards of people as well as the type and quality of goods has clearly changed. Nevertheless it is useful as a guide.

A simple worker earned a daily wage around 1848 of 25 kr. C.M.<sup>220</sup> The pay at the military<sup>221)</sup>

- for "common soldiers" totalled 5 kr. C.M. per day, therefore around 2 fl. 30 kr. C.M. per month.
- for a lower-ranking "lieutenant" 24 fl. C.M per month, a "higher-ranking" lieutenant 28 fl. C.M. per month and a first lieutenant 32 fl. C.M. per month.

The annual salary of a Senior Official to the Imperial Bookkeeping Court totalled between 1,200 to 1,500 fl. C. M. less taxes, while the 5,000 fl. C. M. annual sal-

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<sup>219</sup> Alfred Niel, Carl Ritter von Ghega. Ein Leben für die Eisenbahnen in Österreich, Wien 1977, S. 42

<sup>220</sup> Herwig Knaus, Wilhelm Sinkovicz, Wien 1848. Reportage einer Revolution, Wien 1998, S. 141

ary of a Court Councillor was considered to be "excellent income". Every minister received an annual salary of 8,000 fl. C.M., a rental allowance of 2,000 fl. C.M. and an extra allowance for their position of 4,000 fl. C.M., a total of 14,000 fl. C. M. per year.

One single share of the Imperial and Royal First Private Austrian Railway Company totalling 200 fl. C.M. corresponded therefore to the gross annual salary of a "general civil servant". Even a Court Councillor could only have subscribed around 25 shares for his annual gross salary and from the bonds issued by the company amounting to 649,800 fl. C.M. - denominated in 6491 bonds each worth 1,000 fl. C.M. and one worth 800 fl. C. M. should only have bought a total of five. The finding made in literature that the first railway share companies were public companies limited by shares is likely either to be exaggerated or only related to the distinguished members of the public, the shares of these companies were most certainly reserved for large trading firms, industrial businesses and exchange houses (banks).

Statistik Austria worked out the value of one florin to be € 13.48 as of 1 January 2004. Taking the construction costs of the Semmeringbahn given in the literature which ranged from 19.6 to 25 million florins, assessed in euros (or schillings) the construction costs thus totalled € 264.20 million to € 303.30 million (or ATS 3.635 billion to ATS 4.173 billion). This is also the value that was estimated for the construction of the Semmering tunnel.

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<sup>221</sup> Herwig Knaus, Wilhelm Sinkovicz, Wien 1848. Reportage einer Revolution, Wien 1998, S. 387-389