

**Ernst Höltzer** participated in a series of cable-laying projects in the Mediterranean for Siemens & Halske before going to Persia for the Indo-European Telegraph Department in 1863. Five years later the engineer was temporarily released by the British authority so that he could take over as Construction Superintendent for the Persian section of Siemens' Indo-European telegraph line. This biographical portrait describes the challenges confronting the Thuringia-born Höltzer in 19th-century Persia.

The brochure is the third volume in the LIFE-LINES series, which is dedicated to introducing the men and women who have done the most to shape the history and development of Siemens. This group includes businessmen who led the company, members of the Managing Board, engineers, inventors and creative thinkers. A conscious effort has been made to include the lives and contributions of those individuals who are not always counted among the company's most prominent figures.

SIEMENS



LIFELINES

Ernst **Höltzer**

Ernst Höltzer



Ernst

Höltzer

7.1.1835 – 3.7.1911

LIFELINES



Ernst Höltzer, ca. 1881

## Introduction

In the nineteenth century, the globe still had blank spots, travel was arduous and adventure-filled, and—far more than today—people had to rely on themselves when in distant lands. There were no “user manuals” for foreign regions and cultures, and all travel was individually organized. Engineers in that era also faced these challenges. They often traveled to faraway places as champions of the Industrial Age with the goal of implementing the audacious plans of individual entrepreneurs and financiers. As global specialists, they were ambassadors from their companies or countries who—confronted with living in a foreign culture—had to come to grips with a variety of challenges when organizing their professional and personal lives. This volume considers the life of Ernst Höltzer, who helped Siemens build a telegraph system to span the nineteenth-century world and was an outstanding example of those modern-day heroes.

Equipped with a sound, modern education and in general a good ability to cope with life, 19-year-old Ernst Höltzer began his studies of precision engineering and telegraphy in London and Paris in 1854. Contrary to his original plans, after promises of a position with the Thüringer Eisenbahngesellschaft railway company, Höltzer’s career was instead influenced by the up-and-coming field of telegraphy and by working repeatedly for Siemens. As a young engineer, he gained his initial practical experience at Siemens in London; he participated in a series of cable-laying projects in the Mediterranean for Siemens in 1859. While employed by the British Indo-European Telegraph Department (1863–1890), Höltzer worked in Persia using the Siemens technology so familiar to him, learned the Persian language, and gained important cultural and day-to-day experience. This made Siemens want to engage him as an expert during construction of the Siemens Indo-European telegraph line. The center of his life was Persia

(Iran), and his identity was that of a European straddling two cultures.

Höltzer left autobiographical recollections, letters, reports, and some 1,000 photographs that allow his life after the mid-1850s to be reconstructed. The reports and documents describing his work as a telegraphic engineer clearly reveal the specific challenges of his everyday professional life. In his personal letters, he discusses issues of identity and origin, coping with his work and personal life, and aspects of planning his individual life and that of his family. Together with his photographic legacy, the written sources give a lively impression of the daily routine of this Thuringian engineer in Persia during the nineteenth and early twentieth centuries.

## Origins and education

Ernst Höltzer arrived at Siemens by chance and retained his ties to the company throughout his life, although he was employed by the company for only a short time and was thus not a “Siemens man” in the strict sense. Höltzer hailed from Thuringia or, more precisely, the double Duchy of Saxe-Coburg and Gotha, ruled in a personal union starting in 1826. This was one of the small Thuringian states so typical of Germany’s past territorial fragmentation and well-known small-state mentality. By the middle of the nineteenth century, the duchy of Gotha had almost 100,000 inhabitants, 15,000 of whom lived in the town of Gotha, the ducal residence. Most of the duchy, over 1,400 square kilometers, was covered by the Thuringian Forest. Höltzer’s tranquil homeland reflected regional diversity and progress as well as an early orientation to England and the political idea of liberalism. Gotha’s Dukes Ernest I and Ernest II were related to the British royal family and had modern ideas, including promotion of the natural sciences. Renowned astronomers and geographers worked in Gotha, including Adolf Stieler who is known for his cartographic work and atlases.

Ernst, the first of four children, was born on January 7, 1835, in Kleinschmalkalden am Rennsteig near the Thuringian Forest. His father Karl was a forester for the Duke of Saxe-Gotha. Nothing is known about the life of Höltzer’s mother Iduna, née Wemeyer, who died at a young age. Höltzer became a pupil at the Philanthropin (Salzmann School) in Schnepfenthal on June 30, 1844, where he

**1840** The second-born son of Ernest I, Prince Albert, marries Victoria, Queen of England, in London.

**1817–1823** Justus Perthes, Gotha, publishes *Stieler’s Handatlas*, one of the first modern atlases.



Philanthropin (Salzmann School) in Schnepfenthal, 1842

received a solid education. Founded in 1784 by the Lutheran pastor and pedagogical expert Christian Gotthilf Salzmann, the school was known beyond the borders of the Duchy and is considered the home of modern pedagogical theory. Salzmann lived with his pupils in a family-style community and endeavored to prepare them for a self-determined life by offering practical training, physical activity, and a moral role model. Following Salzmann's death in 1811, his son Carl became head of the school, and Höltzer attended

**1744** Christian Gotthilf Salzmann is born in Sömmerda. From 1781 to 1784 he works at the Philanthropin founded by Johann Bernhard Basedow in Dessau.

the Philanthropin during the last four years of Carl's time there. Carl Salzmann's nephew Wilhelm Ausfeld, who had been teaching in Schnepfenthal since spring of 1848, became head of the school in early October of that year. Höltzer left the school shortly thereafter but retained close ties to the Salzmann and Ausfeld families for the rest of his life, corresponding with them or sending messages and greetings to them in letters to his father.

The mental and physical training that Höltzer received in Schnepfenthal was of central importance to his life. His knowledge of modern languages and the natural sciences, as well as his general fitness for life, helped lay a foundation that later made him successful when working and living abroad.

No information is available about Höltzer's further education from 1848 to 1854. He probably obtained an Abitur diploma from the Gothaer Gymnasium Illustre or from the town's Herzogliches Realgymnasium, then and prepared for engineering studies. He wrote in his autobiographical notes that his father had discouraged him from following in his footsteps as a forester, which Ernst had wanted to do, because of his timidity and weak constitution. For health reasons, he was also rejected as unfit for military service following an aptitude test, probably in 1846.<sup>1</sup> Some 20 years later, Höltzer recalled, tongue in cheek, the feeble youth he had once been:

*"Since my lifetime of laying cable on a ship, defying storms and water, traveling by locomotive, resisting wind and fire, my wanderings and construction of the line in Persia with all classes of barbarians [...] you will now certainly understand that I could have replaced ten huntsmen in the Thuringian Forest."<sup>2</sup>*

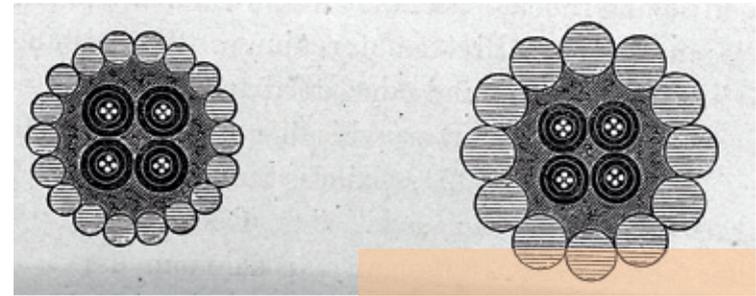
**1786** In Schnepfenthal physical exercises and games, hiking and gardening are an integral part of school education.

## Studies and start of professional life

Höltzer was 19 when he traveled to London and Paris, which at that time were the centers of engineering training. He studied precision engineering in London from May 1854 to April 1856 and in Paris from April 1856 to 1858. While in London, Höltzer met other young engineers as well as Ludwig Löffler, who was four years his senior. Höltzer became close friends with Löffler, a native Berliner, who would later become one of his financial advisers and his most important contact at Siemens.

To gain more experience while also not overextending his budget, Höltzer spent almost three months in Berlin in 1858. It is not known how he spent his time in the Prussian capital, only that he found employment in the precision engineering shop of Benecke & Wasserlein. He then returned to Paris with the objective of obtaining “advanced training in precision engineering” along with his cousin Carl.<sup>3</sup> Precision engineering was a key qualification for installing and repairing telegraph equipment. While in Paris, Höltzer again met Löffler, who stayed there on his return trip to London after an English cable expedition in the Mediterranean. Löffler regaled his friend with his experiences laying undersea cable between the town of Cagliari in Sardinia and Bona (Annaba), a city on the northern coast of Algeria, work in which Werner von Siemens had also participated. The simple dynamometer von Siemens had constructed, which controlled the speed at which the cable sank to the seabed, contributed substantially to the success of the cable laying.

**From 1858**, Ludwig Löffler is one of the closest colleagues of William Siemens, who has been responsible for Siemens & Halske’s English business since the early 1850s.



Cagliari–Bona marine cable (section),  
manufactured by Newall & Company 1857  
(Left: Deep-sea cable, right: Coastal cable)

The first submarine cable for message transmission had been laid in the English channel in 1850, and major investments were made in the 1850s and 1860s to expand telegraph networks all over the world. Telegraph companies mushroomed all over Europe and the United States. The systems’ technical infrastructure was usually built by British and American companies, including the English cable manufacturer R. S. Newall & Company—often in collaboration with its German competitor Siemens & Halske. Media attention on the laying of the transatlantic cables, which began in 1854, overshadowed the British government’s efforts to establish fast, reliable communication between London and India. Newall & Company, with the participation of Siemens & Halske of Berlin and Siemens’ new English subsidiary, Siemens, Halske & Co., laid the challenging section between Suez and Karachi to connect to British India in 1859–60. Additional cables were laid in the Mediterranean during that period.

**1858** The American entrepreneur Cyrus W. Field has the first transatlantic cable laid between North America and Ireland; it is only in operation for a few weeks.

### Working on the “staff of submarine engineers”<sup>4</sup>

The boom in the telegraph market brought excellent employment opportunities for engineers. Ludwig Löffler had captivated Höltzer and his cousin Carl with reports of his experiences, and he also drew their attention to opportunities for work on specific projects at Siemens & Halske. The cousins took to heart Löffler’s advice to complete further studies “in the science of telegraphy” in Paris and then apply for positions with Siemens in London. They were soon part of the “cable-laying expeditions that followed shortly thereafter”. Höltzer noted in a report on his first cable expedition that “because mastery of the English language in particular was the first requirement, [...] few other people applied”.<sup>5</sup>

Carl first travelled to the Red Sea to lay cable, while Ernst embarked on the cable ship *Elba* and travelled to the eastern Mediterranean with Löffler and Charles Liddell, a technical specialist and business partner of Robert Stirling Newall. The young engineer gained valuable experience as he saw for himself the typical problems involving materials and laying submarine cable during the technology’s early days. In 1859 he helped repair the under-sea telegraphic connection between Malta and Corfu and lay a new section between Otranto on the southern Italian coast and the Greek island of Corfu.

Höltzer later met up with his cousin Carl. Both of them were planning to work laying cable between the Balearic Islands and the mainland for the Spanish government. After successful completion of that project, Ernst was given the position of director of that section. While waiting to assume his new duties, he “purchased a Spanish-German grammar book and dreamed of Spanish castles in the sky”.<sup>6</sup> However, he barely had a chance to use the grammar book. His employment in the Mediterranean ended suddenly

**1839** The engineers Robert Stirling Newall, Charles Liddell and Lewis Gordon found the firm R. S. Newall & Company.

when the follow-up contract could not be implemented due to the war between Spain and Morocco. The two young men now parted ways. Ernst returned to Germany, while Carl travelled to London and worked for Siemens in regions that included South Africa and Brazil. In 1867–68 Carl worked on preparations for the construction of the Indo-European telegraph line (known as the Indoline for short), prospecting the land along the sections that Siemens would build in Russia. Both cousins—Carl in Russia and Ernst in Persia—would work on the Indoline.<sup>7</sup>

Ernst Höltzer experienced adventure-filled situations while on the Mediterranean, encountering the Middle Eastern culture and mentality for the first time. In addition to the Greek islands, his travels took him to Constantinople (Istanbul), the Levant, and Alexandria. To return to Thuringia, he and another employee chose the route from the Balearic Islands along the Italian coast. The young men hoped “to see as much [...] of Italy as possible on the way home”. Accordingly, they traveled by steam ship via Messina, Naples, Pompeii, and Herculaneum to Genoa, then by rail to Milan via Venice and Trieste, by the Semmeringbahn scenic railway to Vienna, on to Prague, and finally to Thuringia via Berlin. To Höltzer, the entire trip seemed “like a dream”.<sup>8</sup>

Höltzer had achieved a great deal by the end of 1859. During his years of study and travel, he had received a solid education and was given the opportunity to increase his professional qualifications and improve his practical knowledge of foreign languages. He had kept up with the times in two influential cultural capitals, London and Paris, where he acquired a certain worldliness and a touch of British manners.

Little is known about where he lived over the next few years. Höltzer worked for Siemens & Halske in Berlin until November 1860; he mentions advanced studies in Berlin and London during

**1857** There are direct rail connections between Vienna and Trieste and between Venice and Milan. It takes two hours to cross the Semmering between Trieste and Vienna alone.

the period up to March 1862. His father wanted Ernst, now a 26-year-old engineer, to establish himself back home in Thuringia. Hoping for employment with the Thüringer Eisenbahngesellschaft railway company, Höltzer worked for Borsig, a mechanical engineering and locomotive manufacturing company in Berlin from 1862 to 1863, preparing for his new duties and his first permanent position, possibly even a position for life. However, there was an indefinite delay in awarding the concession for the rail line, which meant that the start of construction was also delayed, so Höltzer had no choice but to wait. Learning of his situation, Ludwig Löffler contacted Höltzer from London with an offer that would give new direction to Höltzer's life.

**1837** August Borsig establishes a foundry and mechanical engineering institution in Berlin, which three years later builds its first locomotives.

## Plans for the first telegraph lines to India

By the time of the Indian Rebellion of 1857–58, it had become very important for Great Britain to have a rapid communication link to India, its most important colony. The British wanted to be as independent as possible, so they favored a submarine cable instead of a land-line through the territories of multiple countries—especially since the Ottoman Empire was refusing the necessary concessions for a line through its territory. The British therefore decided to install their own line. Building on the telegraph cable that Höltzer had helped to lay in the Mediterranean, the connection to India would be established by a 5,600-kilometer cable from Suez through the Red Sea to Karachi. The project was headed by the newly-created Red Sea and India Telegraph Company; the cable was supplied and laid by Newall & Company in collaboration with the Siemens companies in London and Berlin. Siemens was responsible for electric monitoring of the cable laying and for supplying and installing the necessary equipment. The connection was established in several subsections between May 1859 and March 1860. Due to the technical challenges—no one had any experience with building and operating submarine lines that long—Werner von Siemens, along with “an entire staff of electricians and mechanics”<sup>9</sup> participated in laying the first section. He wanted to be sure that his “Red Sea system” would function into the future.

Thanks to a system Werner von Siemens had developed to measure electric line resistance, it was possible for the first time to

**1858** The Red Sea and India Telegraph Company is founded as a private company with headquarters in London.

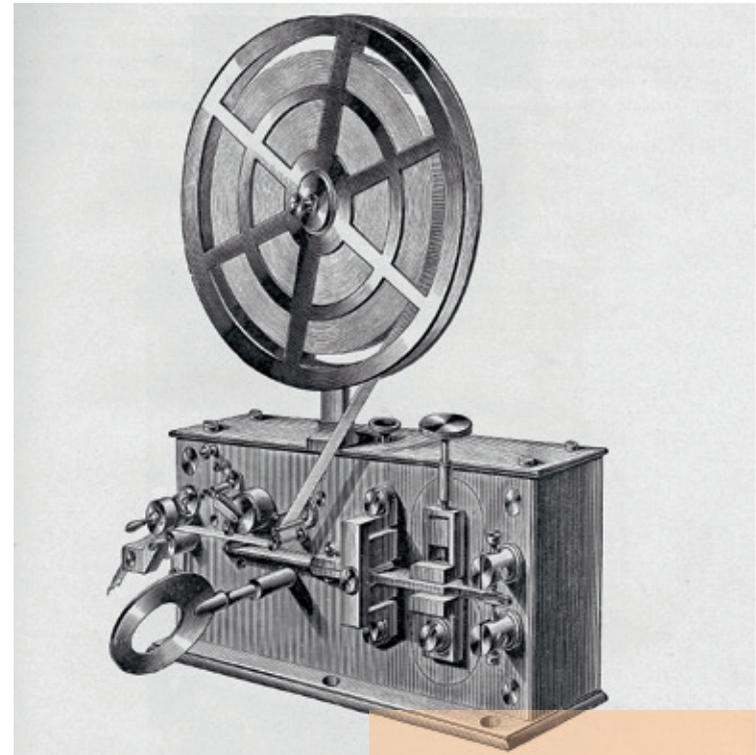
identify damaged parts of a cable to within a few kilometers. However, there was a total failure of the system in the Red Sea shortly before work ended in March 1860. The warm saltwater and mechanical friction on the coral beds near the shore had quickly destroyed the cable, and there was no technical solution in sight. Furious efforts were made in Great Britain to find alternatives, because the line to India was of vital strategic importance. The British government had also assumed the entrepreneurial risk by guaranteeing the interest on the capital of the Red Sea and India Telegraph Company, a commitment that threatened to result in payment obligations.

The cable sections in the Red Sea were declared definitively irreparable in spring of 1861, and the search for alternative overland routes began. Possibilities for routing the line from Karachi in India to the Persian Gulf included connecting to existing European communication links and to the land-line through the Ottoman Empire along the Euphrates to Fao, which was under construction. However, only the section to Baghdad had been completed at that time. The British could not be sure that what was called the Turkish line would actually continue on to Fao, so they simultaneously negotiated with the Persians for a connection from Bushire on the Persian Gulf via Isfahan and Tehran to Baghdad.

### Back to the drawing board

This was the very situation that the British had attempted to avoid at all costs by laying undersea telegraph cables. They now had to make arrangements with the governments to run overland lines through their territories. Given the setbacks of recent years, work began in earnest, closely scrutinized by the press back home. Responsibility for the large-scale project was handed to the India

**1861** The Constantinople-Baghdad telegraph line constructed by the Turkish government goes into operation.



Polarized Morse inker, receiver used in the "Red Sea system", 1859

Office. The project was headed by Patrick Stewart, a Royal Engineer with experience in India and in the field of telegraphy. Stewart traveled through the region for two years to inspect the existing lines, and he suggested the future route of the new line that would be built.

**1859** On the line opened through the Red Sea, a 20-word telegram from Alexandria to Aden costs 40 shillings.

Both the Sultan of the Ottoman Empire and the Shah of Persia viewed the telegraph project as offering diplomatic recognition and increased status to their countries. They also recognized an opportunity to obtain a modern communication network for their countries and to earn extra income from awarding concessions and operating the lines. All of the necessary contracts were signed by the end of 1863, and Siemens delivered the technical equipment for line construction, which was just beginning. The preferred candidates for the work of establishing the communication links in Persia and parts of the Ottoman Empire were engineers who were already familiar with Siemens technology. With Löffler acting as an intermediary, Ernst Höltzer was recruited based on his qualifications—fluency in German and English, experienced in building telegraphic systems, and familiar with Siemens technology. Höltzer’s promised position with the Thüringer Eisenbahngesellschaft railway company had not yet materialized, so he welcomed the offer from London in 1863.

## Hired by the Indo-European Telegraph Department

Höltzer traveled from Thuringia to London via Berlin and Hamburg in early July 1863. While in Berlin, he began preparations for his journey to Persia. His travel fund was almost depleted after his initial purchases, so he asked “the ship’s agent in Hamburg to advance [him] the ticket because [he] could not pay for it until reaching London, and the agent gladly issued the ticket when given the address of the Siemens business”.<sup>10</sup> After arriving in London, Höltzer “presented [himself] to Mr. [William] Siemens in Great George Street” the very same day” and met his “old friend and benefactor” Löffler.<sup>11</sup> The next day he met for the first time with Patrick Stewart, who since 1862 had been Director General of the Indo-European Telegraph Department, and John Underwood Bateman-Champain, in charge of the Persian portion of the construction. Höltzer was hired for three years as “Inspector Persian Telegraph”, with an annual salary of 300 pounds sterling and a “prospect of improvement”. It was planned that the 28-year-old engineer would initially remain at headquarters in Tehran to train the Persian telegraph operators. As soon as the ships with the construction materials for the telegraph line arrived from England, he was to travel to Isfahan and supervise the construction of the line in the southern part of the country.<sup>12</sup>

Höltzer worked at Siemens until his departure from London in early August, testing and inventorying the materials to be sent to Persia and assembling the items he would take with him. He also took advantage of the opportunity to visit friends from his days as

**1858** The British government establishes the so-called India Office. The authority with headquarters in London is responsible for the administration of British India.

**1865** After the death of Patrick Stewart, John Underwood Bateman-Champain first works under the new director of the Indo-European telegraph administration and then succeeds him in 1870.

a student and to explore the British capital, which had changed dramatically since his last stay. As he reported to his family, a new feeling gradually developed in him: “Now that I’m again living in a free atmosphere, I also dare to think freely again, because the pressure of the German—especially Prussian—atmosphere is no longer weighing on me [...]”<sup>13</sup>

### Preparing for the journey

Höltzer did his best to prepare for his life and daily needs in Persia. For example, he had to buy clothing suitable for official occasions and for traveling by horse in a country with unfamiliar climatic conditions. He also had to buy equipment that was unavailable or very expensive in Persia—things like rifles, a revolver and a large money bag. To enable him to purchase everything he needed for his trip, his new employer gave him a two-months’ advance on his wages. Practical suggestions would have been helpful in this situation, but few Europeans were familiar with Höltzer’s destination. There was no relevant literature like the Baedeker guides, which owed their reputation to the reliable general information they provided about various countries, along with specific recommendations on just what to pack. It was not until 1895 that John Murray published a travel guide to Asia Minor, the Transcaucasus, and Persia.<sup>14</sup>

Luckily, Höltzer was able to get some first-hand information from Heinrich Ferdinand Karl Brugsch, an Egyptologist who had joined the first Prussian legation to Persia as vice consul and secretary in 1861–62 and was just publishing a two-volume travel report.<sup>15</sup> On his way from London to Tehran, Höltzer visited Brugsch during the first of two extended stays in Berlin. He wrote to his family about the meeting:

*“Dr. Brugsch [...] described Persia to me in thoroughly unfavorable terms, making me wish to take leave of the place immediately. [...] I thought all aspects of the matter over more calmly and found that I had already come too far to be able to withdraw honorably, and decided not to be led astray and to pursue my objectives bravely and in defiance of death.”<sup>16</sup>*

After this brief but intense phase of doubt, Höltzer finished packing and acquired Brugsch’s book and a Persian grammar book, as well as a concertina, a new pocket watch, and *Stieler’s Hand-atlas* “for 10 reichstaler, a thermometer, [...] and] a ration of winter and summer boots to last three years”.<sup>17</sup> He also began learning Persian during his journey to Tehran, which took almost two months.

### The road to Tehran

The fastest route from London to Tehran in 1863 led through St. Petersburg and Moscow to the Volga and then over the Caspian Sea to Persia. Höltzer, accompanied by two English colleagues, took the train to Nizhny Novgorod. He then proceeded by steamship along the Volga, Europe’s longest river, to the Caspian Sea. A lengthy sojourn in St. Petersburg was necessary to clear customs, allowing Höltzer to visit the Russian branch of Siemens & Halske. “I was given a friendly reception [...] at Siemens, where advice and assistance were offered; I reserved the possibility of asking for money to be advanced if I found that necessary.”<sup>18</sup>

The entire journey was full of new impressions and interesting encounters, which Höltzer described in lengthy letters to his father and sister. Immediately after landing in Persia, he got a foretaste of the efforts that would be required when building the

**1832** The first Baedeker travel guide is published in Coblenz—a revised edition of the *Rheinreise* (Rhine journey) by the historian Johann August Klein.

**1855** The construction office opened in 1853 by Siemens & Halske in St. Petersburg becomes an independent branch.

telegraphic line. For the first time he had to assemble a caravan for himself, his two colleagues, and their considerable baggage, then obtain the services of a local leader, including saddle horses and pack horses, and place himself in the leader's hands. The new arrivals travelled from Rascht to Tehran along a telegraph line built by Italian engineers, and "after a dangerous six-hour ride",<sup>19</sup> the party entered Tehran on October 4, 1863.

### Persia in the nineteenth century

By the nineteenth century, Persia's cultural and economic glory days were far behind it, and the last enchanted descriptions by Europeans were 200 years old. After the fall of the Safavid Dynasty, the country had been reunited in the eighteenth century under the Qajar Dynasty, which became an important power in the Middle East. However, an attempt to restore the old borders in the early nineteenth century had enmeshed the country in military conflicts with the Russian Empire in the Caucasus and the colonial power of Great Britain in Afghanistan.

In the struggle between Russia and Britain for political, military, and economic supremacy in the region, Persia had become the pawn of the two great European powers. Russia was expanding its territory in the Caucasus at the expense of Persia, while Great Britain was attempting to secure its land links to India and stop Russia from further expansion through Afghanistan in the direction of the Indian Ocean. The technical and military superiority displayed during these conflicts was a horrifying new reality for the Persians. Persian diplomats were therefore endeavoring to use friendship and trade agreements with other European countries in an attempt to free the country from being squeezed by the strategic rivalry between the Russian and the British Empires.

**1804–1828** As a result of the two Caucasian Wars in 1804–1813 and 1826–1828, Persia loses large parts of its territory in the northwest to Russia.

A mission travelled to Vienna for the first time in 1839 in search of potential partners in an alliance. The effort was unsuccessful, and it was not until 1857 that a Persian legation that had arrived in Paris in 1856 was able to enter into treaties with Austria and Prussia, among others. The Persians signed a peace agreement dictated by Great Britain, which ended the conflict over Afghanistan, in March 1857.

Against that backdrop, the plans of the British-Indian telegraph administration were of great interest to Naser al-Din Shah, who had ruled Persia since 1848, for several reasons. Negotiations with the Indo-European Telegraph Department to grant a telegraph concession represented a symbolic improvement in the status and diplomatic recognition of Persia. The project also promised the construction of an up-to-date communication infrastructure. Awarding the concession to foreign individuals or companies was also attractive to the Shah because the concession fees and annual income from operation of the telegraph system would be paid to him personally and would therefore finance his luxurious lifestyle. On the other hand, the telegraph concession and other concessions awarded during the nineteenth century made Persia much more economically dependent on Great Britain.

The Persians were also attempting to learn from Europe, and made tentative efforts to modernize the country—opposed by highly traditional forces—during the first half of the nineteenth century. Crown Prince Abbas Mirza brought western military advisors to the country and sent young Persians to study in Europe. Under Naser al-Din Shah, the reform policies of Prime Minister Mirza Taqi Khan, known as Amir-e Kabir (Great Leader), continued slowly, and the Dar ul-Funun (polytechnic), the country's first modern institution of higher learning, was founded in 1851. Foreign faculty taught military, scientific, and medical subjects. All of the

**1857** The Treaty of Paris ends the British-Persian war, which was triggered by a Persian attack on the Afghan province of Herat in October 1856.

other Europeans living in Persia at the time were business people and missionaries, diplomats, and employees of British, Russian, and French legations.

### The first months in Tehran

In 1863, the Persian headquarters of the Indo-European Telegraph Department was built in Tehran. Höltzer moved in for the next few months right next to the British Legation and began to set up housekeeping. Most of his social life took place at the Legation. He got to know other Europeans, as people invited each other to dine, played gentlemanly billiards or cards, and exchanged personal news or European newspapers. Höltzer knew the English language and customs well and also spoke fluent French, and he soon cut a fine figure. He made his first friendships, including with the Austrian Albert Joseph Gasteiger, who—recruited by the Persian government as an “engineering officer”—had been living in Persia since 1860. Born in the Tyrol, Gasteiger built roads, bridges, and buildings to European standards all over the country. He also planned the first rail section in Persia, to be built in Tehran, but it was not completed until the late 1880s. Gasteiger was the first European to receive the title “Khan of Persia”. He was highly esteemed by the Shah, and became an important advisor and confidant to Höltzer, who was 12 years his junior.

Höltzer’s primary task was to train future Persian telegraph operators at Dar ul-Funun. Most of them “were aged 18 to 20, appearing intelligent and astute [...], were all called Prince, with a Mirza at the end and beginning, or Khans, in other words all from highly-placed families”.<sup>20</sup> Practical training for the young men included telegraphing in English and Persian and preparing telegrams from dictation. Höltzer also taught his students



Train station in Tehran, ca. 1890

the fundamentals of English, improving his own Persian in the process. He also adapted the telegraphic writing standard to the Persian alphabet, developing a “new alphabet for telegraphing in Persian”.<sup>21</sup>

**1831** Naser al-Din Shah is born in Tabriz; from 1848 to 1896 he is Shah of Persia.

**1852** The Persian Prime Minister and reformer Mirza Taqi Khan is murdered in Kashan.

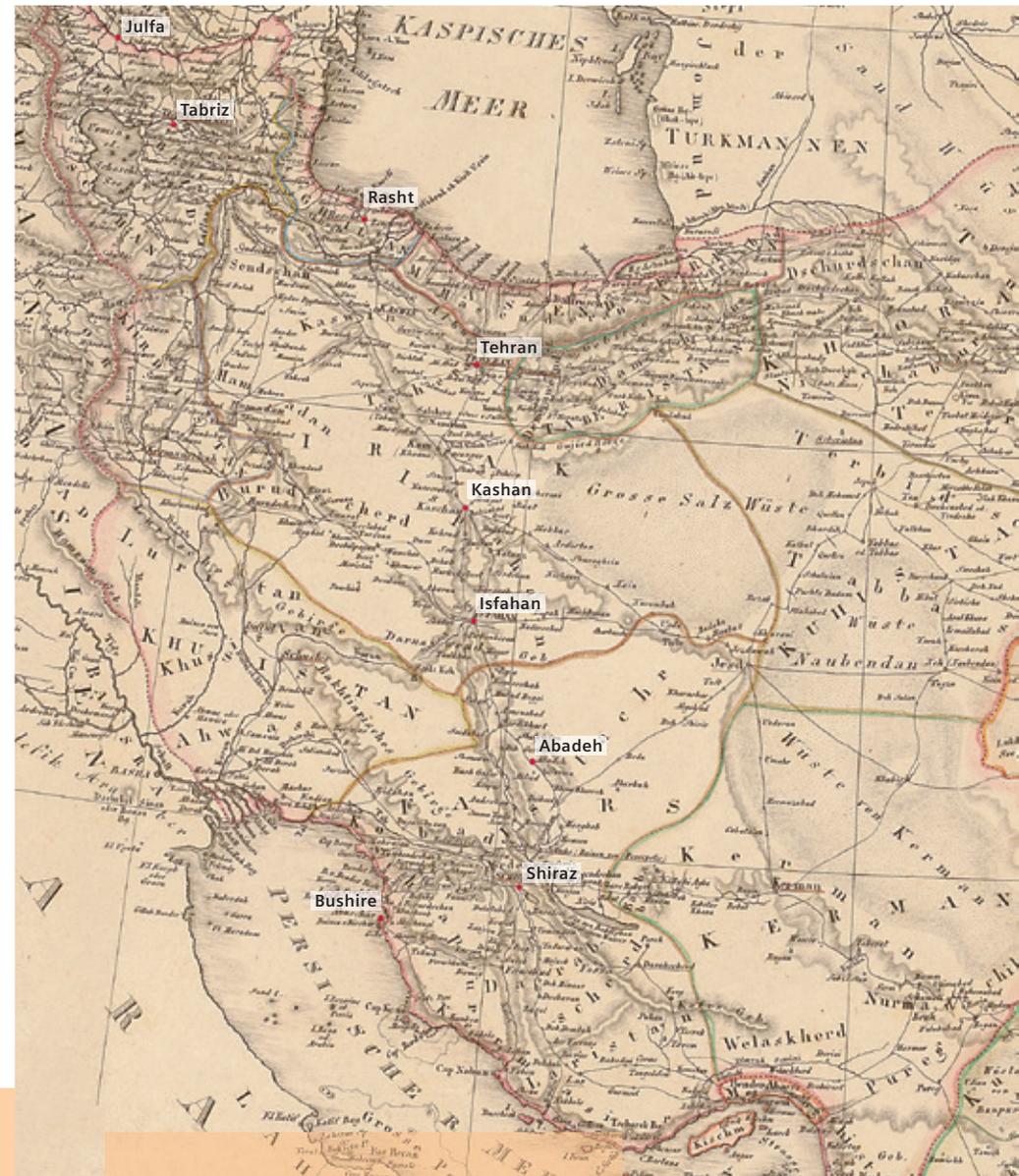
**1888** The first railway line in Persia, which runs between the Tehran bazaar and the Abd-al-Azim mosque goes into operation.

## Traveling as a telegraphic engineer

During Höltzer's first few months in Persia, the telegraph administration was organized in Tehran and preparations were made for construction of the line. There were already communication links from Tehran to Tabriz and on to the Russian border, along with a line from Tehran to Rascht, and now a completely new link from Tehran to the Persian Gulf would be built. The land line would be connected to the submarine cable to Karachi, which ran between the Euphrates and the mouth of the Indus River. The material for the new telegraph line was sent by ship from Europe to Basra and Bushire on the Persian Gulf. From there, Persian caravans distributed it along the planned route. The Tehran–Ghom–Isfahan, Isfahan–Shiraz–Bushire, and Tehran–Hamadan–Kermanshah–Baghdad lines were divided into individual sections and jointly constructed by Britons and Persians. The contract for construction and operation of the lines specified that Persian construction crews and sufficient wooden poles for construction of the line would be available to the British engineers on site.

Höltzer soon saw for himself how difficult it was to put agreements of this kind into practice. The British colleague who was supposed to work on construction of the line was unavailable, so Höltzer now had to superintend the Kashan–Isfahan and Isfahan–Abadeh lines. This led him to travel to Isfahan, some 400 kilometers south of Tehran, for the first time in spring 1864. The arduous journey on horseback took him, among other places, through the foothills of the Kuhrud Mountains, one of Persia's highest moun-

**1862** The British and Persian governments sign a contract for the construction and operation of a telegraph line between Tehran and Bushire on the Persian Gulf.



Persia, ca. 1840 (detail)  
Source: *Atlas de l'Empire ottoman*, Plan 13 by J. J. Hellert.

tain ranges. At last, Höltzer arrived in Isfahan, the former capital of the Safavid Empire. There, he established his base, although he would sometimes be absent for months at a time, working on the telegraph line.

### Construction of the telegraph line

Höltzer was the only telegraphic engineer on the expedition, and his only assistants were two British corporals and an Armenian craftsman hired in Isfahan. The construction crew assembled by the Persians was made up of 150 men. They were untrained and not very motivated, and a new crew had to be recruited in every administrative district through which the section ran. The contract between the Indo-European Telegraph Department and the Persian government specified that workers were to be hired, paid, and provisioned by each local administration.

The telegraph builders were anything but welcome as they travelled through the country. As Ernst Höltzer wrote in one report on the work, “the governors and lower officials and the khadkodare or village mayors, and particularly the priests, were all closed against us and our enterprise, so the population was, too, and sought to hinder us when and as much as they could”.<sup>22</sup> Local authorities did not consider themselves bound by agreements with the Shah back in the capital, construction material was not delivered on time, bills for provisions were exorbitant, and workers were not properly paid. The government inspectors accompanying the construction crew had little authority, so the promised support sometimes had to be secured with bribes or even force.

One reason for the resistance was aversion to a strictly organized, centralized state. Many in the provinces viewed telegraphy

as an instrument of control by the Shah and therefore a threat to local autonomy. This was particularly true for the nomadic people, who from the viewpoint of the government lived independently with almost no control. Those in the provinces also saw the Europeans as troublemakers who threatened the existing system merely by their presence, the technology they brought with them, and their actions. Accordingly, Höltzer had to engage in a series of conflicts with local authorities over power and status, and was constantly battling attempts at fraud.

He valiantly tackled the work in spite of these difficulties. In an attempt to protect the progress of the project against theft, robbery, and vandalism, Höltzer engaged some 30 soldiers who were stationed in Isfahan, offering them a bit of extra income to supplement their irregular pay. He learned to negotiate with local authorities, adapted to local customs, and knew how to use force to exercise his authority if necessary. Höltzer repeatedly mentions use of a horsewhip in his report about work on the Isfahan–Abadeh section. He took deliberate action—tough by European standards—against looting and theft, including among his own ranks. But he was just as deliberate in ensuring that workers were properly paid by the Persian officials, who missed no opportunity to fill their own pockets.

The mountainous, near-impassable terrain and the extreme climate made transporting materials and installing and maintaining the telegraph lines extremely difficult. Before the actual construction work began, Höltzer had to “make a rather precise inspection of the area and keep my eyes and mind open so that the line could be extended and built as quickly and as well as possible, to ensure that later repairs would always be easy and quick”.<sup>23</sup> Detailed planning of the route also had to consider seasonal conditions such as hoarfrost on the line in winter and melting snow in spring.

**In the 19th century**, Persia is divided into 13 provinces. Their governors are the heads of the highest financial and judicial authorities. The local administrations are headed by sub-governors, district superintendants and village administrators.

**1865** In his book *Persien. Das Land und seine Bewohner* the doctor and ethnologist Jakob Eduard Polak gives a detailed description of the life of the Persian nomadic tribes.

Under those conditions, about one German mile (7,532 meters) of telegraphic line was “hung” each day. The Kashan–Isfahan section was completed in one month, and the Isfahan–Abadeh line took two months. The work for which Höltzer was responsible was complete and the telegraph stations were installed in July 1864; for the first time, telegrams could be sent within Persia. The first message was sent by the eldest son of Naser ad-Din Shah to his brother, who lived in Shiraz. Höltzer later remembered that Sultan Mass’oud Mirza arrived “with pomp and circumstance” and appeared glad “to be able to correspond so well and so fast”.<sup>24</sup>

Höltzer had successfully completed his allotted task, and he now handed supervision of the Isfahan Division back to a British official. He stated that he was

*“Happy to be rid of the horrible cash management and accounting; when spending some 2,000 pounds sterling over a few months, one must be on the alert not to lose one’s own money and then to do a proper accounting, which caused incessant paperwork.”<sup>25</sup>*

### Operation of the telegraph begins

After his return, Ernst Höltzer remained in Isfahan, moving into the Armenian district of Julfa. He spent his leisure time with other Europeans and with Armenians from the colony who had been in the city since the seventeenth century. His work for the Indo-European Telegraph Department gave him sufficient free time to improve his personal language abilities while on duty: “In my present position, I have a great deal of time and am again doing a great deal of work on the Persian language. Reading and learning to write are very difficult, but I have the time for this and can thus usefully spend the otherwise stultifying boredom.”<sup>26</sup>

**c. 1850** Sultan Mass’oud Mirza Zell-e Soltan, the oldest son of Naser al-Din Shah, is born in Tabriz. At the age of 22, he becomes governor of the province of Isfahan.

The connection through Persia, which was established in sections, was ready before the Baghdad–Fao subsection of what was known as the Turkish line. Construction of this communication link, which ran along the Euphrates to the Persian Gulf, was prevented by Arab tribes who attacked the construction crews and destroyed finished sections of the line. But the land-line through Persia that had just gone into operation was not very reliable at first. Breaks in the cable due to weather or faulty installation required frequent repairs, often in near-impassible areas. Repairs and maintenance took days, sometimes weeks during the winter. Message transmission was relatively slow and prone to error, because telegrams had to be written down and recoded at each intervening station. Messages received by the final recipients could be incomplete or contain errors if the telegraph operator failed to understand or only partially understood the content as a result of language barriers and comprehension problems. The first direct transcontinental communication link between Great Britain and India—following the successful laying of the submarine cable through the Persian Gulf and the Arabian Sea to Karachi in autumn of 1864—was finally within reach, so the Persian line had to operate reliably as soon as possible. Höltzer therefore travelled constantly from late 1864 to early 1865 remedying damage to the line. He spent his thirtieth birthday, which he almost forgot in the midst of the repair work, in Ghom.

**1604** Several thousand Armenians from the northern Persian city of Julfa are resettled in Isfahan. In memory of their former home, the new settlement outside the gates of the city of Isfahan is also called Julfa.

Höltzer travelled to Germany in spring of 1868 for three months' leave, his first return to Thuringia in five years. During his stay, he acquired photographic equipment that he took with him when he returned to Persia.

## Perspectives

Höltzer had now been working for the Indo-European Telegraph Department for almost 18 months. The future of the contract with this “confirmed bachelor”<sup>27</sup> was uncertain. His thoughts fluctuated between hopes of an extension to his employment in Persia and the possibility of working on telegraphic projects in Australia and America. Neither had he completely rejected the plan of returning to Thuringia after his years of education and travel. In one letter, he wondered “whether the Lord and the residents of Thuringia would afford a little job for settling down and enjoying a peaceful life close to home!”<sup>28</sup>

Persia was to remain the center of Höltzer's life for the foreseeable future. The Persian government extended the telegraph concession to the British in late 1865. It was agreed to set up a second link solely for transmission of messages within Persia. Höltzer's contract was extended, and he was promoted from Inspector Persian Telegraph to the rank of Assistant Superintendent. He spent most of his time over the next few months in the saddle, working either on installing the second line or repairing the existing link. The smooth transmission of messages was still being hampered by cable breaks. He was matter-of-fact about this time in his life:

*“The New Year began afresh with hard work, although much snow descended from the heavens during the night. [...] My existence appears to be devoted to work, and I also want to regard work as my friend.”<sup>29</sup>*

**1865** Ernst Höltzer is responsible to the Superintendent for the province of Isfahan. This post is held by an experienced official from the Indo-European Telegraph Department.

**1839** Friedrich Wilhelm Enzmann advertizes his products in the *Dresdner Stadtanzeiger*; the entrepreneur ranks as the first producer of cameras in Germany.

## The Siemens Indo-European telegraph line

Increasing communication between Europe and India had encouraged Werner von Siemens to build another Indo-European telegraph connection to the existing lines through the Ottoman Empire and Persia. With the support of his brothers William and Carl, Werner was able to get several countries interested in the project between 1865 and 1868 and to use that interest for the benefit of the project as a whole. The British still wanted fast, uninterrupted communication with India, Prussia could serve as an important transit country, and Russia was interested in expanding its telegraphic network. The Shah of Persia was also tempted by income from concession fees and the possibility of using relations with other European states to at least symbolically resist being squeezed by the strategic rivalry between the Russian and British Empires.

As described above, weather conditions, maintenance issues, and organizational shortcomings made the Indo-European Telegraph Department's line that Höltzer was working on both unreliable and slow. In an effort to avoid error-prone, time-consuming manual transmission at the intermediate stations, Werner von Siemens developed a technical solution that allowed telegrams to be transmitted automatically from one section of the line to the next. This process, which he called "automatic translation", provided the technical edge that secured the future of the Siemens brothers' Indoline over other links. The transmission process was also automated using punched paper strips.<sup>30</sup>

**1858–1864** Negotiations between Great Britain and the Ottoman Empire over the construction of the southern section of the "Turkish line" from Baghdad to Fao last a total of six years.

Thanks to personal contacts and skillful negotiations, by 1867 Siemens & Halske had been awarded the concessions it needed to build lines through Prussia, Russia, and Persia. A cooperation agreement for connection to the existing British-Persian line to India was signed with the Indo-European Telegraph Department, so Siemens "only" had to build a new connection from the border between Prussia and Russia to Tehran—a distance of 4,600 kilometers. Siemens & Halske and Siemens Brothers, as the English subsidiary was known after 1865, worked as general contractors for the newly-created Indo-European Telegraph Company (IET), handling the construction, operation, and maintenance (known as "Remonte") of the Indoline, whose total length was 11,000 kilometers. All three Siemens companies participated in completing this major project. The Berlin parent company shared responsibility for constructing the land line with the St. Petersburg branch, while Siemens Brothers handled the laying of the submarine cable in the Black Sea and all shipments of materials to Russia, the Caucasus, and Persia. Siemens & Halske Berlin also supplied the telegraphic apparatus developed by Werner von Siemens, which would equip all operating stations along the line.

### Engagement as a construction manager for Siemens

The message about the Indoline planned by Siemens had reached Höltzer back in autumn 1867, six months before his leave in Germany. Werner von Siemens accorded great importance to engaging Höltzer as a telegraphic engineer with experience in the Middle East. He made a specific request to his brother William in London:

*"Just get Ernst Höltzer away from the Engl. government. We really have no confidential man who understands local conditions in Persia."*<sup>31</sup>

**1868** The Indo-European Telegraph Company is founded in London as a public stock corporation under English law. Siemens provides 20 percent of the 450,000 pound capital.

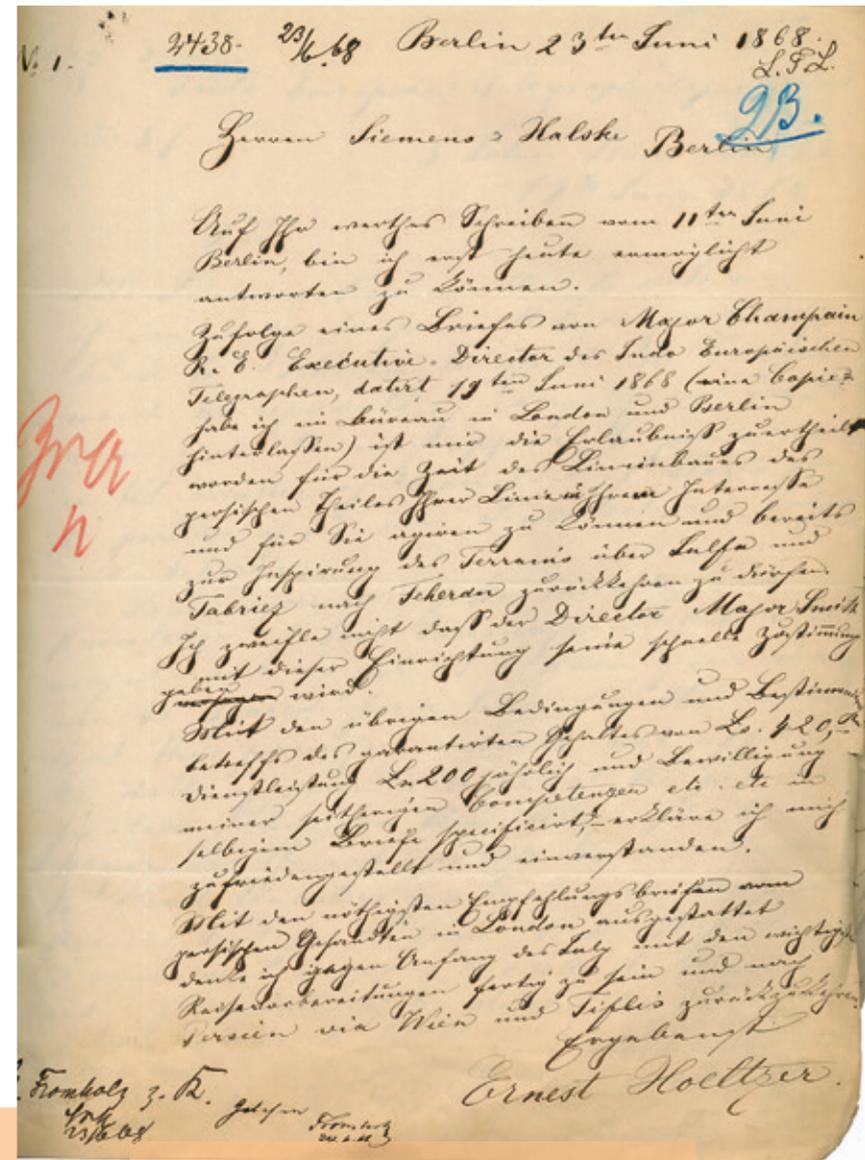


Route of the Indoline, 1870s.  
The lines installed by the Indo-European  
Telegraph Company are highlighted in red.

In a letter to his brother Carl, who lived in Tiflis (now Tbilisi), Werner von Siemens also expressed his esteem for Höltzer, stating that he “as the Engl. officers contend, is the most assiduous official in Persia and very devoted to us”.<sup>32</sup> William Siemens’ request to release Höltzer for two years so he could work on construction of the Indoline was approved in London by Höltzer’s former supervisor, John Underwood Bateman-Champain, who had worked in the London management of the Indo-European Telegraph Department since 1865.<sup>33</sup> During his home leave, Siemens hired Höltzer—now Assistant Superintendent—as a Specialist and Construction Superintendent for the Persian section of the telegraph line in the summer of 1868. He would be accompanied by Alexander Siemens, a cousin of the Siemens brothers. Werner von Siemens assumed that his “name [could be] useful there”. He also anticipated a positive effect of the “liveliness” of 21-year-old Alexander on Höltzer’s “somewhat oriental calm”.<sup>34</sup>

Thanks to this large-scale project, the cousins Ernst and Carl Höltzer crossed paths again after nine years. Carl, now known as Charles, had already worked for Siemens & Halske for several years. He had begun prospecting the route for the Indoline in Russia in 1867 and was now responsible for the subsection from Kerch to Julfa on the border between Russia and Persia, while Ernst became the construction superintendent for the Julfa-Tehran section that would connect to it.<sup>35</sup> A third colleague, the Siemens engineer Daniel Hemp, was in charge of work on the first section, from Aleksandrów Kujawski in Poland to Kerch. Work was to be performed on the three sections simultaneously.

Höltzer used his home stay more to prepare for his new position than to relax. He was deeply involved in the Indo-European Telegraph Company’s planning. For example, in Berlin he participated in a meeting of people responsible for constructing the



Ernst Höltzer to Siemens & Halske Berlin, June 23, 1868

In the letter, Höltzer informed Siemens & Halske that the Indo-European Telegraph Department had agreed to release him.

line. The meeting lasted several days, during which the conditions for the three experienced telegraphic engineers were specified: “Hemp will receive 2,500 [rubles in salary], [Charles] Höltzer the same with an additional 500 Caucasus, and both 3 rubles Dieten. Höltzer II his English competencies. All three together will also receive 71/2 percent of the profit from construction of the line; we will calculate the self-made or delivered goods with a 5% discount to the line.” Werner von Siemens and his brother William also agreed that it was “necessary to place the construction superintendents in a very good position, to give them a share of the profit, and to make them as independent as possible—except for proper financial controls”.<sup>36</sup>

### Unexpected difficulties and conflicts

After painstaking negotiations with the Persian government, Walter Siemens—who headed of the subsidiary of Siemens’ Russian branch in Tiflis—finally got approval for the construction and operation of the section from the Russian-Persian border to Tehran. The concession was awarded in early January 1868. A few months later, the International Telegraphic Conference in Vienna reduced the charges for telegrams between England and India—a decision that ruined all of the profitability calculations made by the Siemens brothers. The company’s income was now much lower, but high concession fees still had to be paid to local telegraph administrations, which threatened to turn the major project into a loss.<sup>37</sup> The situation was precarious, but work on the Indoline had just begun. To make matters worse, Walter Siemens died in June 1868 following a riding accident. In his place, Georg von Siemens, the legal advisor to Siemens & Halske, now travelled

**1853** Daniel Hemp starts working for Siemens & Halske. Werner von Siemens’ former personal servant in the army helps the firm’s founder with all telegraph projects.



Officials from the Indoline in Tehran; Ernst Höltzer is standing under the ladder, 1868

to Tehran to negotiate an amendment to the Persian concession that would reflect the new conditions. As general agent of the participating Siemens companies, he was also instructed to try to get an idea of how work on the third part of the section was going, because things did not look good in Persia “in spite of Höltzer’s favorable reports”.<sup>38</sup>

Meanwhile, Ernst Höltzer was supervising the transport of the wire, the porcelain insulators, the telegraphic apparatus, and the

**1868** The International Telegraph Convention in Vienna lowers the fee for a 20-word dispatch from London to Karachi from 87.5 to 71 francs.

cast-iron poles to their destinations. He then headed construction of the section between Julfa and Tehran, where the Indoline would connect to the existing British-Indian network. In addition to organizing transport and putting together the construction crews, Höltzer was also responsible for housing the future employees of the line. Conflicts with local officials and Persian construction crews, theft, armed attacks, and Höltzer's resolute response to them—including the use of firearms—and his dealings with local authorities and workers were a “culture shock” to Siemens engineers newly arrived from Europe. Their letters of complaint to Berlin and the correspondence between Georg and Werner von Siemens and Siemens Brothers in London document how tense the situation was.<sup>39</sup> It was one of the initial tasks of Georg von Siemens to look into the criticisms Siemens employees had expressed about Höltzer, whom they accused of being vain, disorganized, and in the grips of “commando fever”.<sup>40</sup>

The two men met in Tabriz for the first time in late autumn 1868. Ernst Höltzer, who had just successfully resolved problems with the transport of tons of construction materials in northern Persia, was both astonished and indignant at the visit from Germany, which was intended to more closely control his “activity as agent and operations director, which from Berlin's viewpoint was all too un-English and highhanded”.<sup>41</sup> However, after the unfortunate beginning, Georg von Siemens and Höltzer soon developed a relationship of confidence. Von Siemens recognized that Höltzer's many years of activity for the British-Indian telegraph administration and his experience in dealing with the Persian culture were of great benefit to the project; Höltzer also spoke proficient Persian by now. Georg von Siemens was soon able to allay concerns about Höltzer in Berlin and London: “A better relationship now prevails between the employees; they are now used



Georg von Siemens, 1866

to Persian air and conditions and are gradually making peace with Höltzer, who has many good sides.” He added that:

*“Among all of the Europeans and Persians, you will find no one as assiduous as Höltzer. It is easy to criticize when one applies European standards to Persian conditions. But that is unjustified criticism.”<sup>42</sup>*

Work on the telegraph line had to be suspended for a time during the winter of 1868–69 due to weather conditions. Höltzer returned to Tehran and supported Georg von Siemens in his contractual

**1868/69** Around 40,000 cast iron telegraph masts are needed for the Persian section of the Indoline; the masts are provided by Siemens Brothers in England.

**1866** Georg von Siemens acts as Siemens & Halske's legal adviser. At the beginning of 1868, he helps draw up the statutes for the Indo-European Telegraph Company in London.

negotiations by accompanying him, according to local custom, as assistant negotiator on “visits and discussions with highly-placed Persian government officials”. He considered these new duties to be “work” that would be “very helpful” to him but “that is very disagreeable to me”.<sup>43</sup>

Lawyer Georg von Siemens had originally assumed that renegotiation of the concession could be completed in two to four weeks, but he still had not achieved his objective after several months on-site. He wrote to Werner von Siemens in April 1869 to express his frustration: “This vile telegraphic business has become the pivotal point of Persian court intrigues. The Foreign Minister wants to keep all profit for himself, and so does the Minister of Telegraphy and uncle of the king, etc.”<sup>44</sup> Agreement was finally reached, thanks in no small part to years of personal contacts and Höltzer’s familiarity with the Persian culture of negotiation. Höltzer had prepared the ground for important background discussions for von Siemens and knew—when necessary—how to put appropriate pressure on Persian government officials. The success of the negotiations was also affected by the fact that Georg von Siemens included the settlement of all old Persian debts to the British telegraphic authorities in the amended contract. He had also threatened to turn the Julfa–Tehran section over to the British if the negotiations were not soon brought to a successful conclusion. The project was ultimately rescued for Siemens by agreeing to an annual concession fee of 12,000 tomans.<sup>45</sup> The concession was signed on May 25, 1869, and Georg von Siemens began his journey home shortly thereafter. Höltzer finished work on the Julfa–Tehran section in August 1869, and the link was ready for operation by October of that year.

The Indo-European telegraph line was completed after just two years of construction. The first messages were sent from London

to Calcutta on April 12, 1870, at the then-sensational speed of 28 minutes. After a six-month shutdown following an earthquake (1870–71), the line continued in operation until 1931 as one of the world’s fastest, most reliable, and profitable telegraph lines.<sup>46</sup>



Telegraph station in Kashan, ca. 1880

**1870** Tehran is the largest city in Persia with 85,000 inhabitants; ten years later, there are 100,000 people living in the capital.

**After 1931** The individual sections of the Indoline become the property of the countries in which they are installed. Some sections remain in operation until World War II.

## Starting a family

Höltzer had again proved his mettle, and both the British and Georg von Siemens indicated their interest in continuing to work with him. To Siemens, Höltzer was a reliable partner within the British-Indian telegraph administration, which was responsible for the Indoline from Tehran. There was some talk about the possibility of Siemens taking over the entire line through Persia if the British did not renew their agreement with the Persian government. In that case, Georg von Siemens planned to appoint Höltzer the director of an all-Persian Siemens line. But it came to nothing. The British extended their telegraph concessions in Persia and promised their deserving employees better conditions than Siemens did, so Höltzer saw no reason to leave the Indo-European Telegraph Department. Now 35, he decided to remain permanently in Persia, a decision that marked the beginning of a new phase in his life.

Höltzer had written to his father in 1869 that his father would have to wait “for a long time for announcement of an engagement”.<sup>47</sup> But the next year he married 20-year-old Mariam Hacknazar, an Armenian from Tehran whose father was a general for Sultan Mass’oud Mirza. The couple had met in Isfahan. Their son Nicolas, born in November 1870, was the first of eight children. Höltzer’s career also progressed, and he was promoted to Assistant Superintendent First Grade on June 1, 1871. He traveled to Germany with his young family for the first time the same year; most of that leave was spent in Ruhla, Thuringia, where the family’s

**19th century** There are many Armenians in leading positions in the administration and army or in the direct service of the shah, for example as a doctor or court photographer.

second son Emil was born in 1872. Höltzer and his family returned to Isfahan in 1874.

The Persians renewed the British telegraph concession in late 1872, so Höltzer continued working for the Indo-European Telegraph Department and definitively settled in Isfahan. He built a house for his fast-growing family in the Julfa district, followed by a summer house in Ferrabad. The couple’s third son was born in 1875, but he died at the age of three.

In the early 1880s, Höltzer took stock of his time in Persia:

*“Life here can initially seem impossible to a newcomer from Europe, but once he has tolerated several years here, mastered the language, and returned to Europe a few times if possible, he will find that Persian life offers many comforts and charms, making him not unwilling to return there.”*<sup>48</sup>

**1871** After the foundation of the German Reich, there is a huge economic boom in Ruhla, in Thuringia; numerous firms are founded.

## Archivist of old Persia

The telegraph system was established, and the difficult work of building it had given way to everyday routine. Between inspecting the sections and visits to the Tehran headquarters and the telegraphic service in Isfahan, Höltzer had more and more free time. He used some of it to document contemporary Persia in word and image. In spring 1870 he took his first extended expedition into the mountainous back-country of Isfahan to visit the nomadic tribes there, the Quashqa'is and Bakhtiyari, later preparing a detailed report.<sup>49</sup>

In 1873, Ernst Höltzer began using his plate camera to document landscapes, buildings, and important events including travel by the first Persian railway; the telegraph line; everyday scenes showing merchants, craftsmen, festivals, and customers; and military maneuvers. He supplemented his photos with detailed descriptions, particularly of the city of Isfahan. He described his motives: "Persia and Isphahan are on the threshold of a cultural transformation, and for several years now people have started introducing and installing a lot of foreign, usually European, style and luxury there. The old buildings, customs, and practices (even clothing) are gradually disappearing."<sup>50</sup>

In today's Iran, Höltzer's detailed descriptions and his many photographs of Isfahan offer testimony of great documentary value. They are considered to be an archive of Persian culture, and Höltzer himself is seen as an archivist of that culture. Ever the engineer, during his lifetime he also speculated about Isfahan's

2004 The Iranian Cultural Heritage Organization publishes a book with 500 historical photos by Ernst Höltzer entitled *Thousand Sights of Life*.

prosperous future, which in his opinion would follow establishment of the railway connection. In his mind's eye, he saw Europeans who sought recreational opportunities travelling to Persia and making the formerly brilliant city—the residence of noble families—flourish once more. He confidently penned a poem: "All that is missing here is the rails / Everything depends on them and nothing else / In spite of all the opposition and strife / Rails will be the beginning of a new life."<sup>51</sup>

Höltzer was promoted to Assistant Superintendent Second Grade in 1880. He took a prolonged home leave the next year. The family first spent two years in the Charlottenburg district of Berlin, after which they travelled through Europe. Daughters Elize (1881) and Martha (1882) were born during this time. The family returned to Isfahan in 1883.



Mrs. Höltzer and her three daughters watch grapes being weighed, ca. 1885

## A man of independent means

Höltzer retired from the Indo-European Telegraph Department on January 7, 1890, his fifty-fifth birthday. In subsequent years, he increasingly devoted his time to his papers, most likely with a view to publication. In a detailed manuscript, he compiled the types of travel advice and tips on equipment that he had been unable to find when he first travelled to Persia in 1863. Some of those suggestions sound like quotations from a Karl May western: “All underclothes and items of clothing from head to toe, in addition to saddle and bridle, are best procured from Europe. Long, properly sewn riding boots that protect the knee but are designed to be shortened by turning them down are practical for travel there [in] winter and summer. Everyone there carries a weapon, so [...] taking a good revolver, a good shotgun, and a rifle or combination over-and-under rifle or a good repeating rifle with the necessary cartridges and accessories along on the journey is also on the agenda.”<sup>52</sup>

Ernst Höltzer returned to Europe in 1897, travelled through Switzerland, and finally moved to the Steglitz district of Berlin with some of his family in 1898. After almost 30 years, he again met up with Georg von Siemens, who had made a career for himself after their time together in Persia. He had become one of the most important bankers in Germany as a member of the board of Deutsche Bank, founded in Berlin in 1870. Under his leadership, the bank began serving industrial clients, especially in the electrical industry, in the late 1880s. The year the two men were reunited,

**1931** With the shutting down of the Indoline, the Indo-European Telegraph Department founded in 1862 is dissolved after 70 years.



Ernst Höltzer and family, 1896

the 58-year-old von Siemens played a decisive role in the conversion of Siemens & Halske into a joint-stock company. When they met, Höltzer gave the banker copies of his recollections of their time together in Persia. That material was included in the biography of von Siemens by Karl Theodor Helfferich.<sup>53</sup>

Höltzer and his wife returned to Isfahan in 1908–09. One can only speculate about the reason for that decision; the available documents offer no explanation. It is certain, however, that Persia was far more than a second home to the engineer from Thuringia.

**1897** Siemens & Halske becomes a stock corporation with the assistance of Georg von Siemens and the Deutsche Bank.

Höltzer died there on July 3, 1911, and was buried in the Armenian cemetery in Julfa. His memory lives on in the Armenian community.

Some of Höltzer's children lived in Europe, some in Persia. Höltzer's son Emil worked for Siemens and later moved to Thuringia. Höltzer's youngest son Fritz, born in 1893, was educated in Germany and was a violinist for the Berlin Philharmonic. He committed suicide in 1933 as increasing pressure was put on him to separate from his Jewish wife. Daughter Martha died of typhus in Persia in 1909 at the young age of 27. Her sister Elize lived with her mother in Julfa. Karolina married an Armenian general in the Persian army. One of her two daughters brought the documents that make up her grandfather's legacy with her when she returned to Germany. Without them, the fascinating life story of the telegraphic engineer Ernst Höltzer would have been forgotten.

1920 Mariam Höltzer dies at the age of 70. She is buried in the family grave in the Armenian cemetery in the south part of the Julfa city district.

## Endnotes

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- 31 SAA W659, Werner to William, Berlin, June 13, 1868.
- 32 SAA W5433, Werner to Carl, Berlin, June 15, 1868.
- 33 Ibid.; Communication Museum, ed., *In 28 Minuten von London nach Kalkutta. Aufsätze zur Telegrafien-geschichte [Essays on the history of telegraphy] from the collection of Dr. Hans Pieper at the Communication Museum*, Bern, Zurich 2000, 191–192.
- 34 SAA W659, Werner to William, Berlin, June 13, 1868.
- 35 SAA 25.Lm 810, Acta Siemens & Halske betreffend die Correspondenzen mit Charles Höltzer in Sachen der Indo-Europ. Telegr. Line, November 1867–May 1868.
- 36 SAA W5433, Werner to Carl, Berlin, June 15, 1868.
- 37 See Ehrenberg, *Unternehmungen*, 221 et seq.
- 38 SAA W5492, Werner to Carl, Tiflis, October 5, 1868.

- 39 Ernst Höltzer, Brief an den Vater, Teheran, March 1, 1869; Helfferich, Karl, *Georg von Siemens. Ein Lebensbild aus Deutschlands großer Zeit*, Berlin 1921. Vol. 1, 77–164.
- 40 SAA F171, Werner von Siemens to Georg von Siemens, Berlin, January 21, 1869.
- 41 Ernst Höltzer, Erinnerungen an Herrn Dr. Georg von Siemens während seines Aufenthaltes in Persien, 1868–1870 [written around 1901].
- 42 Georg von Siemens to Siemens Brothers in London, February 11, 1869, cf. Helfferich, *Georg von Siemens*, 112.
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- 45 Wilfried Feldenkirchen, *Siemens. From Workshop to Global Player*, Munich 2000; Helfferich, *Georg von Siemens*, 138–161; Höltzer, Ernst, Erinnerungen.
- 46 See Martin Kärner, “Pioneers of the Project Business. The Siemens Brothers and the Indo-European Telegraph Line,” in *Experiencing Project Management*, ed. Elisabeth Bittner and Walter Gregorc, Erlangen 2010, 193–208.
- 47 Ernst Höltzer, Brief an den Vater, Teheran, March 1, 1869.
- 48 Ernst Höltzer, Einige Details über die Hauptplätze und Gebäude der Stadt Isphahan [written after 1881].
- 49 Ernst Höltzer, Reise in die Gebirge der persischen Nomadenvölker der Kaschgais und Bachtians, 1870.
- 50 Ernst Höltzer, Beschreibung der Stadt Isphahan, um 1880.
- 51 From a 53-stanza poem by Höltzer about Persia.
- 52 Ernst Höltzer, Einige Details über die Hauptplätze und Gebäude der Stadt Isphahan [written after 1881].
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**Publisher**

Siemens Historical Institute, Munich

**Concept**

Sabine Dittler, Christoph Wegener

**Author** Dirk Schaal

**Editing**

Ewald Blocher, Sabine Dittler

**Translation**

Wordshop Translations, San Francisco

**Book design** Lisa Neuhalfen, Berlin

**Printing** PH. Reinheimer GmbH, Darmstadt

**Binding**

Josef Spinner Großbuchbinderei GmbH, Ottersweier

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**Picture acknowledgements**

The estate of Ernst Höltzer (family property)

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Photo Günther Schiering: page 8

bpk / Berlin State Library: page 27

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