SIEMENS

Ingenuity for life

Martin Münzel

Building for the future

SIEMENSSTADT

Siemens Historical Institute

JOURNEYS THROUGH HISTORY – Volume 1

The booklet is the first volume in the series **JOURNEYS THROUGH HISTORY**, which delves into selected topics from Siemens' past. Join us on this expedition through the company's history as we explore issues that remain timely still today. The series tells the stories of all that is special – from a perspective of past, present, and future.

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Content

Foreword

When visitors come to Siemensstadt, I occasionally take them up onto one of the roofs, where they can get an excellent view of the vast area. Everyone finds it impressive, and the sheer size and compact development are always surprising. In such moments, I like to think about the legend of its founding. According to the story, Wilhelm von Siemens and his half-brother Carl Friedrich, 17 years his junior – both sons of the company founder Werner von Siemens – were walking through swampy, frog-filled terrain at the dawn of the 20th century. This was where they pictured the future of Siemens. And they made it happen. Just a few years later, a brand-new urban district was created on Nonnenwiesen in the eastern part of Spandau that, beginning in 1914, bore the name Siemensstadt. Today, Siemensstadt has become the quintessential ambitious project that uniquely combines entrepreneurial success with the attractiveness of a metropolis.

My home city of Berlin and my "home company," Siemens, were and are inextricably linked. Berlin is where the company was founded. At the turn of the century, it was not only one of the world's most populous cities but had also transformed itself into the much admired "Electropolis." Electrically powered railroads, trams, elevated railways, and subways defined the cityscape. Electrification of the city also electrified the people. Berlin became a model city of modernism, admired by visitors from around the world. And many of the innovative products and technologies in Berlin were developed and produced by Siemens.

Berlin was able to become the "Electropolis" not only because it was a leading German industrial metropolis but also because, first and foremost, it embodied the center of the German electrical industry. Along with Siemens' major competitors, there were many smaller firms and specialty factories – today we would call them small and medium-size companies – that helped make the electrical industry the high-performance engine that drove Berlin's economy. For Siemens, Berlin and its environs were the ideal location for a sweeping expansion.

The city also offered Siemens an environment that was friendly to industry and investment, well-trained workers, and proximity to important government clients, ministries, political parties, and interest associations as well as to foreign embassies. Berlin was also an academic

center par excellence and offered inestimable advantages for knowledge-based production in the “new industries.”

That all sounds incredibly modern and up-to-date. And for me, that’s exactly the appeal of this book. It not only follows all these threads and offers surprising insights and episodes from the history of Siemensstadt. It also follows an arc all the way to the present. After all, this tradition-steeped site isn’t only of historic interest. Siemens is embarking on a massive urban planning effort that will transform this district.

Siemensstadt is giving birth to something new: the largest development project in Siemens history. Over the coming years, we’ll be creating a new work and living environment and, along with our partners, investing in research in areas like electromobility, Industrie 4.0, and artificial intelligence. The project covers 70 hectares; its goal is to transform the large industrial area into a modern urban district of the future – with many uses, combining work, research, living, and learning in one location. As a key technology of the 19th and 20th centuries, electrification made Siemens and Berlin great. Digitalization will do the same in the 21st century.

Cedrik Neike
Member of the Managing Board
of Siemens AG

Introduction

The outskirts of the German capital had not exactly been promising – in an early travel guide to the city, Berlin critic, publicist, and journalist Max Osborn wrote in 1929, "It didn't use to be a pleasant place. The name denoted a noxious, inhospitable, ugly area, where the streets simply ended, or rather trailed off into the muck, and only scattered, joyless, barrack-like tenements stood as melancholy outposts of civilization. Right next to them, between the heaps of garbage and compost, were gloomy factory buildings, ramshackle fences, miserable huts leaning every which way, in lifeless, senseless, ridiculous confusion." But now, he wrote, those very same outskirts offered proof of Berlin's "inexhaustible life force;" the pulse of the modern day was beating here. And it was Siemensstadt, not least of all, that fascinated Osborn: the panoramic view from the new Wernerwerk (Werner plant) high-rise across the "imposing district of labor," and beyond that, "how the massive city is spreading out into the territory surrounding Brandenburg."[1]

Just a few decades before Max Osborn sang Siemensstadt's praises as a tourist attraction, no one would have been able to imagine the development of this autonomous urban configuration, any more than they could have imagined, back in the mid-19th century, the unparalleled rise of a workshop in today's Kreuzberg district in Berlin to become the global electrical engineering corporation Siemens. Well into the 1890s, there was nothing to suggest the impending establishment of an urban district that would bear the name Siemensstadt from 1914 onward. Today, Siemensstadt is viewed as the embodiment of a large-scale project that, in its own way, came to symbolize one company's success. The construction, expansion, and utilization of Siemensstadt represent far more than just a particular aspect of the more than 170 years of Siemens history; rather, they're an integral part of that history. And the "new Siemensstadt" project that is underway today remains true to the tradition of this location, which is also associated with forward-looking ideas for work, research, and living. And thus it becomes all the more interesting to examine the details of how Siemensstadt came into being and how it has evolved.

In the first years after the company's founding in 1847, Siemens & Halske remained located within the narrower limits of Berlin. Operating from here, the workshop quickly secured a position among the ranks of Germany's leading industrial firms. From this Berlin base, Siemens soon also ventured into doing business in other countries and in global markets. The electrical engineering company's diverse products in the area of low-voltage – and later high-voltage – current, founded on a focused application of scientific research, earned it a reputation around the world.

Berlin itself, as the capital of the German Empire from 1871 onward, became an increasingly vibrant metropolis and a booming economic area with constantly expanding borders. Driven

by increased production and an expanding staff, Siemens was one of the forces that played a role in the considerable shifts in industrial locations. Ultimately, in 1897, the company began to concentrate all its factory installations in Spandau – at the time still an independent town west of Berlin. Here, at last, expansive plans for construction could be put into action on open terrain.

Yet despite all the advantages, this forward-looking decision required a willingness to take risks as well as sound entrepreneurial judgment. Siemens had to keep the needs of a skilled workforce in mind as well as its relationships with clients and other business sectors. And the company also dared not compromise its indispensable connections with academic institutions. In the planning and energetic management of the construction process for Siemensstadt, the company also found itself caught up in the sphere of influence within municipal politics, which necessitated adroit negotiation and the ability to reach agreements with the authorities. What's more, it took substantial resources for Siemens to convert this virgin terrain, lacking in even the most basic infrastructure, into a site equipped with all the features of a modern urban district.

Every building in Siemensstadt has its own story to tell – from the imposing large complexes to the small auxiliary structures, central production halls, research laboratories, and administration buildings, not to mention the rather non-descript utilitarian structures. Together they formed a fully thought-out entity, an ideal setting in which to achieve production objectives. From an early stage, construction also emphasized adequate housing for some of the workforce. Dismissing outmoded plant housing concepts, Siemens encouraged the construction of modern residential complexes of multi-family buildings and single-family houses, along with entire housing settlements, as an integral part of its employee relations policy. Numerous facilities for social services and recreation were also included.

Last but not least, the development of Siemensstadt also involved installing a complex transportation infrastructure, a development that the public watched with special interest. Siemens assumed the responsibility for planning, building, and expanding extensive road and rail connections, crowning its efforts in 1929 with the commissioning of the Siemensbahn light railway.

Despite the independence with which Siemens could proceed, Siemensstadt was not an island unaffected by the trends of the time. Political and economic developments, as well as changes in architectural taste, played into the area's history and appearance – from the old Empire all the way to the days of the Weimar Republic, the Nazi dictatorship, the West German era, and finally a reunified Germany. That also included the fact that, after World War II, Siemensstadt found itself in changed circumstances. In the western part of a divided Berlin, and from 1990 onward in the reunified capital, the area had to hold its own in new ways as an industrial site. And today Siemensstadt is gaining new

significance through Siemens' extensive investments in the further evolution of an area where work is being carried out on promising innovations and concepts for the future.

What historical phases and disruptions can we discern looking back at the history of the Siemensstadt site? What strategic choices have defined developments in industrial production, living, and infrastructure since the end of the 19th century? What external influences are reflected in the growth of Siemensstadt? This overview is designed to address those questions, and especially to trace the pathway that led from Siemens & Halske's first considerations about relocating its production facilities, to the completion of the pivotal construction projects in Siemensstadt less than 30 years later. We will explore the milestones along that pathway as well as the challenges the company had to overcome in carrying out its ambitious plans to create a new focal point of industry and housing in Spandau and Berlin. This historic view of Siemensstadt will also show clearly the significance that the area still has today.

Ascent within the German Empire

Within just a few years of its founding in 1847, the Berlin company of Siemens & Halske had developed into a rapidly growing electrical engineering company. With its technical pioneering achievements and a broadly diversified portfolio of products, it already assumed a leading position in the electrical engineering industry during the 19th century. Siemens & Halske was also able to successfully establish itself within the global market early on.

1847

Just days after the founding of the "Telegraphen-Bauanstalt von Siemens & Halske," Prussia grants Werner von Siemens a patent for his pointer telegraph.

Siemens traces its company history back to the 19th century. That history is also the story of an ascent that played out in particular throughout the 30 years leading up to the turn of the century, during the "Second Industrial Revolution" that brought about sweeping economic changes. New branches of industry, such as electricity and chemicals as well as machine and automotive construction, became leading sectors that propelled business into a remarkable era of growth and modernization. One key feature was a close connection to scientific and technical research; well-trained engineers, chemists, and skilled workers became indispensable for companies. Another was the timely shift of attention to the global stage, with an immediate expansion into world markets.

The German electrical industry especially profited from the rising demand for electricity in the era's fast-growing cities. Lighting and transportation, equipment drives, and communications – almost every sphere of life now became electrified, yielding exorbitant growth for the companies in this sector. The market leaders here pushed their lead beyond German borders, rapidly becoming global players. It was in large part thanks to them that before World War I, one-third of all electrical equipment produced in the world came from the German Empire.

Siemens, as the oldest German company in the business, enjoyed a substantial share of the country's preeminence in the world market for electrical equipment. Launched in 1847, when Werner von Siemens and Johann Georg Halske founded Siemens & Halske in Berlin, the company's original purpose was to build the pointer telegraph that Werner had refined. Siemens & Halske initially worked mainly in telecommunications technology, building telegraph networks, rail signaling systems, and measuring instruments. Werner von Siemens' discovery of the dynamo-electric principle in 1866 – the conversion of mechanical into electrical energy – was a milestone in the company's further triumphant expansion. Now moving beyond telecommunications, Siemens & Halske spread into new lines of business in electrical power. That included making dynamos and generators, power cables, incandescent lamps, and by the 1920s also turbines. Furthermore, it was developing new applications for electric motors to be used in equipment like locomotives and tram cars.

The company was thus able to leverage the full range of electrical equipment. Well into the 1880s, Siemens & Halske's technological advances earned it an undisputed lead in size and capitalization, experience, expertise, and range of production. And the company did not limit its reach to the German Empire. It gained additional tailwind for expansion by building up its international business, along with its network of German offices and financial interests. Getting into the British and Russian markets lent particular momentum to this dynamic upswing, making Siemens a pioneer in multinational entrepreneurship. Adroitly applied family connections strengthened this international focus and expansion. Werner von

Founding fathers of the Siemens & Halske company – Johann Georg Halske, 1855 (left), and Werner von Siemens, 1864 (right)

Siemens' brothers Wilhelm (who later changed his name to William) and Carl took over managing the company's branches in London (1850) and St. Petersburg (1855). By 1897, as construction at Siemensstadt began, the Siemens workforce comprised 8,700 employees in Germany and 2,200 in other countries. By 1914, about one-quarter of Siemens' total of 82,000 employees worked outside the German Empire, in a total of 49 countries.

Werner von Siemens, the dominant founding personality, retired from the company in 1890 – two years after he was ennobled and two years before his death in 1892. Carl von Siemens, now the head of the family, joined his nephews Wilhelm and Arnold in taking charge of management. In 1897, after Siemens & Halske had been converted to a stock corporation, Carl became Chairman of the Supervisory Board, a position in which he was succeeded in 1904 by Arnold von Siemens, Werner's eldest son.

In the 1880s, as a great many other electrical engineering companies and specialized electrical equipment factories were being founded, Siemens unexpectedly came under pressure from competitors. The Deutsche Edison-Gesellschaft für angewandte Elektricität, founded in Berlin by Emil Rathenau in 1883, and transformed four years later into Allgemeine Elektricitäts-Gesellschaft (AEG), engaged in an especially dogged effort to catch up, becoming the sharpest competitor. It was even able to overtake Siemens & Halske in high-voltage current technology, a field that had grown immensely in importance but that also demanded extensive financial resources. In part thanks to massive support from banks, AEG became the industry leader within a few years. Siemens responded with successful diversification strategies and by founding Siemens-Schuckertwerke GmbH in March 1903. Alongside Siemens & Halske AG, which focused on the low-voltage current field, this yielded a second, legally independent company, which would henceforth pool all the corporation's activities in electrical power. This enabled Siemens to maintain a permanent base in AEG's core business, make up for its relative loss of status, and regain its position of leadership, although it would have to face tough competition from its rival for decades to come.

At the same time, the two industry giants were also linked together through cooperative business ventures. For example, in May 1903 they jointly founded the Gesellschaft für drahtlose Telegraphie (Telefunken), resulting in significant synergy effects for both sides in research, development, production, and sales. In 1920 the two companies both took a stake in OSRAM GmbH, the largest European company of its kind, to produce light bulbs.

Wise business policies and a sound financial base enabled Siemens to emerge relatively unscathed from a massive economic downturn

Products for Germany and the world – the motor department at the Charlottenburg plant of Siemens & Halske, 1899 (left), and the loading of oil-filled cables for Argentina at Gartenfeld cable plant, 1931 (right)

between 1900 and 1903 and to find itself rising to the top once again. Many other companies in the electrical industry had been sucked into the whirlpool of overheated competition and ruinous price wars. They either came under the growing influence of big banks or they vanished from the market entirely, collapsing or going bankrupt. By the time the economic crisis ended, the landscape of the industry had changed considerably, most notably through consolidation: From this point forward, Siemens and AEG would largely split the market, with the two companies accounting for 75 percent of what had been Germany's electrical equipment production prior to 1914.

Despite all the drastic disruptions to the global economy after World War I, the German electrical industry proved to be robust, even as an international competitor. In 1929, Siemens and AEG together accounted for 28 percent of world exports in the field, leaving other competitors like General Electric from the USA and Philips from the Netherlands far behind. After turning away from wartime armaments production, Siemens relatively quickly overcame the economic consequences of the war; following a consolidation phase, it increased production, revenues, and profits to the point where it could pull well ahead of AEG.

In the 1920s and 1930s, Siemens continued developing its pioneering technical achievements at high speed. Applying rationalization strategies, the company developed innovative products in electric power, transportation, telecommunications, and medicine, and implemented modern technologies. It applied these not only in power plant and industrial plant construction, but in electric tram systems,


COMPANIA ARGENTINA DE ELECTRICIDAD
BUENOS-AIRES
SIEMENS-SCHUCKERTWERKE A.G. BERLIN
SIEMENS

1918

OSRAM GmbH is founded in Berlin. Siemens and AEG invest in the light bulb company two years later.

automobiles and airplanes, lighting and elevators, and radio technology. The flourishing telephone and radio business in the Weimar Republic enabled Siemens to further reinforce its position in the low-voltage sector. In new markets, products like telex machines were a great success, as were modern home appliances, which were now being mass-produced.

With a workforce that numbered 187,000 by 1939, Siemens could claim the title of the world's largest electrical engineering company. Along with its two fast-growing parent companies – Siemens & Halske and Siemens-Schuckertwerke – it continued expanding its broad network of national and international production facilities, subsidiaries, and affiliates. These included not only Telefunken and OSRAM, but companies such as Siemens-Bauunion (construction and civil engineering), Siemens-Reiniger-Werke (medical technology), and Siemens-Planiawerke (carbon-based products). Carl Friedrich von Siemens had been "Head of the House" as Chairman of the Supervisory Board since 1919 and would remain the dominant force in company policy until his death in 1941.

Technology for the modern household – continuous production of vacuum cleaners at the electric motor works, late 1920s


PROTOS
PROTOS
PROTOS

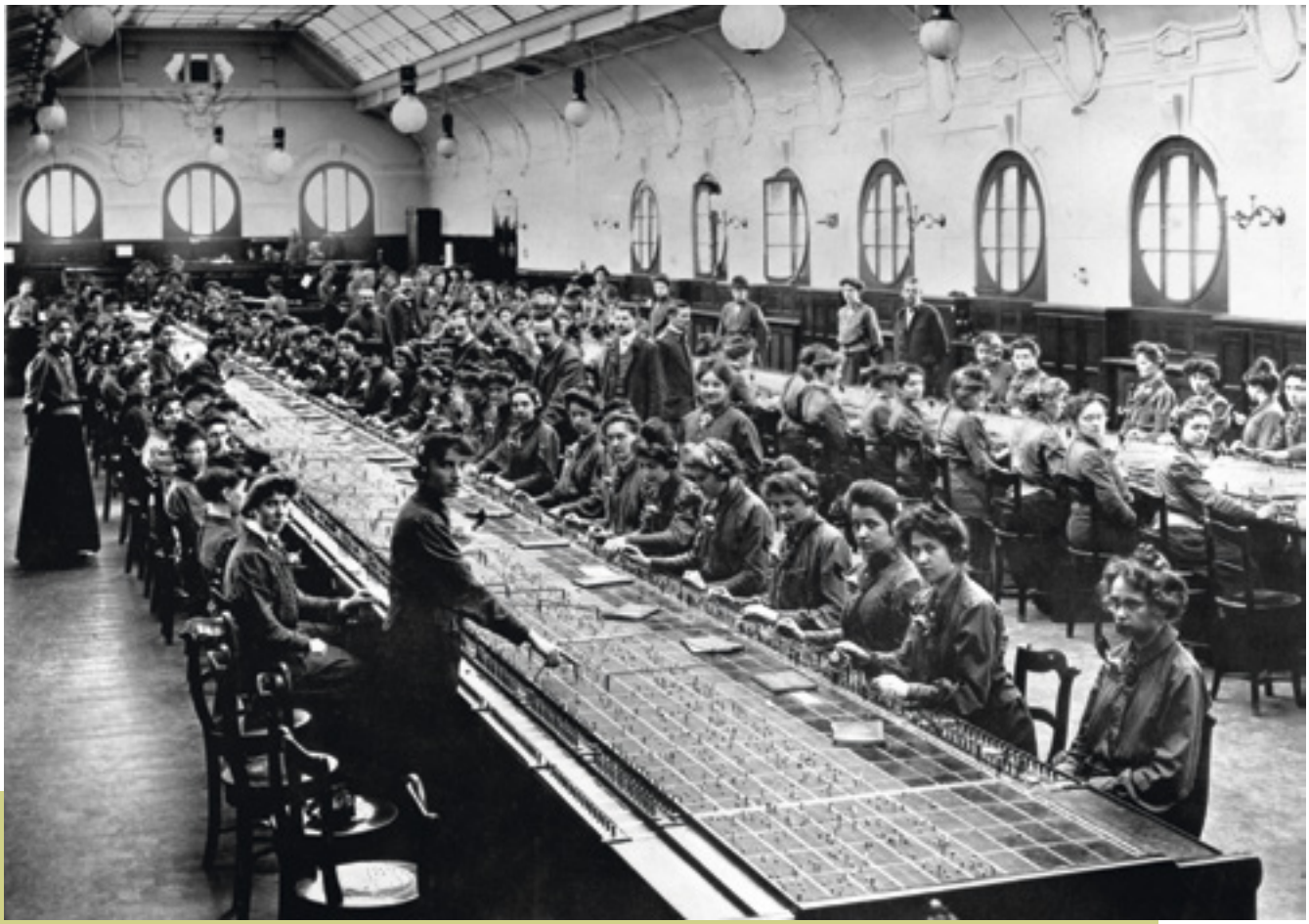
Siemens and the Berlin “Electropolis”

Capital of the German Empire since 1871, Berlin also rose to become an industrial metropolis. The city developed into not only the most important headquarters of the German electrical engineering industry, but also a modern, electrified “Electropolis” itself. As the political, financial, and scientific center, Berlin offered unparalleled advantages as a location and was an ideal place for the expansion of Siemens as a company.

1927

The silent expressionist film "Metropolis" premieres. Its portrayal of a large, futuristic city makes it an influential classic of film history.

Siemens had already been operating worldwide for decades before World War I broke out. But the company's central, most important location, with which it was inseparably, symbiotically bound, was still Berlin. Even before the German Empire was founded in 1871, the city had already risen to become Germany's leading industrial metropolis and was also the undisputed center of the German electrical industry. From the end of the 19th century onward, about half of all Germans working in this industry were situated in Berlin – 190,000 in 1925 and as many as 235,000 in 1939. And Siemens, in the mid-1920s, employed almost one in every five Berlin workers in the industrial and trades professions, and nearly half of all employees in the city's electrical engineering industry. Aside from AEG and Bergmann-Elektricitäts-Werke, which had also survived the consolidation process as major competitor, countless smaller firms and specialty factories also helped make the electrical industry the high-performance engine driving Berlin's economy.



Lights and communication in the metropolis – Wotan half-watt lamps illuminate the shop windows of Peek & Cloppenburg in Berlin, 1913 (left), and the switchboard room of Berlin Fernsprechamt VI, 1906 (top)

Yet Berlin was not merely a location for electrical equipment production and employment. By about 1900, the city itself had become a much-admired "Electropolis," a great metropolis that made use of the very same advanced products and technologies that Siemens developed and produced. Electrically powered railroads, trams, elevated railways, and subways traversed the city, whose extensive tangle of streets was illuminated at night with electric lighting and shimmering billboards. New light sources also brightened homes and offices. The telegraph and telephone permitted communication at breakneck speed. Everyday life in general experienced a heretofore unimaginable expansion of electrification. Berlin became a virtual model city for this, with developmental leaps and visionary technological achievements that amazed visitors from all over the world.

Quite apart from that, the advantages of the populous cosmopolitan city of Berlin as a business location, with its location at a central European transportation hub, made it simply ideal for an ambitious company like Siemens. Here, in an environment friendly to industry and investors, the electrical engineering company could

The roots of the global company – the rear-courtyard workshop of the Telegraphen Bauanstalt von Siemens & Halske at Schöneberger Strasse 19 in today's Berlin-Kreuzberg, undated

draw on a large labor pool and found itself at the financial center of the German Empire, with its large banks and stock exchange. Proximity to other companies in industry, commerce, and services likewise offered excellent conditions, as did the nearness to important clients like the postal service, the railroads, and the military. In addition, as a political decision-making center, the German Empire's capital city offered direct access to ministries, political parties, and special interest organizations, as well as foreign embassies.

Finally, as an academic center, Berlin offered inestimable advantages for knowledge-based production in the "new industries" on a scale that no other German city could compete with. The founding of the Imperial – and later the Reich – Patent Office (1877), the Technical University in Charlottenburg (1879), the Physikalisch-Technische Reichsanstalt (Imperial Physical Technical Institute) supported by Werner von Siemens (1887), and the Kaiser-Wilhelm-Gesellschaft (KWG, Kaiser Wilhelm Society) for the Promotion of Science in the suburb of Dahlem (1911) yielded a dense network of technical and scientific institutions. Siemens maintained extremely close contacts with their engineers and technicians, and in Berlin it was always able to keep its finger on the pulse of current research.

Rapid expansion in greater Berlin – the new Siemens & Halske factory at Markgrafenstrasse 94, circa 1875

As Siemens grew, it repeatedly faced the need to seek out new locations and premises within the Berlin area that could keep up with the once-small company's expansive momentum. After starting in 1847 as a precision mechanic's workshop on Schöneberger Strasse in what is today Kreuzberg, south of downtown Berlin, the company's first move of its production facilities came as early as 1852, to rear buildings on nearby Markgrafenstrasse. But even though the firm bought up additional space on Markgrafenstrasse and Charlottenstrasse, which constituted what came to be known later as the Berliner Werk (Berlin plant), it soon outgrew these facilities as well.

The company found a way out of its constricted circumstances in a site to the northwest, on Franklinstrasse and Salzufer in Charlottenburg. Gebrüder Siemens & Co., founded in 1872 to make alcohol measuring instruments, had already settled in the neighborhood. Here, at the Charlottenburger Werk (Charlottenburg plant), cable production began in 1883, followed by production of dynamos. After buying up the adjacent lot, the company moved in additional parts of production from Markgrafenstrasse, until only the telecommunications, railway, and electrochemistry departments remained behind at the old location.

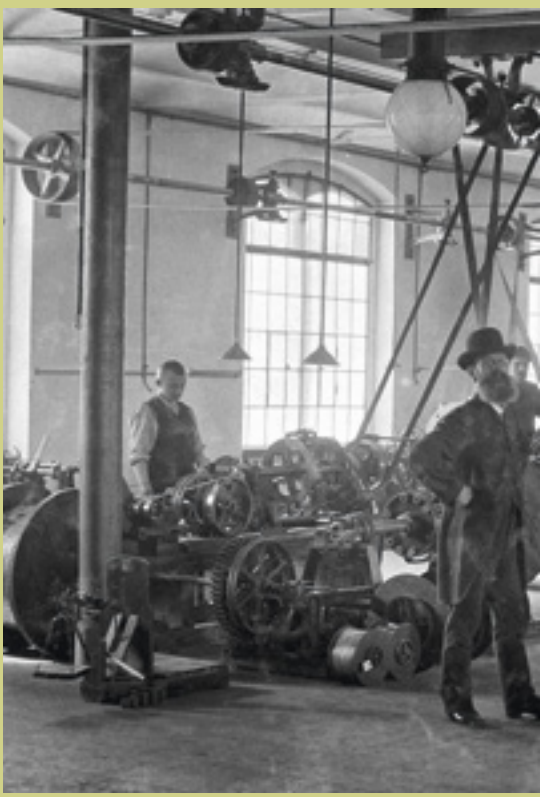
Off to Nonnendamm

In light of the booming growth in production and the expansion of its workforce, Siemens started looking for a location in the Berlin metropolitan area that would be viable for the future. In May of 1897, the company purchased an expansive piece of property in Spandau, just west of Berlin, where all plants and departments would later be consolidated.

Siemens wasn't the only company to change locations repeatedly in Berlin. All of industry was caught up in a multi-phased migration, the result of accelerated industrial growth and increasingly diversified production. As the 19th century began, industrial areas had still been closely intertwined with residential districts. But advancing industrialization made factory facilities more and more voluminous, and they began shifting from the increasingly constricted center of the city to open spaces on the outskirts. Even before 1850, this displacement process was generating new industrial areas around the city. One example was Moabit, to which the Borsig company, situated at Oranienburger Tor, moved its iron works and machine construction department.

The completion of the Berlin Ring light railway belt in 1882 created a new incentive to relocate production to the city's outskirts, beyond the encroaching residential construction and high property prices. By contrast, more and more service companies became established in the heart of town, along with office buildings and department stores. In the 1890s, the expansion of rail routes into the suburbs, along with the growing network of waterways and the electrification of trams, prompted new surges

The move to Charlottenburg – exterior view of the Charlottenburg plant of Siemens & Halske (top) and a view of its cable production, circa 1890 (bottom)

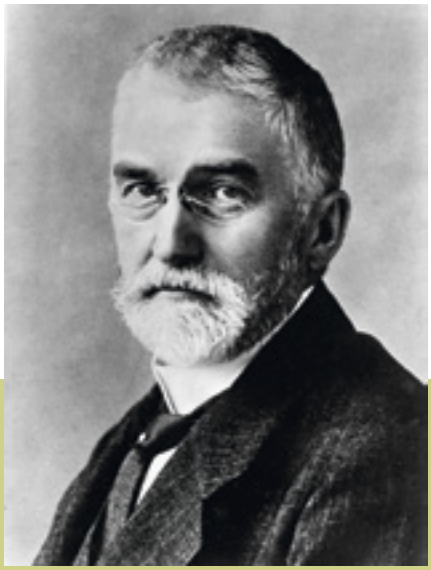


1837

August Borsig founds Borsigwerke, a company that primarily produces locomotives. During the era of steam locomotives, the mechanical engineering company is the largest in Europe and the second largest worldwide.

of migration that extended even beyond the Ring. New economic centers developed to the northwest (Borsigwalde, Tegel, Hennigsdorf) and southeast (Oberschöneweide, Spindlersfeld, Grünau, Wildau) of the Berlin region – and ultimately, industry initiated its "final conquest in Greater Berlin"[2] in the west as well: Siemensstadt.

The problem of insufficient available space demanded a radical solution also from Siemens toward the end of the 19th century. The partial relocations to Charlottenburg had brought only temporary relief; further expansion of the existing plants and especially of cable production still faced overly narrow limitations. Between 1895 and 1900 alone, the number of Siemens employees in Berlin had tripled to 12,000, and by July 1914 this development would gain even more dramatic momentum, with an increase to almost 40,000 employees. Furthermore, even Werner von Siemens in his day had felt strongly that it was important to consolidate all plants and departments at a central location.



Decision-makers in the period of transition – Wilhelm von Siemens, second son of the company founder, 1895 (left), and Director Carl Dihlmann, undated (right)

It was also Werner von Siemens who, along with his sons Arnold and Wilhelm, began to pursue the idea of relocating the factories in 1886. To expand light bulb production, they looked at the possibility of building a new location in Schenkendorf, near Königs Wusterhausen. They thought that, with its lower cost of wages and coal, this might develop into a new "Siemens factory site."[3] Yet at the same time, there were worries that the location might frighten off the necessary skilled workers, so the plan was shelved for the time being.

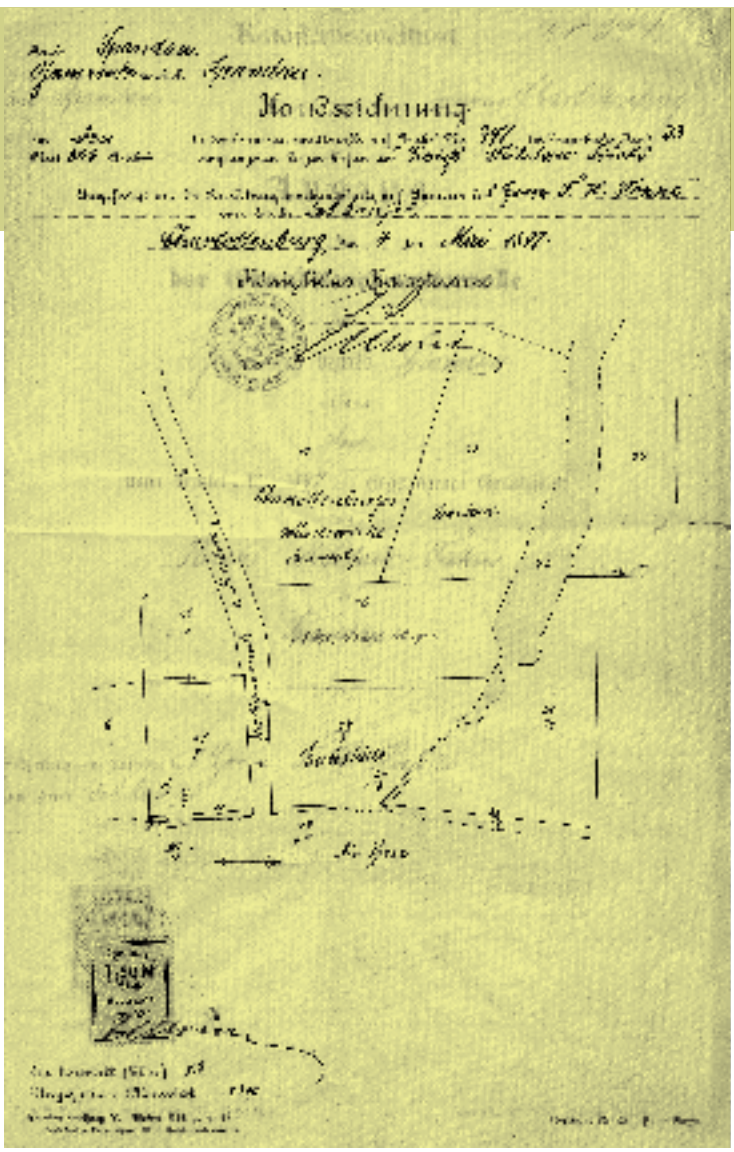
As that episode shows, other factors had to be taken into account when buying up large plots of land at a reasonable price. Close contact with industry, banks, politicians, government agencies, and the scientific community could not be put at risk; nor could options for good transportation connections. Most of all, for a labor-intensive sector like the electrical engineering industry, it was essential to offer attractive conditions for the urban region's pool of qualified workers.

Amid this situation, Siemens made a decision in 1897 of inestimable import, which in retrospect seems almost a visionary, liberating coup: The company bought Plot 1 in Spandau, west of Berlin. The site, originally measuring 21 hectares but soon expanded to 135, had not yet been snapped up by the competition and would become the starting point for a new era in the company's history.

Yet corporate management did not make this risky decision lightly, because – according to the well-informed chronicler Georg Siemens – "everything seemed to be against it, and only one point in favor: here was room at last! But the chronic state of congestion had worn the Directors down to the point where the advantage of freedom of expansion had come to rank above everything else."[4] In fact, management would have preferred a relocation somewhat closer to town in Charlottenburg, but the city would not grant a building permit. And even after the land in Spandau had been bought, some members of top management were still wondering

1884

Stuttgart native Carl Dihlmann joined Siemens & Halske. Dihlmannstrasse, which branches off of Rohrdamm, memorializes the engineer and Siemens director.

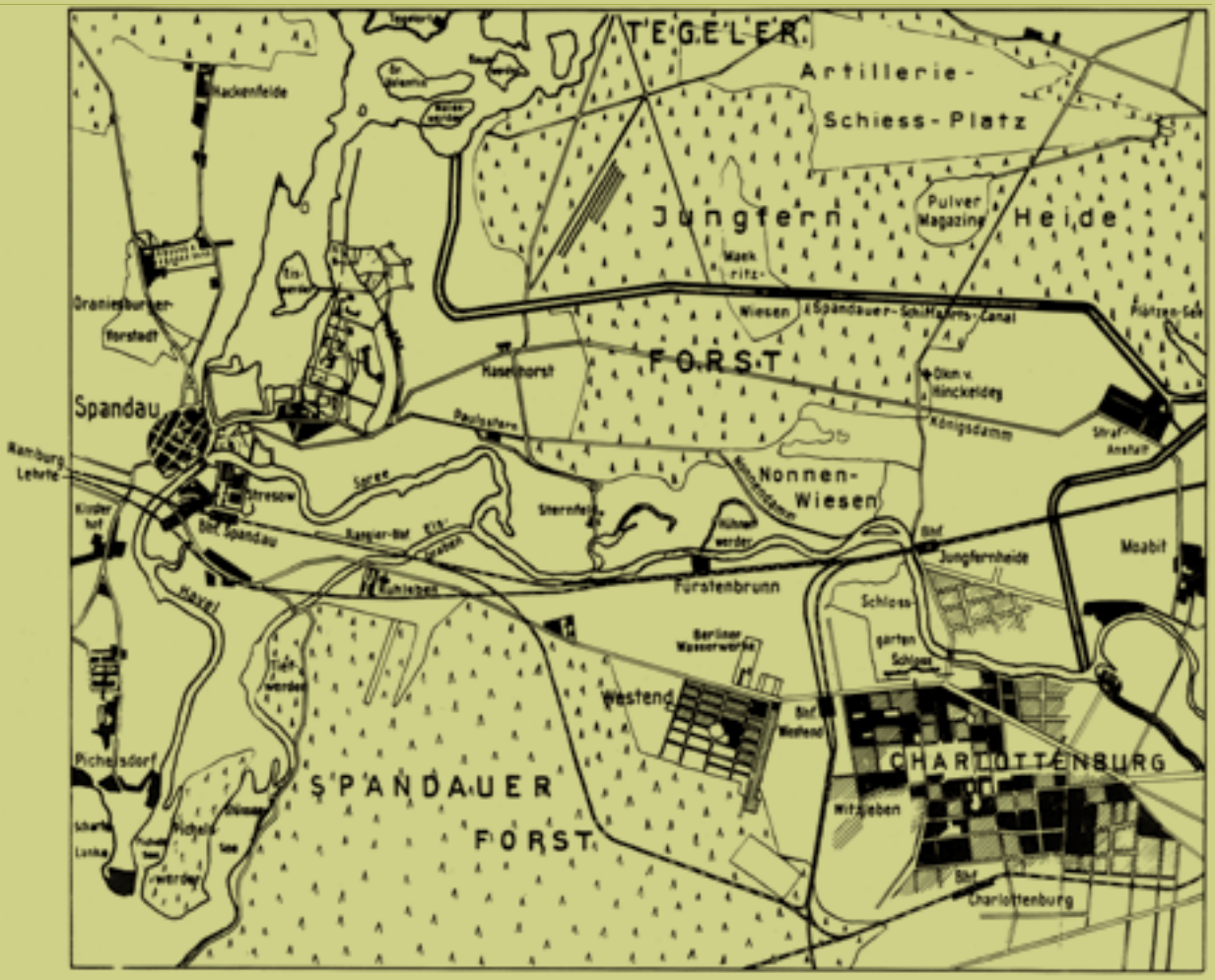


In black and white – Land Register entry referring to one of the first site purchases by Siemens & Halske on the Unterspree between Charlottenburg and Spandau, 1897

whether Königs Wusterhausen might not be a better solution than the inaccessible, remote new site.

Now it was Carl Dihlmann, the head of the Charlottenburg plant, who emerged as the major, persuasive voice. As he said in a revealing memorandum of March 11, 1898, he was motivated in this to an "outstanding extent" by the labor question. Building the Kabelwerk (cable plant) at the isolated Königs Wusterhausen location would be possible only with a simultaneous, costly construction of a "small workers' village." And even then, to the many "able workers" and especially the Berlin working women – "hedonistic and demanding" – Siemens would become distinctly less attractive. Competitors like AEG would then have an easy time poaching these workers from Siemens. By contrast, Dihlmann was sure that in Spandau, despite the financial expense, "a smooth, calm development of our fabrication" would be assured.[5]

Ultimately Dihlmann was able to convince even the in-house skeptics that the project had



Virgin territory – map of the Nonnenwiesen grounds above the Spree River and the surrounding area, circa 1890

a chance. Siemens & Halske settled for good on buying the property. The acquisition contract was signed on May 7, 1897 and recorded in the Land Register on May 25. Then in 1903 came the final decision to relocate the Berliner Werk to Spandau, too: the crucial step in a far-sighted choice to relinquish Siemens' old home on Markgrafenstrasse and continue the company's tradition at a new, systematically constructed production site.

All the same, the general situation for the new property was hardly promising – and, for the moment, offered little cause for euphoria. Nonnenwiesen – the Nuns' Meadow, a name for an area that originally belonged to the Benedictine St. Marien convent, founded in 1239 – lay north of the Spree River, in an isolated exclave of Spandau, which was still an independent town at the time. The site, almost entirely uninhabited and undeveloped, was

The nucleus of Siemensstadt – Siemens & Halske's new Kabelwerk on a canal branch of the Spree River, 1899

in an area that had been used for centuries entirely for agriculture and forestry. As it turned out, parts of the swampy, frog-filled terrain could not be used for construction until thousands of pilings were sunk into it. And as if that was not enough, the area could be accessed directly by only two routes: either the lower Spree River, which had been tamed into canals between 1883 and 1885, or the unpaved Nonnendamm, the only east-west land connection between Berlin and Spandau. In the Charlottenburg area, this sandy, medieval military road was not paved until around 1900 – and even then, with inadequate cobblestones.

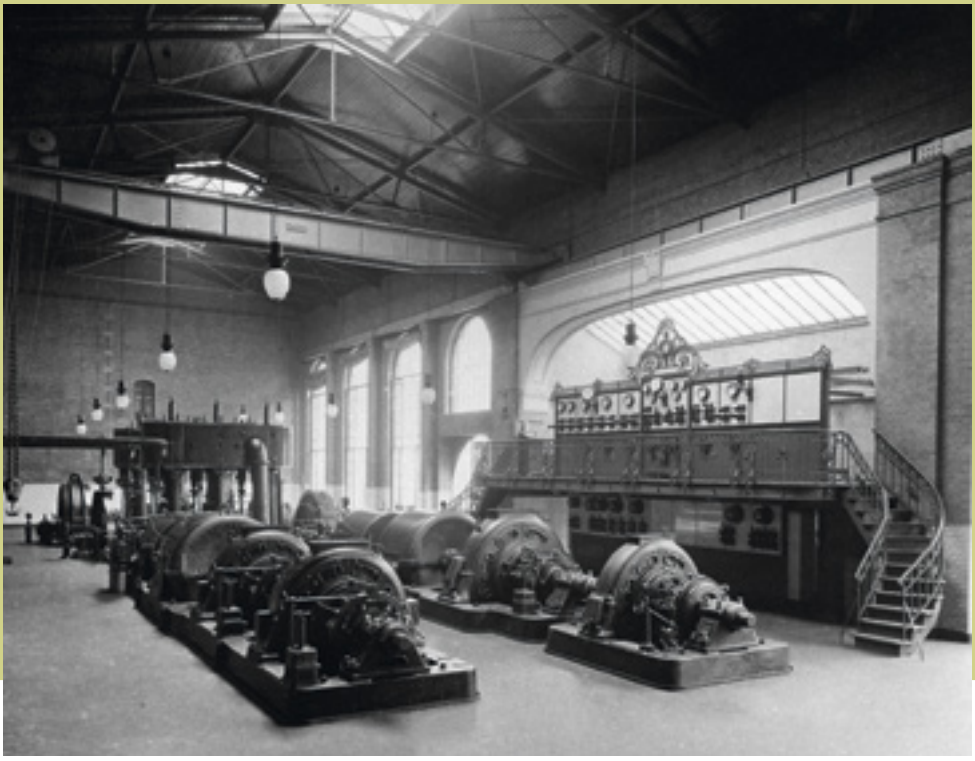
It's said that when Wilhelm von Siemens and his half-brother Carl Friedrich, 17 years his junior, first tramped through the site at the dawn of the new century, they were certain, despite everything, that this is where the future of Siemens lay. Here, said Wilhelm, Carl Friedrich would some day continue their father's work.

Between Spandau and Charlottenburg

In building Siemensstadt – the official name of the new industrial location beginning in 1914 – Siemens continuously had to work with the local authorities. Here, the disputes between Spandau and Charlottenburg – two independent municipalities until the establishment of Greater Berlin in 1920 – played a major role.


SIEMENSSTADT

Energy for the new industrial site – the hall building, 1906 (top) and machine hall, 1905 (bottom) of the Kraftwerk am Nonnendamm (Nonnendamm power plant) built by Karl Janisch – directly adjacent to the branch canal



1903

Spandau's status as a fortress town is relinquished. The city can now spread out and become a location for companies to settle.

The conditions under which Siemens operated in the crucial first years of its buildup in Spandau offered an unusually large degree of independence and latitude. The company had a rather free hand in planning and building its plants and housing, largely without government requirements and legal restrictions like the zoning and setback requirements that were common practice elsewhere. On top of that, Siemens had the financial and technical strength as well as the knowledge and experience needed to advance urban development on its own initiative all across the site. With its internal construction department and knowledgeable experts, it was able to carry out its own urban planning concepts with considerable autonomy.

That applied not just to the individual factory buildings, but also to parts of the high-cost infrastructure. It was true that the Charlottenburg Water Works supplied water, and from 1908 onward, the city of Spandau delivered natural gas – which was stored in interim storage tanks erected by Siemens. But Siemens got its electricity from its own power plant, built in 1889 immediately to the north of the Westend Kabelwerk. In 1899 it opened a purification plant for industrial wastewater, and it began installing portions of the public street lighting in 1906.

All the same, Siemens still always had to rely on cooperation with municipal authorities. And precisely during the early years, this was where the company's construction and housing projects got caught in the crossfire between two very different cities, Spandau and Charlottenburg. Again and again, their deep-seated conflicts of interest had an impact on Siemens' plans.

Like Charlottenburg, Spandau was an independent city until Greater Berlin was organized in 1920. But its development had been stagnant and unvaryingly dependent on the military, a result of its history as a fortress town. Not until the end of the 19th century did Spandau begin extracting itself from this straitjacket, transforming itself from a Prusso-German "armory" into a modern industrial location. The arrival of the Siemens factories, with the prospect of burgeoning tax income, seemed an unexpected bonanza in this location, and the city made every possible effort to encourage it. Granted, owing to the scant funds in the city's coffers, Spandau showed its support primarily in conceptual form. Nevertheless, it was of great value for Siemens to be able to proceed with its planning for urban development and transportation free from bureaucratic red tape.

There were certainly voices in Spandau that warned of potential social consequences from having workers settle here. But most of all it was the royal residence town of Charlottenburg that was in no way willing to tolerate an industrial and workers' district on its western edge. With its relatively small territory, extensive municipal facilities, and grand streets, Charlottenburg was among the most prosperous towns in the German Empire. Its residents included many who belonged to the well-to-do – and high tax-paying – bourgeoisie and the upper middle class. They wanted nothing to do with smoke-spewing factory stacks and workers' housing –

1899

Kurt Schustehrus took office as the first mayor of Charlottenburg. He served as lord mayor until 1913.

or with the expenses of an additional social infrastructure.

Thus, for years, Charlottenburg's city managers applied every available tool to impede the expansion of the Siemens project. Their most effective weapon for preventing "nuisancesome installations in neighboring communities"[6] was the idea of bringing the Spandau exclave under Charlottenburg's own control by integrating it into the adjacent portions of Charlottenburg's municipal land. Only "incorporation on a large scale," according to the city's administration in 1904, could prevent the problems looming from the "extraordinarily diversely fragmented" territory.[7] Siemens itself certainly had a general interest as well in clearing up the area's fractured, labyrinthine district boundaries. Working in the midst of a variety of administrative territories – some of which belonged to the Niederbarnim and Osthavelland districts, while others were

Opening up the landscape – start of construction on the Siemens grounds on the Nonnenwiesen, 1908 (left side)

Arrangements with municipal authorities – the "Head of the House of Siemens," Carl Friedrich von Siemens, 1924 (left), and the Lord Mayor of Charlottenburg, Kurt Schustehrus, 1910 (right)

part of the Charlottenburg municipality – the company had to contend with a wide variety of different offices claiming jurisdiction.

From the very start, the Charlottenburg city fathers had no doubt that their city would be Siemens' real future point of orientation. And as early as February 1900, they made no secret of their intention to "absorb" the area along Nonnendamm that still belonged to Spandau. True, Charlottenburg Lord Mayor Schustehrus assured Siemens that his city was well-disposed toward the company. But completely unlike Spandau, he also spoke of indemnities that the company would have to pay to make up for the additional expenses Charlottenburg would incur. At the same time, Charlottenburg applied rough tactics against its competitor Spandau, accusing it of foul play. Charlottenburg filed a wave of complaints and lawsuits pillorying its neighboring town's purported failings and inexperience, claiming Spandau lacked the capability to ensure positive urban development.

In light of Siemens' own good relations with Spandau, the company handled Charlottenburg diplomatically. But ultimately it reminded the town of its persistent objections to Siemens' projects. In 1908, a delegation that included Wilhelm von Siemens clearly spelled out to representatives of the city government that, with regard to Charlottenburg, it had never been possible "to bring our legitimate interests permanently into harmony with the so-called public interest." Rather, Siemens had "arrived at the conviction that with our interests, we will never fit into the Charlottenburg district."[8]

Spandau, by contrast, made every effort, including against "dark powers," to keep the Nonnendamm Colony from being removed from its jurisdiction.[9] In 1907, the situation was still undecided, and Charlottenburg was praised by the head of Potsdam's government for its exemplary achievements in urban development. But the next year, in March 1908, it was the city of Spandau that prevailed: It was awarded the entire 187-hectare area between the Spree in the south, the Spandau Navigation Canal in the north, Haselhorst in the west, and the boundary with Charlottenburg in the east. When the incorporated area was expanded in 1910 to include sections like the district of the Haselhorst estate, years of uncertainty for Siemens came to a liberating end. Now, said Wilhelm von Siemens, an "order of things" had been established that would create a "healthy foundation" for both the company and the entire district on Nonnendamm.[10]

Greater Berlin is formed from eight towns, 59 rural municipalities, and 27 estate districts. The German capital is now a metropolis with almost four million inhabitants.

Charlottenburg would not abandon its attempts to exert its influence until the outbreak of World War I. But the path was now finally open to new plans for the future. Relations between Siemens and the city of Spandau, already on a stable foundation, were further consolidated. The special esteem that Siemens enjoyed found more than merely symbolic expression a few years later when the Nonnendamm Colony was renamed. Rejecting proposals in the naming debate for possibilities like Fürstenbrunn and Spandau-Spreestadt, the city's representatives concurred with the Nonnendamm district association that the area "owes its growth and flourishing to the Siemens plants there." On September 4, 1913, the city's parliament approved the new name "Siemensstadt," and at the beginning of 1914, Siemens was officially able to use the new address on its letterhead.

Nevertheless, cooperation between Siemens and the city of Spandau would not be entirely friction-free in the years to come. In 1917, the new City Planning Councilor F. W. Fischer emerged as a key figure, as arguments about the water supply and the city's interference escalated. The company, stymied in its plans to build a freight railway and further expand its factory installations north of what would later be the Schaltwerk (switchgear plant), complained that its interests were being seriously compromised. Ultimately, the city's attempts proved fruitless, and the troubled relationship was repaired.

The differences in attitude concerning the relationship with Berlin, however, had deeper roots. Though Siemens had settled in the eastern part of Spandau, in its business focus and self-image it still remained unambiguously a Berlin company. In Spandau, on the other hand, influential powers were insisting on making the city independent, pointing out that its real economic relations were with outlying Osthavelland county, farther to the west and north. In view of that attitude, Spandau had already rejected founding a Greater Berlin advocacy association in Spandau in 1912. That organization's intent was to create a loose joint administrative organization with the city of Berlin at the provincial, governmental district, and county level. The opposition of the city's administration and elected delegates became even more vehement in advance of the formation of the Greater Berlin municipality in 1920. Spandau, according to insistent – but futile – speeches and publications, must remain independent and was also not part of the Greater Berlin economic area. They objected that a single stroke of a pen would now erase the fact that the city "thanks to its location and the vigorous work of its residents had developed, on its own power, into a blossoming community."[11]

Once the Greater Berlin Act took effect on October 1, 1920, the debate flared up one last time. In 1922–23, a "Withdraw from Berlin" movement, especially among municipal politicians of Spandau, reached a climax, urging that the town should be severed from the capital, on grounds of the purported incompetence of the Berlin government. Carl Friedrich von Siemens – the new "Head of the House of

Siemens" – and the rest of corporate management must have watched these events with concern. And doubtless the company experienced it as a victory of reason when the movement dissipated again once the Weimar Republic's years of crisis had passed.

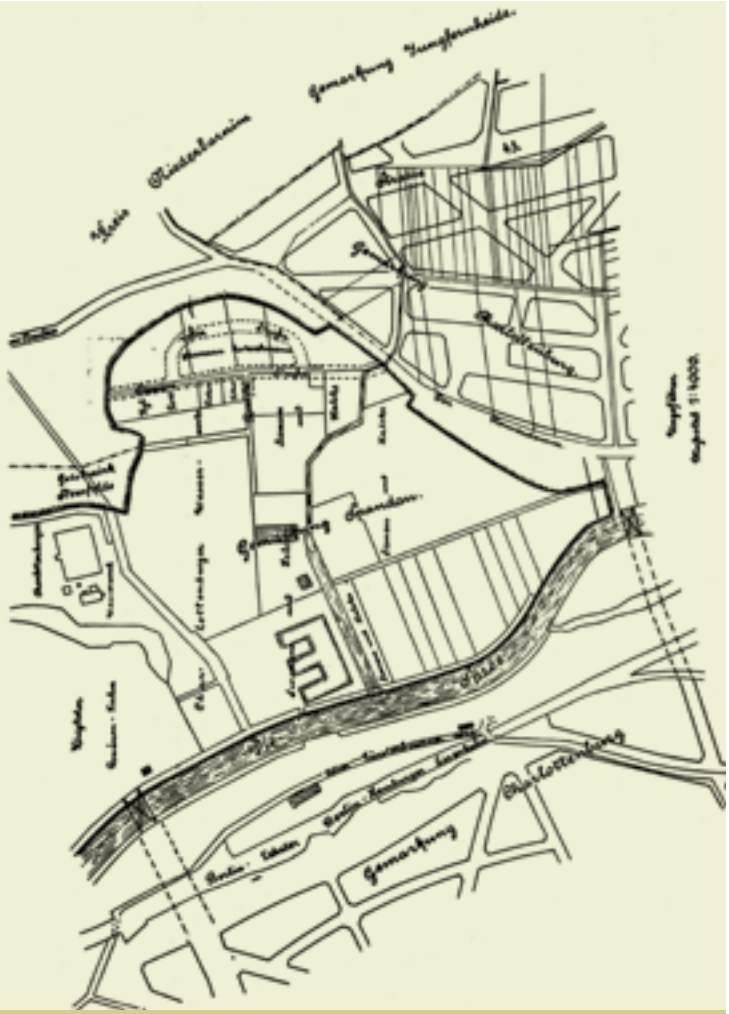
Clean water for Siemensstadt – construction of a clarifier for the wastewater treatment plant on Nonnendammallee, 1910

A city of industry

1899 marked the commissioning of the Westend Kabelwerk, which later gave rise to Siemenstadt. The site was developed swiftly, as existing Siemens production facilities moved to the new site in phases, and new plants were built there. Flexible construction concepts and the functional-modern "Siemens style" soon dominated the appearance of the flourishing district.

1923

The Jungfernheide Park opens in Charlottenburg. Situated northeast of Siemensstadt, it is one of Berlin's largest green spaces.



In the local labyrinth – site map of the Siemens premises on the Spree River belonging to the municipality, 1903 (left), and overall plans for the plots in Siemensstadt and Gartenfeld purchased by Siemens by the mid-1920s, circa 1925 (right side)

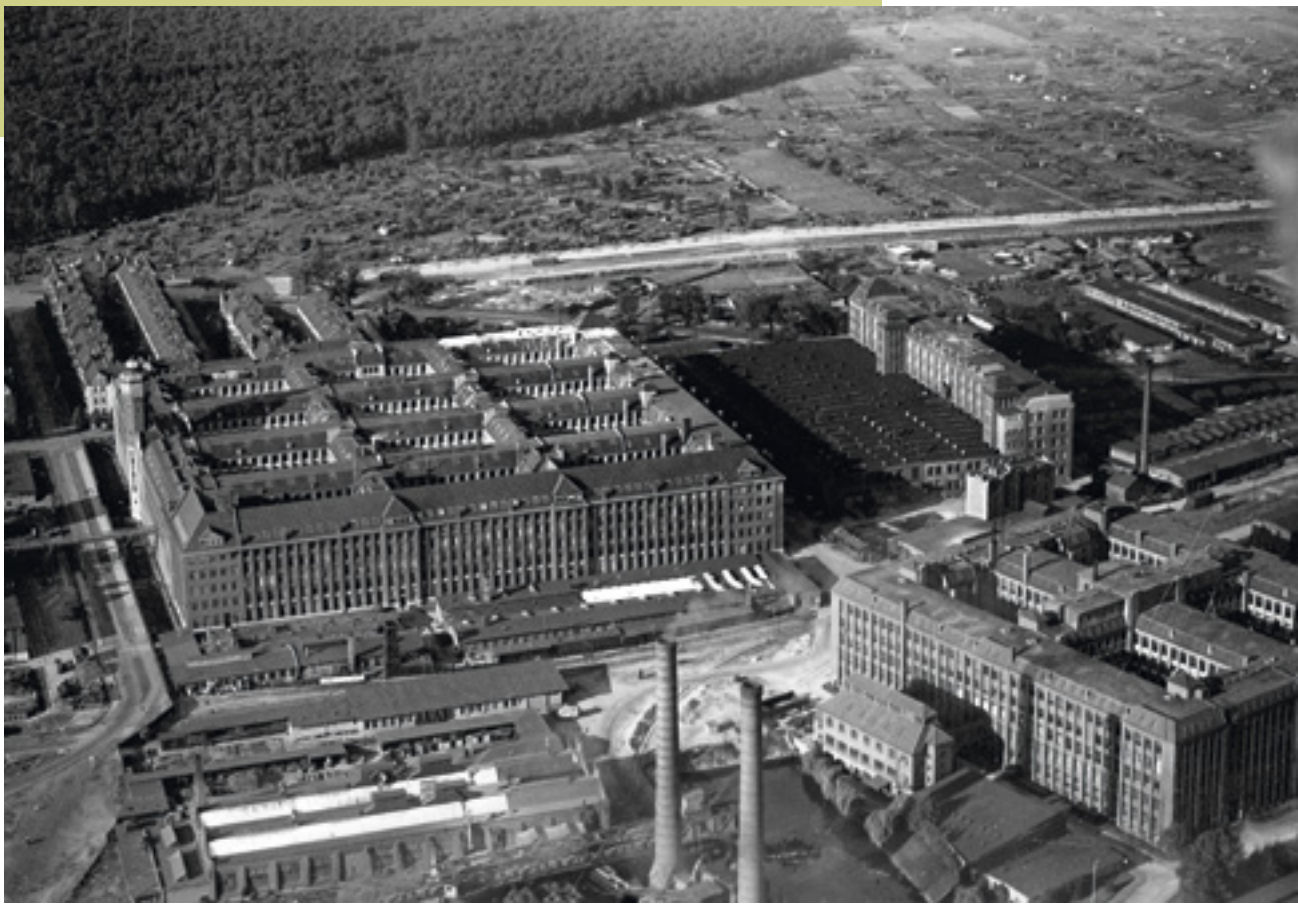
Siemens' departure for the new site was marked in November 1897 by the start of construction on the Westend Kabelwerk. The U-shaped building protruding into the barren landscape was built on 2,000 pilings sunk right into the north bank of the Spree. To the east it was bordered by a new canal branch with harbor facilities for delivering and carrying off materials and products, along with a makeshift bridge. By August 1, 1899, nothing more stood in the way of the start of cable production at this isolated Siemens plant – and Siemensstadt could truly celebrate its birth.

It was the start of a process that carried development of this landscape farther and farther north and west. Between 1905 and 1908, Siemens bought 50 hectares of forest land near Jungfernheide from the Forestry Department; at the end of 1910, the final extension on a similar scale was added, the Gartenfeld estate, northwest on the Hohenzollernkanal and the Spandau shipping canal. By 1923, additional, lesser acquisitions had expanded the total area to 212 hectares, and the property continued to grow thereafter.

After all of the production facilities started migrating to Nonnenwiesen in 1903, Siemens began building new factories at a dizzying pace. Unlike the former situations in Kreuzberg and Charlottenburg, buildings no longer had to fit into constrictive street blocks. At first they grew out into the site beyond the Spree, with no particular master plan. The aggregation of structures along Nonnendammallee, which crossed the area as a kind of axis, lent the building project a ribbon-like configuration.

Grundstücks – Uebersichtsplan.
S.u.H.
S.S.W.
Gesamtfläche
Nonnendamm – Allee
Wohnungsgesellschaft Siemensstadt
Pachtgelände
1911
1903
1922
1906

Striking building complexes in Siemensstadt – the Blockwerk, circa 1906/1907 (top left), Wernerwerk I, 1914 (top center), Kleinbauwerk, circa 1910 (top right), and Wernerwerk F, Blockwerk, and Kleinbauwerk, 1920 (bottom)



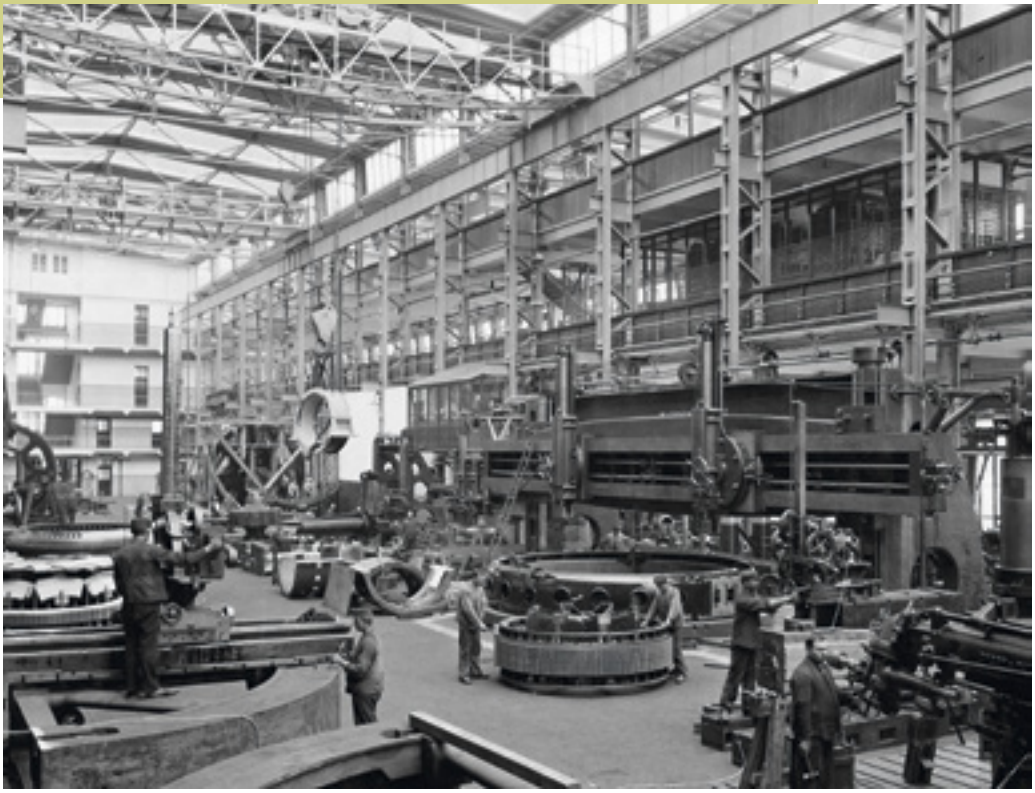
On April 1, 1905, Siemens & Halske announced that the Berliner Werk had been relocated to the Wernerwerk (later renamed Wernerwerk I). With its advanced, functional design, this massive "factory palace" beyond the Kabelwerk became the heart of Siemens' low-voltage current division – with 12 interior courtyards, more than 60,000 square meters of floor space, and 12,000 square meters of window space. The original premises on Markgrafenstrasse were thus left without a function. By the end of the 1930s, the entire Wernerwerk complex was overlooked by a 47-meter water tower with integrated chimney in the middle of the western façade. By 1937-38, the plant's workforce had grown to more than 15,000.

Immediately next door, to the south, the company began work in March 1906 on the Kleinbauwerk (small equipment plant), where Siemens-Schuckertwerke, founded in 1903, produced installation materials and small apparatus. The next fall, to the east of the Wernerwerk, the Blockwerk (block plant) opened, a new home for a traditional Siemens & Halske line that demanded extensive space: production of railroad signaling and safety equipment.

Five months later, the opening of the Automobilwerk (automobile plant) on Motardstrasse, running parallel to Nonnendamm, shifted the production facilities along the Spree toward a second focal point to the west. However, with this project, Siemens had "dived in head first"[12] in a business sense because the time had not yet come when the electric cars produced here could be marketed successfully. Though production was soon converted to gasoline-fueled "Protos" cars, this proved too exotic an addition to the Siemens portfolio. The high costs of development and experimentation finally led Siemens-Schuckertwerke to abandon making cars in 1927. The large structure, with its extensive halls, continued to be used as the Siemens Röhrenwerk (tube plant). Expanded with a U-shaped high-rise complex in 1940, it served for the production of rectifiers, which were becoming more and more important for electrical equipment.

Immediately to the west of the Automobilwerk – later the Röhrenwerk – and extending all the way to Nonnendamm, was the Dynamowerk (dynamo plant), one of Siemens-Schuckertwerke's key large factories. At the end of 1906, even before the massive building with its main structure measuring more than 200 meters in length was complete, the company began manufacturing here the large

Production center of Siemens-Schuckertwerke – exterior view of the Dynamowerk on Nonnendammallee, circa 1923 (top), and a view into Production Hall B, 1909 (bottom)



1911/12

The overhead bridge crane installed in the locomotive assembly hall at a height of 14 meters has a lifting capacity of 110 tons, making it possible to move entire locomotives.

generators and motors that it had previously built at the Charlottenburger Werk. After a major expansion of the plant about four years later, all the large machine construction work was concentrated here. In 1911–12, Siemens added a locomotive assembly hall on the eastern side.

It turned out that, even with Siemensstadt's expansive use of space and flexible construction design, not all the production facilities could keep pace with the company's explosive development. The growth of production and adaptations to technical innovations pushed the site along the Spree up against its limits once again, especially at the Westend Kabelwerk. A lucky solution found by Wilhelm von Siemens was to acquire the Gartenfeld estate, located on the Hohenzollernkanal, some distance to the northwest, as a third large Siemens area. Here Siemens-Schuckertwerke opened its new one-story Kabelwerk in February 1912. With more than 80,000 square meters of floor space, it was the largest factory hall in Europe, with space for almost 7,700 blue- and white-collar workers (1929). Located on an island surrounded by water on all sides, this site offered enough space for expansion and additions, and the canal connection also meant there was no problem with shipping even large loads. Meantime, the old cable factory did not go unused: It became an electric motor works (Elmowerk), producing drives for smaller work machines.

Thus, less than three decades after the first property acquisitions in Spandau, the most important electric power plants and departments were concentrated in Siemensstadt. However, the plant in Nuremberg remained the most important site for producing medium-size motors and generators. This factory had come under Siemens' ownership at the time when Siemens-Schuckertwerke was founded. What was largely the last phase of building construction at Siemensstadt opened in 1916 when work began on the Schaltwerk, with its two conjoined parts. In 1918, as a first step, the single-story Schaltwerk building on Nonnendammallee, just west of the administration building that had been completed a few years earlier, was inaugurated for its primary function. In addition to aircraft production – which was halted in 1919 – all production of high-voltage switchgear and control panels was relocated here.

Expansion of the Dynamowerk – the locomotive assembly hall on the east side, 1913

Widespread production – the site of the Schaltwerk on Nonnendammallee, circa 1928 (top), and the turning shop on the third floor of the Schaltwerk high-rise, 1928 (bottom)

Modernist architecture – the 11-story Schaltwerk high-rise, the first industrial high-rise in Europe, 1928

Ultimately, Siemens decided to completely abandon its aging original plant in Charlottenburg and to move that facility's production of smaller low-voltage switchgear and control equipment to Siemensstadt. The plans for this move yielded an architectural highlight, the high-rise Schaltwerk building, which was added to the existing flat building on Nonnendammallee and opened for business in July 1928. The steel-framed building, 11 stories high and 175 meters long, was the first industrial high-rise in Europe, and was specifically tailored to the needs of modern, efficient production techniques. Its flexibly arranged office space and shop space offered a wide variety of possible uses. But the most revolutionary feature was its construction principle of arranging multiple levels on top of one another, and significantly shortening transport distances by using a large number of elevator connections, including paternoster or belt lifts. The lively response from the trade and in architectural and construction journals highlighted the Schaltwerk high-rise's importance as one of the outstanding industrial structures of the 1920s.

Siemens & Halske built one more architectural highlight a few years later, lending an impressive presence to the site on the Spree: the Wernerwerk high-rise (Wernerwerk X), which the company moved into in November 1930. With better transportation connections than the old Wernerwerk, to which it was connected by a bridge, this building was composed of wings with as many as 11 stories, likewise steel-framed and surrounding a large interior courtyard. The high-rise served as a central administration building for Siemens & Halske, containing the offices of the directors and the central administration. It was also equipped with a lecture hall, a pneumatic tube system for mail, and eating facilities with dining rooms and kitchens. The Wernerwerk soon counted as one of the most significant high-rise administration buildings of the age. Even today its façades, like those of the Schaltwerk high-rise, are among the dominant features of Siemensstadt.

But the real symbol and landmark of the new industrial site was a tower that Siemens built in the middle of the Wernerwerk II, also known as the Messgerätewerk (measuring equipment

The 70 meter clock tower at Wernerwerk II is ten meters shorter than the tower on the Spandau City Hall built between 1910 and 1913.

plant). West of the old Wernerwerk, the company had already begun building the new structure, with its grid-like layout and seven interior courtyards, in 1914. But the building did not become operational until 1922, and – after a final expansion in 1928 – served to produce measuring equipment, as well as housing the electrical medical equipment department at times. The tower, which also functioned as a smokestack, was already completed in December 1918. With its illuminated clock, it became "what you might call the watchman of this new city."[13]

Finally, off to the east, the Wernerwerk XV south of Siemensdamm provided a distinctive anchor point and the gateway to Siemensstadt. Initially intended to relieve some of the crowding at the Blockwerk, from 1925 onward Siemens & Halske used it mainly for producing amplifiers, and sometimes also for making radio equipment and loudspeakers. After several expansions, the three long wings of the building,

Siemensstadt landmark – overall view of Wernerwerk II with its distinctive clock tower and Wernerwerk F in the background, 1929 (left), and detailed view, circa 1931 (right)

and especially the 12-story staircase tower of the Wernerwerk XV, became conspicuous components of the cityscape.

By the end of the 1920s, the further expansion of production areas to the west extended even into the Haselhorst industrial area, located near the Spandau Citadel. Various Siemens plants were now housed here in the existing buildings of former armaments factories. Meanwhile, all around the industrial core buildings, a dense network of smaller and larger production facilities, warehouses, and shipping halls arose all over Siemensstadt, completing the scene of an extremely complex industrial city.

An important feature shared by many industrial buildings at Siemensstadt were the flexible options for use and expansion, which were also planned for the longer term. Even back in 1897, with the Kabelwerk, the objective was to ensure "a planned, unified interlinking of the various departments, while maintaining comprehensibility and easy transportation conditions," and most especially a "convenient, organic ability to expand."[14] The aim was to make use of the new spatial freedoms to design all production sites, insofar as possible, to be optimally adaptable to the incessant processes of modernization and development. In this way as well, innovative solutions were intended to contribute to make the factory installations as productive and efficient as possible.

But this called for far-sighted central planning. And the names associated with that achievement were first and foremost two Siemens chief architects, Karl Janisch and Hans Hertlein. Janisch, trained as an engineer, shaped the entire look of Siemensstadt as head of the department for construction and operations technology from 1902 to 1915. Inspired by visits to various industrial structures on an eight-month trip to the USA, Janisch laid the groundwork at the company for a modern planning and construction design, oriented to the needs of processes in production technology. A key feature here was the principle of the flexible usability and variable expandability of buildings and plant

Chief architect of the "Siemens style" – Hans Hertlein (4th from right), long-time head of the construction department, surrounded by his employees on the construction site of the Wernerwerk high-rise, 1930

systems, for example by standardizing components. Additionally, the organizational combination of workshops and production processes also helped enhance cost-effectiveness.

Janisch's successor, the architect Hans Hertlein, headed the Siemens construction department until 1951. The company continued evolving its established principles under his leadership, and on its already established foundations, Siemensstadt was expanded into an all-inclusive "urban organism." The planning and execution of construction were still always handled by the company itself. In close coordination with other departments, this made it possible to design industrial installations entirely in keeping with the units' own ideas, independently and with holistic ambitions.

As to the architectural appearance of the area, a change became evident in the large individual structures: In spite of all their modern and functional features, the Westend Kabelwerk, the Dynamowerk, and the Automobilwerk, which had been built under Janisch, had still been designed with historicist façades. Here, "far off from the loud highway of fashionable craving for admiration,"[15] ambitions to impress aesthetically with the latest designs still retreated, as Janisch's successor Hertlein put it.

Hertlein himself then influentially set new standards for the final look of the "Siemens style" that characterized Siemensstadt. Here the guiding principle was an architecture that took equal account of functionality and formal aspirations. In the preparation and execution of industrial construction, engineers' plans and architectural design were to go hand in hand and result insofar as possible in a natural unity. The plan was an objectivity and solidity founded on the needs of operations and technology, but without letting the buildings run the risk of looking too schematic. As Carl Friedrich von Siemens put it, this was a "development in the direction of attractive functional architecture" in which Siemens played a leading role.[16]

After appointing Hertlein, Carl Friedrich von Siemens himself provided important ideas for modernizing the company's architectural policy, while at the same time giving his chief architect greater autonomy in dealing with internal critics. After all, one key aim was to emerge from the shadow of AEG, where the painter and designer Peter Behrens, retained as an artistic advisor,

A plea for rationalism – Siemens & Halske's Wernerwerk high-rise on the corner of Ohmstrasse and Wernerwerkdamm as an expression of modern industrial architecture, 1931

had conjoined technology and aesthetics in attention-grabbing ways. But a further impetus was lent between 1926 and 1933 by the surge in architectural modernization under Berlin's City Planning Councilor Martin Wagner. Amid this setting, the Schaltwerk and Wernerwerk high-rises, more than any others, became Siemensstadt's expression of a contemporary, rationalistic, and modern industrial architecture, without losing sight of the balance between a crisply expressive exterior and solid unobtrusiveness.

Hertlein also carried the "Siemens style" far beyond Berlin, with designs for imposing buildings at various company sites in Germany, the rest of Europe, and South America. He designed branch offices and other office buildings in locations like Essen, Nuremberg, Vienna, and Milan, and after World War II, also Siemens-Schuckertwerke's Himbeerpalast (raspberry palace) at the new headquarters site in Erlangen.

One example that did not fit the pattern was the white Siemens building in Buenos Aires, completed in 1931. Here Hertlein allowed himself a stylistic outlier, providing the building in the midst of the Argentine capital with a bell tower reminiscent of Venetian prototypes.

Research and administration

In addition to modern production facilities, optimal conditions for research and development were created in Siemensstadt. Siemens built a large, central laboratory and established its own school to train individuals in the needed skills.
By the end of 1913, administrative employees had moved into the representational Siemens head-quarters on Nonnendammallee.

Research and production under one roof – Siemens & Halske's imposing Wernerwerk I, circa 1914 (top), and engineers in its laboratory, 1905 (bottom)

1911

Wilhelm von Siemens, the second son of the company founder, is named to the board of the Kaiser-Wilhelm-Gesellschaft, where he serves for eight years.

For a research-oriented electrical engineering company like Siemens, accelerating growth made it even more important for research and production processes to work together as effectively as possible. The expansion of Siemensstadt offered a chance to create ideal conditions from the very start in this sphere as well, and to further reinforce the already traditionally elevated status of the company's own research.

In general, first of all, it proved to be a great advantage that the site could remain in close contact with university and non-university research institutions in the Berlin region. In 1911, Wilhelm von Siemens welcomed the founding of a new research organization that was less dependent on the state: the Kaiser-Wilhelm-Gesellschaft (KWG) – the forerunner of today's Max-Planck-Gesellschaft – which appointed him to its board. For a start, KWG established a chemical and chemical-physical institute in nearby Dahlem. This enabled the Siemens companies to maintain very close contact with science, and Siemensstadt remained an appealing job site for qualified young engineers and scientists.

Wilhelm – who chaired the Supervisory Board of Siemens-Schuckertwerke and, starting in 1918, also of Siemens & Halske – was also the man who pushed to optimize conditions for research within the company. Only through research would it be possible to keep improving time-tested products and to expand product ranges. Advances in every field of electrical engineering, telecommunications engineering, and medical technology established a steady demand for new research findings. But those findings could only be fully applied if research and development was very well integrated with production. Plants and departments had their own laboratories, providing direct contact with the design, production, and sales units at each factory. But over the long term, this decentralized structure had the serious drawback that dialog between plants stagnated, and the full potential of shared knowledge, expertise, and experience could not be leveraged.

Wilhelm von Siemens thus envisioned a central, higher-level establishment at Siemensstadt to conduct basic research and also to coordinate among the individual laboratories. That vision was implemented on a temporary basis as the

Focus on research – exterior view of Siemens' central research laboratory on Rohrdamm, 1925 (left), and the testing hall in the inner courtyard, circa 1924 (right)

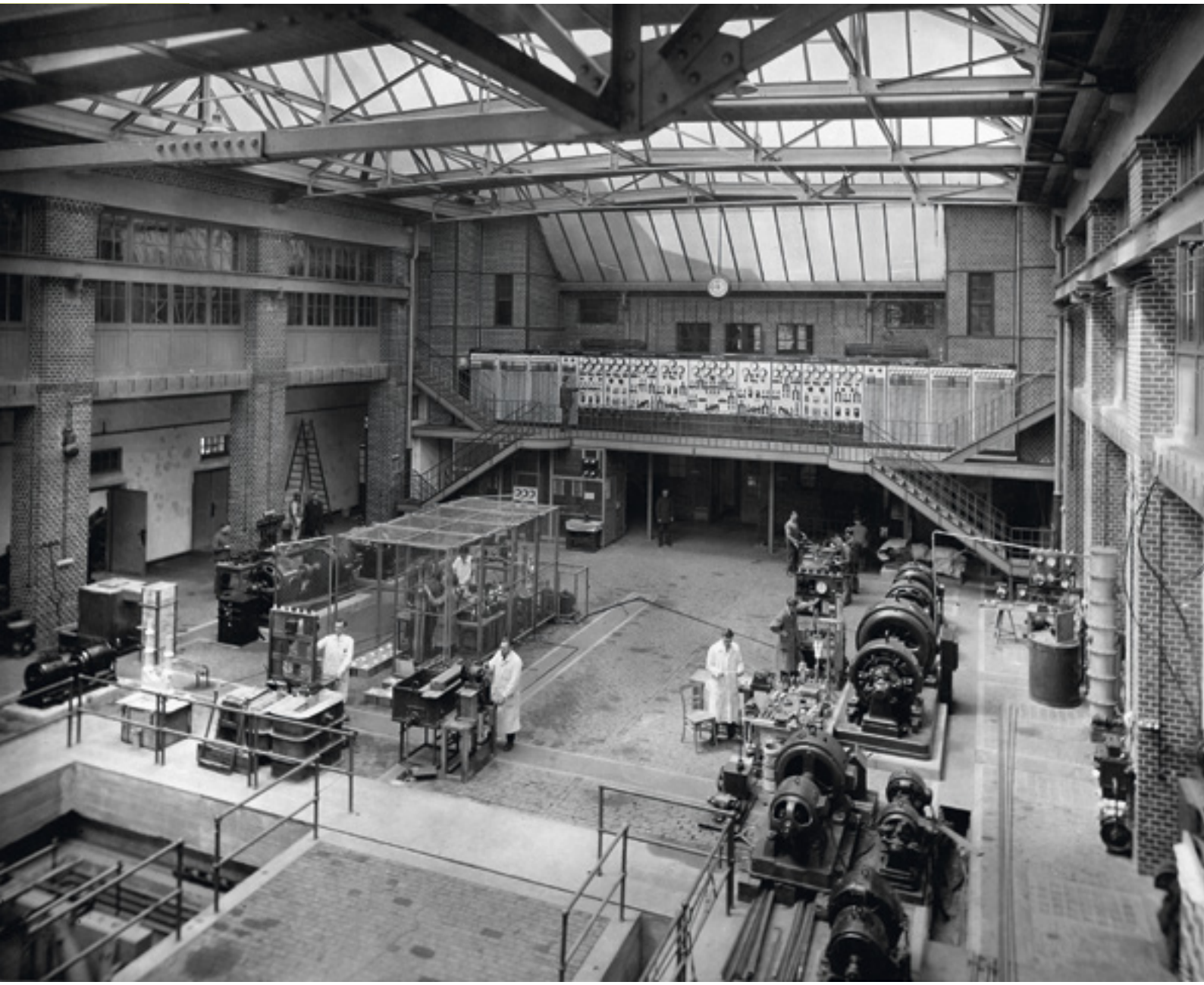
physical-chemical laboratory, known as the "Charlotte," which began operations early in 1907 on Motardstrasse, east of the Automobilwerk. But although the building remained in use as a laboratory until the late 1920s, it had little capacity for expansion. Thus, shortly before World War I broke out, the company began carrying out plans for an expansively designed new structure on Rohrdamm, diagonally across from the old lab.

This large laboratory, designed with close collaboration among architects, engineers, physicists, and chemists, and with the support of the laboratory construction department from Wernerwerk M, was ideally tailored to research needs. The two side wings of the imposing building, joined together on the west side, made it possible for different groups to work separately without interfering with each other. The wings enclosed a hall designed for larger experimental setups. Parts of the building were cushioned against vibration to permit precision work, and the spaces were protected from incoming sunlight. All installations were also designed for maximum adaptability and versatile use. There was an option as well to expand the building, as was indeed done in subsequent years.

The lab, soon officially named the Forschungslaboratorium der Siemens & Halske AG und der Siemens-Schuckertwerke GmbH (research laboratory of Siemens & Halske AG and Siemens-Schuckertwerke GmbH), was fully operational by 1922 and offered the latest amenities to support research in physics, chemistry, and technology, as well as their scientific overlaps. Here, 88 salaried employees and 111 hourly wage workers (1929) investigated electrical engineering products and metallurgical materials and performed research in such fields as x-ray technology, magnetism, electrical acoustics, and electron microscopy. Under the leadership of Nobel Laureate Gustav Hertz,

1925

German scientists James Franck and Gustav Hertz are awarded the Nobel Prize in Physics. They are pioneers in the field of nuclear physics.



At the heart of Siemensstadt – construction of the Siemens-Schuckertwerke administration building at the intersection of Nonnendammallee and Rohrdamm, February to December 1913

another important field starting in 1935 was nuclear physics. Siemens set up its Forschungslabor II (research laboratory II) especially for Hertz. An independent Zentralstelle für Wissenschaftlich-Technische Forschungsarbeiten (central office for scientific-technical research work) had already been created in 1919 to supplement the central research lab proper. It pooled the research results from all the laboratories and departments working with science and technology at the individual Siemens plants to make the findings even more usable for the company as a whole.

The recruitment of technically qualified employees was supplemented through the company's own in-house training for skilled laborers. Up until well into the 1890s, Siemens showed little interest in offering apprenticeships. But the rapidly increasing needs of the industrial company for skilled labor and the new demands arising for vocational experience led Siemens to rethink its position. The company systematically reorganized its training structure: Apprentice workshops were set up for practical training on a trial basis in 1891 in the Berlin plants. In addition, beginning in November of 1906, 77 apprentices in four classes took part in theoretical training in the Siemens & Halske vocational school. As the predecessor to the Werner von Siemens vocational school, where courses began in 1952, it is today one of the oldest vocational schools in Germany. The classrooms were in the facilities of the Wernerwerk. Beginning in 1932, Siemens-Schuckertwerke, which had operated its own factory school in the Dynamowerk, sent its apprentices to the Wernerwerk school.

The company placed great importance on appropriate accommodations not just for production, research, and training at Siemensstadt, but also for the administration. Beginning in 1910, well before the Wernerwerk high-rise became available to Siemens & Halske management in 1930, Siemens began a project that had already been included three years earlier in the city incorporation agreement with Spandau. Under the terms of that contract, even if the administration building was relocated, the company was to "endeavor insofar as possible to ensure that same is built exclusively on Spandau city territory."[17]

In 1901, the Siemens & Halske main administration building was situated on Askanischer

Platz, near the Anhalt train station. But over time, the building had evolved into a "beehive with innumerable cells, in which a stranger was almost certain to get lost," according to Georg Siemens.[18] By contrast, the lavishly planned new structure at the intersection of Nonnendammallee and Rohrdamm in the midst of Siemensstadt would remain in service as the company's administrative center, including later as home to the Berlin headquarters of Siemens AG. In December 1913, the company moved into the building, whose five kilometers of corridors offered space for up to 5,000 employees. The multi-wing structure, with various interior courtyards and numerous elevators and paternoster lifts, had to meet a wide range of requirements. It offered a new home to the Managing Board of Siemens-Schuckertwerke and numerous departments of both Siemens companies, but also housed the railway department, the design office, the advertising and patent departments, and the company's archives. There were also offices for the Dynamowerk on the other side of Nonnendammallee, with which the administration building was connected by a tunnel under the street. The 18,000 letters that

Space for the office staff – view of the telex center in the administration building, mid-1930s

A ceremonial space – the Hall of Honor, 1928 (top), and the Oak Room for meetings of the Managing Board, 1920s (bottom), in the east wing of the administration building

were leaving the building every day around 1930 were evidence of the immense scope of Siemens' business connections.

As a special ceremonial space, Siemens created a Hall of Honor inside the building. Designed with a mosaic floor and roofed with an imposing glass dome, it served as an exclusive location for receptions, events, and exhibitions. The entire monumental structure, with its palatial appearance, was intentionally designed to make a statement – from the exterior as well. It provided the focal point of the completed new Siemensstadt – "Here, in the main administration building, beats the company's heart."[19]

The grounds of the administration building were also quite deliberately chosen as the site for a memorial to the plant's employees who had been lost in the war. In the southeast corner, a symbolically powerful space was created. Though it traced its origins to a 1921 idea stemming from Siemens management, the memorial, which was based on a design by Hans Hertlein, would have to wait until August 5, 1934 to be inaugurated. It was dominated by a 19-meter-high pillar topped with an eagle. Cast-iron plaques set into a wall surrounding a plaza bore the names of all 2,989 Siemens employees who had lost their lives in World War I. An expansion in 1970 commemorated those who perished in World War II.

1907

Wilhelm von Siemens initiates a central company archive. It is originally housed in the building of the Siemens & Halske light bulb factory, and from 1913 onward, in the new administration building.

Impressive juxtaposition – the administration building viewed from the southeast and the neighboring Schaltwerk high-rise to the west, circa 1931

The residential city

One unusual characteristic of Siemensstadt was the fact that employees not only worked there but also lived there. Within the framework of its corporate social policies, Siemens promoted the multi-phased construction of apartments, houses, and settlements, based on modern social and architectural concepts. Additional social, cultural, and public facilities supplemented the infrastructure.

1907

On February 8, the Charlottenburger Baugenossenschaft housing cooperative is founded. Originally with 572 members, today it has around 13,500. Its first construction project, in 1909, provides bright and affordable apartments.

The launch of housing construction – houses in the Nonnendamm Estate, mostly completed by 1913, circa 1930

Relocating to Siemens' growing site on the western edge of the city opened up pathways for new solutions in many areas of development and production. But the disruptive change also raised new questions that demanded answers – first and foremost, issues associated with the growing gap between where people lived and where they worked. The company's internal discussions in the late 19th century had already given considerable attention to the aspect of constructing housing for plant employees, and now this inevitably became a main focus – in part, the company needed business strategies that would ensure lasting employee loyalty, and in addition, a company housing and settlement program represented a core component of a modern social responsibility policy. Ultimately, proximity between work and home actually became a special feature of Siemensstadt.

Werner von Siemens had already indicated that he was open in principle to social-reform ideas about encouraging housing construction on the company's part, especially for the more impoverished segments of the population. He spoke of a "colossal task" but had reservations about how it would be possible to "manage such monster undertakings well and make them pay off."[20] Accordingly, the company was cautious on this point until the turn of the century; after all, for the time being, its production facilities were still located within the metropolitan area.

But that meant that the problem of the need for housing grew all the more acute when operations began at the Westend Kabelwerk in 1899. As Siemens Director Carl Dihlmann prophetically warned, the rising new industrial center would have to create its own housing opportunities "if these thousands of people are not to spend several hours a day on a rail car."[21] Like other large industrial corporations, Siemens was thus faced with the virtually existential challenge of offering incentives to qualified employees by creating housing space.

Yet as far as Carl Friedrich von Siemens was concerned, this type of rationalized considerations were based even more on motivations grounded in social policy. Concerned with the rampant housing shortage after World War I, he thus became a pioneer in a progressive movement related to housing construction policy. He welcomed social reformers' demands that conventional mass housing for workers should be countered with ambitious, factory-sponsored construction designs. Housing construction should be oriented not only toward the latest social and architectural standards but also to high aesthetic expectations. On top of that, old-style plant housing was getting a bad reputation among Berlin's highly unionized and politically organized workforce, and many workers considered such dwellings a tool for reinforcing employee dependence. Instead of being enclosed "in narrow streets and gloomy courtyards," Siemens realized, good, healthy living conditions for employees would promote "enjoyment

of life" and "a preservation of strength," along with a contentment that ultimately would be a "fundamental condition for technical progress and achievement in fabrication."[22]

Siemens therefore combined the development of Siemensstadt with several stages of housing construction programs as part of its corporate social responsibility policy. As a preliminary phase, the Nonnendamm Settlement was built east of Rohrdamm on both sides of Nonnendamm, which started being developed into a wide boulevard in 1906. But both Spandau and Charlottenburg intervened at first, attempting to block the construction project and lower the building standards. Siemens & Halske warned that, in that case, "in place of our executives and workers," the area would attract "a homeless proletariat not employed in our factories at all."[23] Finally, under contract from Siemens, the Märkische Bodengesellschaft construction company completed the first apartment houses, extending from Ohmstrasse. The original 218 apartments, ready for occupancy in 1905, were just north of the Wernerwerk, which opened at the same time, and were home primarily to engineers, skilled workers, and company officials. Further lines of apartment houses extending to Rohrdamm were gradually added with the support of the Charlottenburger Baugenossenschaft housing cooperative.

By 1913 the area was almost entirely built up with four-story apartment houses. These had contemporary designs and fittings that set them apart from typical Berlin workers' tenements, which tended to have cross-wings and gloomy rear buildings. But the new buildings did not yet

1928–1930

Based on designs by architects Bruno Taut and Franz Hillinger, the Wohnstadt Carl Legien housing development is built in Berlin-Prenzlauer Berg as one of the New Architecture projects.

Modern living at the Siedlung am Rohrdamm – garden side of a residential block on Rieppelstrasse, circa 1930 (left), and view along Rapsstrasse, 1929 (top)

represent a true breakthrough of reform-minded housing design, as was demonstrated not least of all by the sluggish demand for leases. “Create real freedom, light, and air,” one critical observer demanded in 1912, claiming that the “far too narrow alleys” still offered no escape from the “fetters of the metropolis.”[24] On top of that, the immediate vicinity still lacked an urban infrastructure capable of attracting potential tenants.

In 1921, Siemens began a second phase in the revival of its housing construction activities, taking on the roles of prime contractor, owner, and landlord itself. For this purpose, the company invested in the Wohnungsgesellschaft Siemensstadt GmbH housing company, founded two years earlier and later renamed Siemens-Wohnungsgesellschaft. It soon also took over the remaining shares held by the municipality of Spandau and by Märkische Heimstätte GmbH. As a first project, it turned to building the Siemens-Siedlung am Rohrdamm (settlement on Rohrdamm), a housing project south of the Hohenzollernkanal. By 1930, 529 housing units were built here, including rental apartments and single-family row houses, primarily for skilled workers, technicians, and engineers. The first buildings were ready for occupancy in 1922, and here again it was Hans Hertlein who was responsible for the designs, drawing on examples from

1902

Artists and life reformers found the Deutsche Gartenstadt-Gesellschaft – DGG (German Garden City Association) in Berlin. Its goal is to familiarize the populace with the Garden City concept.

the garden city movement and reform architecture as his models.

These accommodations were considerably different in design and quality from the block-like apartment "barracks" of the past. They had practical layouts, with their own bathroom and a porch or balcony. Heat, hot water, lighting, and ventilation met the latest standards.

Gardens and green spaces also helped open up the residential area as a whole. A self-contained area of owner-occupied homes was added east of the Siemens-Siedlung between 1932 and 1940. Siemens offered the 121 two-story row and detached houses here to its managers and other high-level employees to purchase.

Progressive new housing development – the Heimat Estate on Quellweg, 1931 (left and top)

The Heimat (home) settlement, the second rental housing project in Siemensstadt, was much larger. It rose between 1929 and 1931 on the southern Rohrdamm, in the direction of the Jungfernheide Park. For this purpose, Siemens acquired an interest in the prime contractor, the Heimat Gemeinnützige Bau- und Siedlungs-AG construction company and obtained the right to provide all of the roughly 900 apartments, most of them fairly large, to plant employees after completion. Here again, the planning and design of the buildings were guided by the ideals of housing reform.

The Gagfah settlement – built and leased out by Siemens jointly with the union-owned Gemeinnützige Aktiengesellschaft für Angestellten-Heimstätten nonprofit housing company – was designed primarily for lower- and mid-level salaried employees. In 1932, immediately adjacent to the Heimat settlement, construction started on 600 apartments on a site measuring nearly 18,000 square meters in size. Once again, standards here were relatively high, and the location amid a green setting close to work was a major appeal.

As a third phase of the housing and settlement construction encouraged by Siemens, small settlements for both permanent and temporary employees were created, starting in 1932. The Staaken and Spekte allotment areas were outside the Siemensstadt city limits, on the western edge of Spandau; the Hoka allotment area

Architect Martin Wagner is appointed to Berlin's City Planning Council. He promotes extensive urban design and housing construction programs.

extended along the northern bank of the Hohenzollernkanal. On a total of more than 600 of these small lots "outside the city precincts,"[25] the small settlers themselves helped build the houses and used the land to grow their own fruit and vegetables.

Within a relatively short time, the area of once-unpopulated Siemensstadt had thus undergone a fundamental transformation. By the eve of World War II, the small holdings, more than 2,000 rented apartments, and 121 owner-occupied homes had made it a modern "residential city" with a population of more than 13,000. The urban picture was completed by installing the physical infrastructure together with an increasingly close-meshed network of social, cultural, and municipal facilities. Police, fire brigade, and post office, together with the offices of city and state agencies, were joined by schools of various levels, childcare centers, and recreation centers. Sports facilities, small gardens, and leisure areas considerably enhanced Siemensstadt's value as a place to spend time off; and this was also where Siemens' private involvement created space for social and athletic activities away from the workplace. This flourishing district also attracted numerous retailers, craftsmen, and private sector service providers, whose shops, businesses, and services lent additional life to Siemensstadt and opportunities for consumers, along with the bars and restaurants. A silent film theater was added in 1913 to provide evening entertainment; the ability to show sound films arrived in 1931.

Finally, the construction of two churches provided two new focal points for the district. Here Siemensstadt was entirely in harmony with old urban traditions. In 1931, the Protestant Christophoruskirche on Schuckertdamm, designed by Hans Hertlein and boasting a 30-meter tower, replaced a small half-timbered chapel that had been acquired in 1908. Catholic services had also been held in a chapel since 1919, until Count Preysing, the Bishop of Berlin, consecrated St. Joseph's church in the Heimat settlement in November 1935. This, too, had a bell tower that could be seen from afar and was Hertlein's handiwork.

Occupants began moving into the Grosssiedlung Siemensstadt – the great Siemensstadt settlement, also known as the Ring-Siedlung – in April 1930. Today celebrated as a UNESCO World Heritage Site, it has always had an exceptional relationship with Siemensstadt. While it is an urban residential area located mainly on the Charlottenburg side, and Siemens played no role in its construction, it has always remained inseparable from the Siemens section of the city.

As part of a construction program organized in 1928 at the initiative of City Planning Councilor Wagner, nonprofit municipal companies began in July 1929 to build more than 2,100 ultra-small apartments. The location on the southern edge of the newly instituted Jungfernheide Park was a particular advantage, because even though the settlement was close to industry and the urban transportation network, it still was nestled in a natural environment.

Much-admired "New Architecture" – view of the Grosssiedlung Siemensstadt and the Heimat Estate, designed by renowned architects, with the Protestant Church in the background, before 1935

In addition to Hans Scharoun, who was also in charge of the overall concept, other eminent representatives of the "New Architecture" movement also had a hand in this – the likes of Walter Gropius, Hugo Häring, Otto Bartning, Fred Forbat, and Paul Rudolf Henning. They took advantage of the assignment to create a housing complex lined up mainly in rows, with interiors that stood out for their rationalized layouts. But it was their sometimes spectacular exteriors, in particular, that attracted public attention – especially Scharoun's cruiser-like building along Jungfernheideweg that became known as Battleship A.

Afternoon fun – girls and boys from the Siemens childcare center on Jugendweg playing outdoors, undated

A place for relaxation – sunbathing terrace on the top floor of the Siemens recreation center for female employees on the corner of Goebelstrasse and Lenthersteig, circa 1930

Siemens itself was noncommittal about this remarkable project; after all, in this case the eastward expansion of Siemensstadt had taken place without the company's involvement in its design. And the company also had its own, quite different ideas of modern architecture; internally, this fact was no secret. The Grosssiedlung was branded as "false objectivity" and something "violent and formless" that posed a threat to Siemensstadt's unified structural design.[26]

Yet in 1936–37 it was the Siemens house architect Hans Hertlein himself who finished off the construction work toward the east, with Gagfah as the developer. His housing project for the Am Goebelplatz settlement, with its steep roofs and broad buildings, was a departure from the brick construction of Grosssiedlung Siemensstadt.

Mobility

For Siemens, one of the special ongoing challenges of urban development was to ensure adequate transportation for people as well as goods. To achieve this, the company built its own network of roads, streetcars, and freight rails, and connected Siemensstadt to the railroad. The highlight of the traffic infrastructure development was the opening of the Siemensbahn light rail in 1929.

Despite all the activity in housing construction, housing was never able to keep pace with the growth of the workforce at Siemensstadt. In 1927, plant housing was available for only five to six percent of all the company's Berlin employees. Of course, it would also have been entirely unrealistic to try to arrange for every "Siemens person" working at the company to also be a "Siemensstadt resident." There was no way the "factory city" and the "residential city" would even approximately match.

Even though nearly half the total workforce at the Siemens plants in Berlin came from nearby Spandau and Charlottenburg, a fundamental challenge still emerged: transportation. Internal debate had already flared up on this point back in the decision-making phase at the end of the 19th century; even the isolated factories of those early days had to be accessed by thousands of commuters and extensive freight shipments every day. Over the coming decades, everyone in charge remained only too aware of how important good transportation options would be for Siemensstadt's development. Siemens had to apply considerable effort of its own, not to mention a pioneering spirit, to create extensive capacity for mobility so that its employees would be able to use the full range of transportation. That work was usually associated with extensive planning and years of preparation and was

Impressive transport capacities – the Siemens freight railroad on the grounds of the Gartenfeld Kabelwerk on the Hohenzollernkanal, circa 1925

1908

The Siemens freight railroad is commissioned, comprising only one locomotive and six freight cars. The fleet is gradually expanded to meet transport requirements.

impossible to achieve without coordinating closely with municipal authorities. It was also true that the streams of people who surged through the streets like a "gigantic serpent" from the tram and train stops to the plant entrances was part of the fascination of Siemensstadt for outsiders – but that was of secondary importance.

In 1897, the city of Spandau predicted that the Spree would remain the main channel for the transport of coal, raw materials, and products, while land transportation would be only of incidental importance. And indeed, at least in the early years, it was a steam-powered ferry that carried loaded train cars several times a day from the Westend freight station across the Spree and into the branch canal right next to the Westend Kabelwerk. And between 1903 and 1905, the first workers came by water as well, riding the Von Bismarck steamer east from the Lindenufer bank in Spandau to the Kabelwerk.

But the real main transportation artery for commuters was Nonnendamm – renamed Nonnendammallee in 1914 – between Spandau and Charlottenburg. Thousands of Siemens employees walked along Nonnendamm for about 25 minutes each day from the Jungfernheide Ring train station to the plant facilities. While Siemens itself paved the street within Spandau territory, company management bristled at the way Charlottenburg deliberately left its segment neglected for years. The executives viewed the arduous walk and the resulting dirt in the cloakrooms as a serious threat to the "pleasure our clerks and workers take in their work."[27] In formal complaints and at assemblies, employee representatives also repeatedly voiced their displeasure at the desolate state of the street and transportation. Not only was road dirt "blown in our faces by the wind,"[28] but you could lose your way in the dark and easily be injured, or even "drown in the swamps to the right and left."[29] In 1911 the Social-Democrat newspaper *Vorwärts* was still questioning whether this "so-called street" with its "antediluvian cobblestone pavement" and "fragmentary attempts at a sidewalk" was at all appropriate to the further development of one of the city's most promising districts.[30] Not until 1913 was Siemens, with its own funds, able to start further developing Nonnendammallee as the "Siemensdamm." The company thus created a very viable east-west axis that also made it possible to bring the tram system to Siemensstadt.

In the expansion of freight transportation, on the other hand, Siemens' extensive autonomy in planning and building the necessary facilities once again gave it an advantage. In March 1908 the Siemens freight railroad joined several plants together; in 1911 a siding to the new Kabelwerk was added as part of the northwestern expansion of Siemensstadt to Gartenfeld Island.

Bigger obstacles had to be overcome to provide a transportation connection with passenger trains. A first step was for the company to install an additional suburban station on the Hamburg-Lehrter railway's route. In 1905, after seven years of planning and construction, and just in

time for the commissioning of the Wernerwerk, the new Fürstenbrunn stop (renamed Siemensstadt-Fürstenbrunn in 1925) opened south of the Spree, opposite the Westend Kabelwerk. From then on, hundreds of thousands of passengers would be able to reach the new Siemens location directly by rail.

At the same time, after fruitless negotiations with Charlottenburg, Siemens was also preparing a cloak-and-dagger nighttime operation that would put an end to the makeshift crossing of the Spree in rowboats – by connecting the rail station to the northern bank of the river with a temporary bridge. Use of the bridge soon began to look more like a mass migration; in 1912, prior to relocating corporate headquarters to Siemensstadt, the company expanded what would later become the Rohrdamm Bridge.

Though additional rail tracks were laid between the Fürstenbrunn and Jungfernheide stations, it was becoming clear that the transportation situation needed more extensive solutions. In 1916, Charlottenburg's municipal assembly publicly lamented that the railway could no longer handle the "colossal traffic," and compartment doors could not be closed while the train was in motion because the cars

Across the Spree – construction in progress on what would later become the Rohrdamm Bridge, 1905 (top), and Siemens employees crossing the bridge to the Fürstenbrunn rail station, 1914 (bottom)

Connection via tram – streetcars on Nonnendammallee in front of the administration building, 1914

were so full.[31] The press also had a field day reporting the dramatic crush into the trains, the boorish behavior of some passengers, and the daily accidents. “The shrieking of the packed-in women and children is a terrible thing to hear,” *Vorwärts* reported; “the clothes literally get torn off your back.”[32] And even in the Reichstag, speakers brought up the “downright scandalous” transportation conditions between Spandau and Berlin.[33]

Since keeping a bus fleet at the ready would have been too uneconomical and inefficient, Siemens focused on building and expanding a tram network. Streetcars, with up to 130 lines, were becoming by far the most important mode of transportation in the Berlin region; they made it possible for Siemensstadt to develop especially flexibly. On top of that, the company was working on familiar technical ground. It assumed responsibility for building the first line, 5.5 kilometers long with initially just one track, and on October 1, 1908, the Nonnendammbahn opened before a numerous crowd of spectators. Subsequently, Siemens extended the original route, from Spandau city center through Haselhorst to Nonnendammallee, to include such stops as the new Kabelwerk in Gartenfeld and – in 1911 – the Fürstenbrunn rail station. After that, the tram system became the property of the city of Spandau.

In protracted negotiations, Siemens was also able to establish a tram connection to the Jungfernheide station, and thus to Charlottenburg. Here the company functioned formally as an independent small railway company. The segment opened for traffic at the end of 1913, just in time for the administration building on the Rohrdamm to come into full use. It ran across the recently expanded Siemensdamm, and by the end of the 1920s came to be the “backbone of worker transportation,”[34] carrying nearly 19,000 passengers a day. Starting in 1914, passengers could take the 164 line from Hohenschönhausen straight to the administration building and the

1905

The Fürstenbrunn rail station is opened on June 1. Due to the high volume of passengers, a second track is added to the one-track line three years later.

Body-powered commuting – fully occupied bicycle-rail station on the Siemensstadt premises, undated

Schaltwerk; after World War I, the tram connections to Berlin City became even more varied. But here again, the uninterrupted crush of commuters ran up against new limitations, escalating at times into violence and attacks. The tram system's directors warned that the onslaught of passengers raised the risk of accidents, and city representatives and members of the Siemens Works Council also went public with their concerns.

In the immediate vicinity of Siemensstadt, bicycles offered at least a partial easing of the situation, but with more than 15,000 bicyclists a day, here there was also an acute need to act. The company responded with measures like building separate bike paths and two central bicycle-rail stations. As the first facilities of their kind in Berlin, they offered spaces for 6,000 bicycles.

All the same, Siemensstadt's mobility issue still lacked a satisfactory solution into the second half of the 1920s. Employee complaints about transportation connections and the condition of streets and rail stations were a source of mounting alarm. Even the attempt to relieve congestion by creating as many as 13 different shifts for starting work at some plants and operational and administrative departments brought only temporary relief, and operating conditions began to suffer. Since streetcars could not be run any closer together, and the focal points of the various plants were expanding simultaneously northwest and northeast of the Fürstenbrunn rail station, Siemens decided in 1927 to cut the Gordian knot by building the Siemensbahn. This light rail line was both the climax and the finale of the company's infrastructure projects at Siemensstadt.

The company's deliberations on municipal railway projects could be traced back to the days before World War I. But now the moment had come for a radical solution – to build an urban rail route right through Siemensstadt, starting at the Jungfernheide rail station and running out to Gartenfeld. The Siemensbahn was designed to be used by the many employees living in the northern part of Berlin, and it could also reach the housing located to the northeast in Siemensstadt. Its commissioning was timed between the opening of the Schaltwerk high-rise in July 1928, and that of the Wernerwerk high-rise in November 1930, both of which led to new surges in commuter traffic.

1929

On December 13, at a ceremony attended by Carl Friedrich von Siemens and Julius Dorpmüller, General Director of Deutsche Reichsbahn, the Siemensbahn light rail line embarks on its maiden voyage for the press.

Similar to what it had done with the tram system, Siemens built the Siemensbahn by means of a pragmatic public-private partnership, in a joint venture with the national railway, the Deutsche Reichsbahn. Once the negotiations with state and municipal authorities had been completed, the Siemens construction department took over, with the involvement of additional company departments and Siemens-Bauunion. All of the work was conducted under Reichsbahn supervision and to Reichsbahn specifications. Siemens transferred the completed line to the Reichsbahn and paid 11 million Reich marks (RM) out of the total construction cost of RM 14 million.

Building the 4.7-kilometer route meant overcoming a wide variety of challenges – from completely remodeling the Jungfernheide urban railway station to incorporating existing installations and traffic routes, to stabilizing the swampy, sandy soil. But at last, on December 18, 1929, the company celebrated the long-awaited opening of the entire route, including three new stations: Wernerwerk (east of the Wernerwerk), Siemensstadt (near the administration building), and Gartenfeld (within sight of the new Kabelwerk). An eye-catching highlight was the steel rail viaduct, which cut through Siemensstadt like a blue caterpillar. The stations themselves also had distinctive color schemes – green for Jungfernheide, blue for Wernerwerk, red for Siemensstadt, and yellow for Gartenfeld.

Although the Siemensbahn extended the Reichsbahn network itself by only one ten-thousandth, as Carl Friedrich von Siemens noted at the inauguration ceremony, and the planned extension to Spandau-North and Hennigsdorf was ultimately never carried out, the gain for Siemensstadt was beyond question. The increase in passenger potential was immense – by early 1930 the line was already logging as many as

Mobility boost for Siemensstadt – view into the counter hall of the new Wernerwerk rail station, 1929

Siemensbahn light rail line for a quick getaway – the platform of the Siemensstadt rail station with the Schaltwerk high-rise in the background, 1929

35,000 passengers a day; in 1934, 3.9 million passengers departed from the Wernerwerk station alone. And the Siemensbahn also offered an unexpected advantage for those outside Siemens – they could escape the "sea of houses of the metropolis" with excursions to the Jungfernheide Forest or Lake Tegel.

Turning points

By the beginning of the 1930s, most of the construction work in Siemensstadt had been completed. During the Nazi era, the site was also used for propaganda purposes, and production in Siemensstadt during World War II was dictated by the war economy. After 1945, Siemens decided to move its center of operations to West Germany.

Provisional conclusion – Siemensdamm viewed from the east with Wernerwerk XV, Blockwerk, and Wernerwerk high-rise in the background, 1931 (from left to right)

The Siemensbahn was opened during a period that represented an overall change in direction for urban development at Siemensstadt. By the early 1930s, not only had the transportation infrastructure reached a temporary end point for expansion, but the industrial high-rises, administration buildings, and research facilities had all been built. So had significant segments of the large residential areas, along with both churches, many structures for social purposes, and extensive parts of the rest of the urban infrastructure. About 30 years after Siemens had begun its move to Nonnendamm, the vision for the new site had been largely achieved, with industrial and residential buildings; and thus the main portion of the gigantic product was complete. Following the onset of the global economic crisis in 1929, the rate of additions and changes was nowhere close to that which had taken place prior to that.

The takeover of the government by the National Socialists in 1933 initially had no serious impact on Siemensstadt as an urban entity. Yet that same year, as power changed hands, the site became a setting for a particular kind of political spectacle. On November 10, 1933, a speech by Führer Adolf Hitler at the Dynamowerk became the highlight of a Nazi propaganda campaign in advance of the Reichstag (legislature) elections two days later. Hitler's address to thousands of employees became a triumphant piece of theater staged by the new party in power and was widely circulated on film. The events attracted intense international attention as well, especially because a plebiscite on Germany's exit from the League of Nations was pending at the time.

1907

On January 11, the evening edition of Berliner Tageblatt informed readers of the three-hour visit to the Siemens factories by the German Emperor and his wife.

This was taken as an opportunity to redefine Siemensstadt's significance ideologically and to reinterpret it along National Socialist lines as "a mighty symphony of the German will to work, German engineering art, German diligence and drive to create."[35] Two days later, Hitler returned to cast his vote at a polling place in Siemensstadt. The event did not fail to meet with resonance within the company: A few months later, it was commemorated with the dedication of a memorial tablet at the Dynamowerk. This would not be the last time the Nazis used the Siemens plants as a backdrop for their theatrics. In April 1935, for example, a speech at the Schaltwerk by Robert Ley, the head of the Nazi-affiliated German Labor Front, was the lead-off for tens of thousands of demonstrations nationwide in connection with the elections for employee councils.

Quite apart from such uses as an instrument of propaganda, Siemensstadt already had a long tradition of hosting political – and not infrequently, international – VIPs. In addition to industrialists, bankers, and business association representatives, ever since the days before World War I it had also welcomed state visitors, starting with Emperor Wilhelm II and his wife, who were greeted by Alfred Berliner, CEO of Siemens-Schuckertwerke, in front of the Wernerwerk in January 1907. After a tour of the plant and a breakfast, the imperial couple also visited other factories and the housing along Nonnendamm.

In the 1920s, visits followed from foreign state visitors, such as the King and Queen of Afghanistan in February 1928, or King Fuad of Egypt during his second tour of Europe in June 1929, who saw "with [his] own eyes the scope and efficient performance of the Siemens plants."[36] In July 1934, the King and Queen of Siam toured the plant facilities and housing settlements, and were entertained with a gymnastics exhibition by Siemens apprentices while enjoying the view from the roof of the Schaltwerk high-rise.

After 1945, public appearances in Siemensstadt – watched critically from the East German side of the border – took on additional symbolic weight in view of the situation in partitioned Berlin. In July 1952, at Siemens-Schuckertwerke's festively decorated Schaltwerk, Chancellor Konrad Adenauer delivered a one-hour address

State visit to Siemensstadt – Carl Friedrich von Siemens (5th from right) and the Maharaja of Mysore, South India (4th from left), on the roof of the Schaltwerk high-rise, 1936

Signs of the war – Wernerwerk II partially damaged by bombings, 1944 (left) and damaged Dynamowerk, 1944 (right)

that included plans for the West German government to provide aid for Berlin and underscored his political goal of a free, undivided Germany. Almost 17 years later, in February 1969, newly elected U.S. President Richard Nixon gave the only public speech of his European tour in the shipping hall of the Dynamowerk. An audience of 6,000 Siemens employees and thousands more listeners outside the plant gates offered the renowned guest an enthusiastic welcome, shouting "Ha – ho – hey – Nixon is o.k.!" But as student representatives from the Free University and the Technical University viewed it, Nixon's appearance was intended to divert attention from West Berlin's deteriorated economic situation. They called for a counter-demonstration and a "teach-in."

During the National Socialist era, many of those in the highest ranks undoubtedly saw Siemensstadt, the high-performance industrial site, as an entrepreneurial showpiece. However, tensions began to emerge when it came to allocating company-owned housing. While Carl Friedrich von Siemens wanted to put the focus on business interests, the National Socialist German Workers' Party (the Nazi Party), the associated German Labor Front, and the Reich Labor Ministry, which was the authority in charge, gave preference to families with numerous children. Far more serious were the interventions planned by General Building Inspector Albert Speer, who threatened to make massive changes to the look of Siemensstadt. As part of the

1939

The victory column, erected in 1873 at Koenigsplatz, is relocated as part of the Nazi reconfiguration of Berlin. Its new home is the Große Stern (Great Star) square in the Tiergarten park.

redesign of Berlin as Hitler's world capital, Germania, work began in 1939 on building the blocky Berlin-Charlottenburg Nord residential settlement, more than 2.8 kilometers long, which was to set up 10,000 residential units along a central axis. Military plans additionally called for a Fourth Ring, a north-to-south road connection that would slice through the Siemensstadt and Haselhorst industrial area. The wartime events ultimately caused both projects to be put aside.

But what did alter the picture of Siemensstadt during World War II was the arrival of foreign workers and forced laborers. From 1940 onward, barracks in Haselhorst housed as many as 1,800 foreign workers, including many forced laborers from occupied Eastern Europe. A camp for about 1,000 women workers was added in 1942. From the summer of 1944 onward, following an air raid, the site served to house internees from the Sachsenhausen concentration camp

Improvised fresh start – repair of bicycle inner tubes in the Gartenfeld Kabelwerk, circa 1946

and about 500 women from the Ravensbrück concentration camp. The company assigned them mainly to the Kabelwerk, the Schaltwerk, the Kleinbauwerk of Siemens-Schuckertwerke, and the Siemens-Bauunion construction unit. The prisoners were supervised by teams of guards from the Schutzstaffel (SS) and threatened with Draconian punishments. They lived under inhumane conditions in their barracks. Many of them, emaciated and exhausted from the harsh living and working conditions, had to go back to the Sachsenhausen camp. In January 1945, the Haselhorst camp was filled with more than 2,000 prisoners, including newly arrived Hungarian Jews, until it was destroyed in an air raid a few weeks before the war ended.

The end of World War II was the start of a new era in the history of Siemensstadt. The vast destruction, especially from repeated severe bombings of Berlin in the winters of 1943–44 and 1944–45, had also wreaked havoc on the factory buildings. While extensive restoration was completed here by the early 1950s, serious structural damage emerged over the medium and longer term.

The aftermath of the war and the partition of Germany profoundly disrupted Berlin's traditional role as the leading location of the electrical engineering industry. War damage, dismantling by the Soviets as reparations – initially even in western districts of the city – and the expropriation of large businesses in East Berlin and the Soviet Occupation Zone caused the industry direct losses in the billions. Moreover, the destruction of connections and supply structures necessary for production undermined the old glory of the former "Electropolis."

Siemensstadt itself, after the plants were closed on April 20, 1945, was a scene of devastation. About half the buildings and plant installations had suffered serious damage, even before

1941

Hermann von Siemens, oldest grandson of Werner von Siemens, becomes head of the company. Serving until 1956, he steeres Siemens through the years of war and reconstruction.

Soviet dismantling removed large portions of the machine tools and other operating equipment, inventories, supplies, and technical documentation from laboratories and design offices. "There was not a vacuum pump or a single galvanometer left. Even the light switches in the laboratory rooms had been dismantled," recalled Ferdinand Trendelenburg, head of the research laboratory.[37] With the loss of securities, bank accounts, and patents, along with the confiscation and expropriation of plants in the former eastern territories of Germany, the loss to Siemens as a whole totaled RM 2.58 billion – four-fifths of the company's assets.

Restarting production at Siemensstadt after the relaunch on September 8, 1945, was a laborious task at first. The Soviet blockade of West Berlin in 1948-49 further delayed the completion of reconstruction efforts. The most essential cleanup and repair work was followed initially by an improvised manufacture of simple articles until production loops could eventually be restarted at places like the Wernerwerk, the Dynamowerk, the Kabelwerk, and the Röhrenwerk. One lucky break was that Siemensstadt was located entirely in the British sector and was therefore able to remain a single unit – unlike AEG, whose production sites were scattered across all four sectors of Berlin. The number of employees working at Siemensstadt in September 1941, including the foreign workers and forced laborers, had grown to nearly 67,800. After a drastic drop, the figure had risen again to 14,000 by the end of 1945, and by mid-1948 it was 24,000. Siemens was thus able to recover its position as the largest private employer in (West) Berlin, even though the business environment had unmistakably changed.

Hermann von Siemens succeeded his uncle Carl Friedrich as "Head of the House of Siemens" in 1941. He reminded those attending the company's Annual Shareholders' Meeting in Frankfurt am Main in 1949 that Siemens' technical foundations had been "shaken with inconceivable severity."[38] At the same time, he was able to announce that work had restarted at many of the establishments in Siemensstadt. Most notably, however, the decision to be made now was whether to move significant capacity to West Germany, and thus to take a step of immense consequence for Siemensstadt.

The first steps toward decentralization – toward relocating production units out of Berlin after expanding the range of production – had already been taken many years before. Siemens had begun moving in this direction as far back as 1913 by buying a porcelain factory in Neuhaus near Sonneberg in Thuringia. Since then the trend had grown, influenced both by wage and transportation considerations and by the labor supply. For competitive reasons, three additional establishments were added in Sonneberg, Plauen, and Sörnewitz between 1919 and 1922. A particularly significant investment in 1927 was the acquisition of a majority interest in Isaria-Zählerwerke AG. That company's plant on Hofmannstrasse in Munich produced telephone systems and became the nucleus of Siemens' production in the Bavarian capital. The company also extended its presence to

1957

Siemens & Halske purchases the Palais Ludwig Ferdinand on Wittelsbacherplatz in Munich. From then on, the building serve as the headquarters of its new main administration.

Erlangen during this period. At the end of 1924, Siemens & Halske invested in an ownership interest in the Middle Franconian company Reiniger, Gebbert & Schall; eight years later, this gave rise to Siemens-Reiniger-Werke AG Berlin (SRW). Siemens' production of electrical medical equipment was concentrated at SRW's plant in Erlangen.

During the confusion of the years immediately after World War I, Carl Friedrich von Siemens, troubled by strikes and civil unrest, had apparently even toyed with the idea of stopping construction in Siemensstadt entirely. During the global economic crisis as well, he became increasingly skeptical about expanding these "oversized production facilities." He was presumably thinking about the development of transportation for employees and the difficulties of transporting materials.[39] Finally, during World War II, the company pushed to relocate Siemens factories across wide areas outside Berlin, including in Alsace, the German Upper Palatinate, and Upper Franconia; these offered not only better transportation options, but most importantly, greater safety from air raids.

After the war ended, Siemens had to adjust once again to a changed situation. In the face of Berlin's sudden isolation as an island, surrounded by the Soviet sector, with the accompanying crippling raw material and supply bottlenecks and financial and political uncertainties, the decision evolved to turn the company's attention more strongly toward West Germany. The change had already begun with the establishment of "group directorates" in the west and south of Germany in the fall of 1944. It seemed as though this geographical readjustment was essential to permanently safeguard the company's overall ability to act; and Siemens felt that this was essential in order for the company to be equipped to keep pace with future business developments.

Siemens' refocusing was also an adjustment to a far broader regional structural shift in the electrical engineering industry. Nevertheless, the sometimes heated debates within corporate management showed that this decision, with its weighty consequences for Siemensstadt, was proving anything but easy. Conflicts about technical issues combined here with debates between generations. Friedrich Carl Siemens, a nephew of company founder Werner von Siemens, and Wolf-Dietrich von Witzleben, Chairman of the Managing Board of the two parent companies since May 1945, in particular, dug in to defend the Berlin site, and tried to strip power away from the "group directorates." On the other side was Ernst von Siemens, the company founder's youngest grandson. Working from Munich, he pursued the company's overall interests on behalf of his cousin Hermann, who had been interned by the Allies. Ernst warned the "traditionalists" that "sentiment and misunderstood tradition" must not play any role when the unity of the "House of Siemens" had to be responsibly preserved. He pointed out the acute labor shortage in postwar Berlin, the dwindling replenishment of coal supplies, and the westward shift of the company's principal sales territory.[40] As it became more and more apparent that the

End of shift – workers leaving the Dynamowerk, circa 1950

political and economic partition of Germany would persist indefinitely, these pragmatic arguments were the ones that ultimately prevailed.

Within the framework of what became known as the Peace of Starnberg, as of April 1, 1949, corporate management relocated the headquarters of Siemens & Halske to Munich and those of Siemens-Schuckertwerke to Erlangen. At the same time, the preeminent standing of the Siemensstadt site remained unquestioned, and Berlin remained an official second company headquarters, with a central management.

Changing times

With its systematic design and modern overall concept, Siemensstadt set itself apart from most of the other large company sites and was soon viewed as a special urban design phenomenon. Structural changes were undertaken starting in the 1950s, and today this tradition-steeped district is evolving into the “new Siemensstadt,” with future-oriented production, research, and technology facilities.

Milestones of industrial architecture – the AEG turbine hall on Huttenstrasse in Berlin-Moabit, 1928 (top), and the central location of AEG in Berlin-Wedding, 1922 (bottom)

Changing times did not leave Siemensstadt unscathed. As a symbol of industrial modernism, the site achieved its zenith in the early 1930s, and it's worth taking another look back over its heyday as a whole. What gave Siemensstadt its unmistakable character as a complex urban-development unit?

Exceptional features and parallels become visible if we look at Siemensstadt within the broader context of other companies' locations and new establishments. One obvious choice for a comparison is AEG, whose history as a competitor in both business and industrial architecture always remained closely linked to that of Siemens. At the time when Siemens was beginning to concentrate its operational structures at Nonnenwiesen, AEG actually began splitting up its production sites: In 1898 it built a cable plant in Oberschöneweide, in those days a separate town near Berlin; in 1909 the company took over an additional site in Hennigsdorf, likewise outside Berlin. But here the planning paralleled what was going on at Siemensstadt. New factories were built, and existing facilities were remodeled, with an eye on efficient, faster production procedures. AEG also built plant housing and employee settlements. But the design of the Hennigsdorf area as a whole lagged behind the more broadly focused urban planning strategies that were becoming visible at Siemensstadt.

The situation was similar with AEG's central location in the Berlin borough of Wedding, which had been in use since 1887. To be sure, this also was a self-contained factory complex that underwent expansion and consolidation over time. Yet here, in the midst of a classic Berlin workers' district, there was none of Siemensstadt's openness of space. Construction conformed to the predefined street layout and interfaced with buildings already in place.

Architecturally, however, some of the AEG industrial buildings outdid any others. The turbine hall in Moabit and the assembly hall in Gesundbrunnen, built by Peter Behrens after

Leaving the city for Tegel – the factory gate at the entrance to the Borsigwerke with the Borsig tower in the background, circa 1925

he joined the firm in 1907, were impressive structures that achieved iconic status in industrial architecture. Yet these basically stood alone as isolated examples, and their architectural design did not fit into an all-encompassing general concept as Siemensstadt had.

Looking beyond the electrical industry, we can see various similarities to Siemens in the case of Borsig, one of the world's largest locomotive manufacturers in its day. In 1894, Borsig began relocating its entire production from the densely populated Moabit district to a large site in Tegel that the company had acquired for a bargain price. From the very start, the design of the plant installations, with their advanced and expansive plans, focused on the greatest possible efficiency of production and transport. And there were other features even more reminiscent of Siemensstadt: The plant had its own electric power supply and an imposing central office, completed in 1899, as well as expansions with a cafeteria, athletic facilities, and childcare centers, and last but not least the Borsigturm, a 65-meter tower completed in the spring of 1924. All the same, the uniform late-historicist façade designs of the plant buildings lacked the propulsive force of modern industrial architecture. Yet the company's Borsigwalde housing development, in what would later become Wittenau, with its spacious design, again diverged significantly from old-style "barrack" tenements. The first plant apartments became available for occupancy here in 1899, and after some early infrastructural shortcomings, the number of residents rose to 6,500 within 30 years.

Another small town in the Berlin region that gave an outward impression of self-containment and consistency was Wildau, near Königs Wusterhausen. This was founded by Berliner Maschinenbau AG vorm. L. Schwartzkopff, a machine construction company that bought a parcel in the fall of 1897 near the Dahme River and the Berlin-Görlitz railroad line, to continue its production of locomotives and electrical equipment. The factory buildings, and ultimately more than 800 apartments, formed the Wildau Colony, uniformly designed in the region's traditional brick Gothic style. Unlike Siemensstadt, however, which was characterized by its metropolitan features, this town was not only in an isolated location, but also permeated with a highly patriarchal social structure, like a large family.

Beyond the Berlin region, one obvious option for comparison are the traditional industrial companies in the Rhine-Ruhr region. Probably the most prominent example is Krupp, at times the largest heavy-industry corporation in Europe, whose history was tightly bound up with the development of the city of Essen. Instead of a largely independent, compact location, though, here several districts of the city evolved whose

construction went on over extended periods of time. The older residential settlements like the Westend settlement of 1863 had some of the very same barracks-like features that Siemens' construction designs were intended to supersede. Georg Siemens opined that these were "pretty dreary agglomerations of dwellings, unimaginatively set out in rows in unattractive surroundings" – a "strange contrast" to Siemensstadt, he found.[41] Yet from 1909 onward, the Margarethenhöhe settlement in Essen, with 16,000 residents, became a particular symbol of an exemplary, naturally evolving garden suburb, a complete work of art with the highest architectural ambitions.

Other examples that come to mind for industrial companies' particular influence on urban structure are Thyssen and Haniel in the Ruhr, Bayer in Leverkusen on the Rhine, and Opel in Rüsselsheim in the Rhine-Main region. Here again, individual industrial and residential installations grew into independent urban districts with a complete social infrastructure. But nowhere were these as autonomous, systematic, and unified as in Siemensstadt.

Two special cases were Salzgitter and Wolfsburg. Both were built under the influence of the state, and neither began construction until the 1930s, after the urbanization processes that had been triggered in part by the "new industries" had largely come to a close. One aspect reminiscent of Siemensstadt is that both cases involved the simultaneous foundation of a city and an industrial plant. Salzgitter was the location of the Reichswerke Hermann Göring, a state-owned iron ore extraction and processing conglomerate founded in 1937; Wolfsburg was built starting in 1938 to produce what was later known as the Volkswagen. Wolfsburg in particular, situated away from other major cities, yet in a good location for transportation, became a successful model for a uniformly planned "test-tube city." By the mid-1960s it was already home to some 84,000 people, and the company's workforce had grown to nearly 60,000 by the end of the 1980s. Under the VW corporation's strong

Living in the Ruhr region – aerial view of Krupp's Magarethenhöhe settlement in Essen, 1930

1891

Frederik Philips and his son Gerard founded Philips & Co. in Eindhoven in the Netherlands. The electrical equipment company soon develops into a global corporation and international competitor of Siemens.

influence on all municipal developments, the area became an environment with extensive green space, yet one also remarkably hospitable to cars, where the evolution into a genuine city began rather late.

Finally, to look at an international example, one obvious choice is Eindhoven in the Netherlands. As the headquarters of the global Philips corporation, founded in 1891 and initially a producer of light bulbs, followed later by radio tubes, loudspeakers, medical technology, home appliances, and televisions, Eindhoven, like Siemensstadt, was entirely under the spell of the electrical engineering industry. Philips made the rapidly expanding city into a national and international model of technological progress and economic success. From 1910 onward, Philipsdorp emerged as a true center, and was bestowed with special urban-development and architectural landmarks. Ten years later – just as Greater Berlin was being consolidated – Eindhoven was merged with five villages in the neighborhood, and the number of residents doubled to 90,000 within ten years. The need to transport many of the up to 23,000 employees every day by rail, tram, and bus posed major challenges for mobility concepts, similar to the situation in Siemensstadt. And early in the 20th century, Philips also began its own construction programs that built hundreds of workers' apartments and houses in Eindhoven and its environs. Finally, if we take a leap to the present, certain other similarities to Siemensstadt become obvious: Since the end of the 1990s, the High-Tech Campus Eindhoven has developed on the site of the former research laboratory. More than 12,000 employees and more than 185 companies and institutes are located here, developing and marketing technologies of the future.

Yet even bearing in mind the various analogies to other industrial sites, Siemensstadt still stands apart. Even today, it remains recognizable as a place with an extraordinary image. Siemensstadt earned a reputation as an urban-development phenomenon right from the outset, well before enough time had passed to view it from an historical perspective. And this reputation was cemented in particular around 1930, when Siemenstadt's development was largley completed.

Of course, it was first the Siemens company itself that looked back, not without pride, on what it had built and on having created a "real city." It did so with the awareness that its industrial and housing construction concepts had set new standards, and in that regard as well, had given the world a demonstration of the company's ability to innovate. At public events and in various descriptions, the company repeatedly reminded people how the structures had grown up from the original landscape, a mixture of marshy meadows and sandy heath. Very much in contrast to the nearby "ongoing proliferation of the Berlin building jumble," Siemensstadt had evolved, thanks to systematic and well-conceived overall planning, into an "organic, structured entity."[42]

For Siemens, one special characteristic of Siemensstadt was the connection between

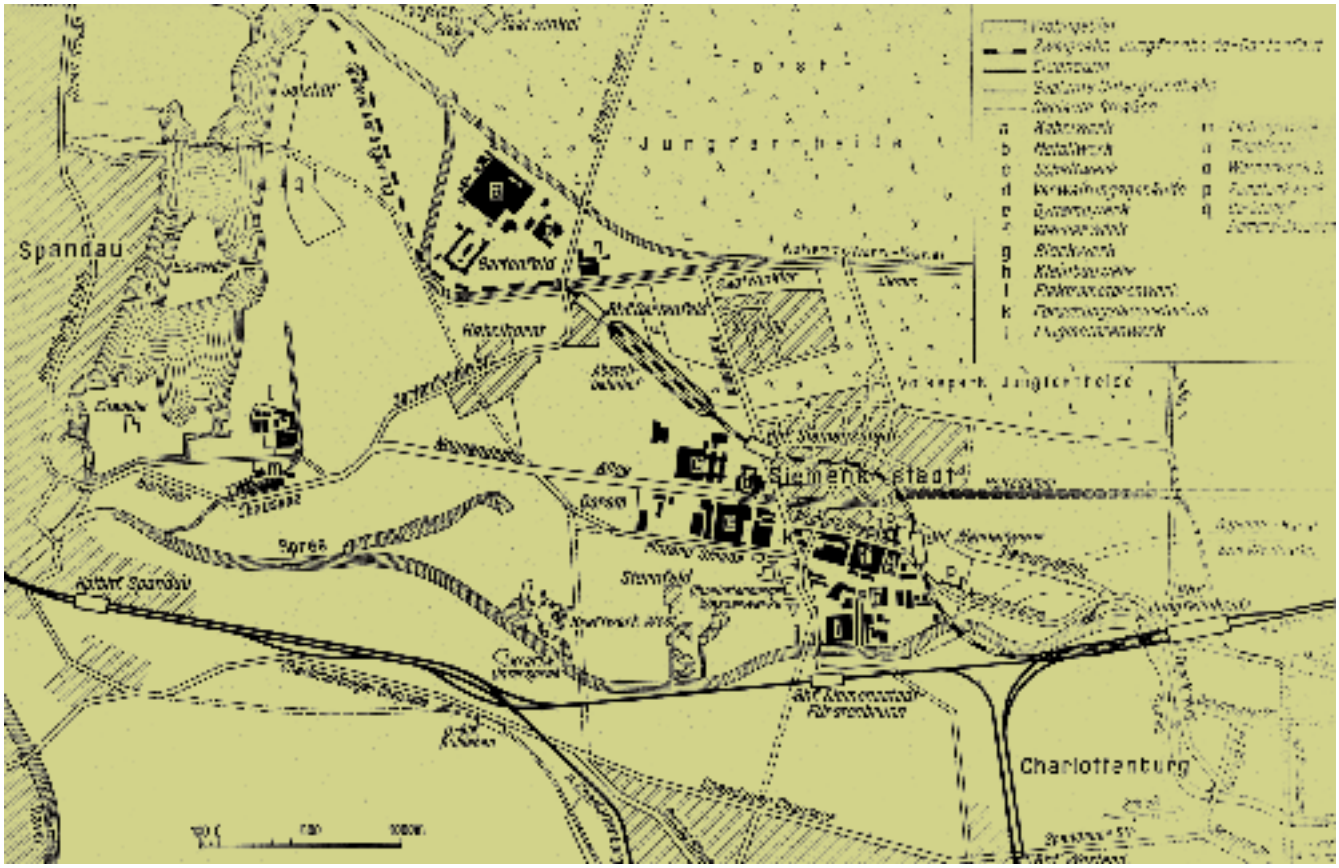
functionality and idiosyncratically sleek beauty. The city seemed to radiate objectivity, yet at the same time had remained "practical, airy, dustless, convenient, modern," as the in-house *Siemens-Mitteilungen* newsletter portrayed people saying in a conversation about Siemensstadt: "White and red buildings without folderol, without suburban pretentiousness, without Romanticism, Gothicism, or other cisms, regardless whether it's a church, single-family home, row house, gymnasium, or plant building."[43] People fondly recalled how harmoniously work, home, and leisure coexisted, and how well production installations, residential areas, and transportation routes fit into the landscape. It was no exaggeration, Carl Friedrich von Siemens claimed in April 1930, that a city like Siemensstadt, "which is a workplace for such a massive number of people in such a compact area, and nevertheless combines work space, living space, and nature harmoniously together, is something special and unique in Germany and indeed in the whole world."[44]

But Siemensstadt's urban-planning achievements also reaped praise from other contemporaries, and its sheer expanse alone aroused fascination on all sides. The *Vossiche Zeitung* newspaper was one such admirer, writing as early as 1913 about the mighty red brick buildings with their façades several hundred meters long. Others even situated the buildings of the "electrical metropolis" in an historical line with medieval papal castles and fortress-like palaces – an "embodiment of enormous sobriety, scientific acuity, and inventive power that spreads its impact across entire continents. That is Siemensstadt, the largest self-contained workers' city in Germany, and probably in Europe [...]."[45]

Siemensstadt attracted attention beyond Germany's borders. According to the International

General overview of Siemensstadt – painting by Anton Scheuritzel from around 1930 (left) and overall plans of the site, circa 1931 (bottom)

Labour Office in Geneva, which analyzed labor relations at Siemens, the city was an "image of unusual structural unity and beauty."[46] In a 1932 comparison of various European countries, British journalist Hubert Tiltman wrote about the Siemens plants in detail. Amid the tense situation of the global economic crisis, he was especially interested in the system of social facilities at Siemens. The author's impressions gathered at Siemensstadt reinforced his belief that the company had escaped the throttling grasp of the crisis. Tiltman's description in his chapter on "The other Berlin" noted that the application of electricity throughout the plant, the automated opening and closing of the windows depending on temperature, the rail tracks running through the workshops that made it possible to load goods exactly where their production was completed, the electric carts that ran through all departments like trains on an



New consumer worlds – the Kaufzentrum (shopping center) that opens in 1961 on Siemensdamm, 1963

exact schedule – every aspect of Siemensstadt breathed the spirit of an organization that had been thought out to the last detail.[47]

Adherents of the "New Architecture," for their part, not only praised the aesthetics of the outstanding industrial buildings and the design of the advanced housing settlements, but also recognized the modernism of Siemensstadt as a complete system. According to influential architect Adolf Rading, this – unlike the past – was not a mere streetside façade intended to impress, behind which extended a "shapeless world" concealed from the outside. Rather, Siemensstadt was "a unified whole, composed of street, home, and green space, appreciable in all its parts and from all directions."[48]

And indeed, the overall impression must be considered one of the main factors that still characterize Siemensstadt today, despite its extent and complexity. Within a very short time, Siemens created an independent urban organism that can be considered an exceptional example of the marriage between "industrial city" and "residential city." In a unique way, it integrates a variety of urban functions – work, home, social activities, leisure, options for recreation, and consumption. What's more, all the amenities of a modern, highly functional urban community are munificently embedded in the existing landscape and nature – the "electric city in a green space" had been created.

The area's fundamental features survived the continuous structural changes that Siemensstadt underwent from the 1950s onward. Its

Expanded transportation routes – the entrance to the Siemensdamm station of the Number 7 subway line, which had just gone into operation, 1980

declining significance as a production site as a result of political alterations changed the cityscape and the buildings' physical structures. The residential environment and infrastructure took on new importance. The Rohrdamm-West settlement, built in 1953 immediately opposite the residential area from the 1920s, was designed once again by Siemens architect Hans Hertlein, and thus in a sense constituted a bridge to the postwar era. Then, east of Rohrdamm, the Saatwinkler Damm settlement rose in 1975, with rows of multi-story apartment blocks and numerous other new structures that gave expression to new phases of architecture. In October 1961 the Kaufzentrum, the first German shopping center of its kind, opened its doors – a complex of 30 businesses between Siemensdamm and Popitzstrasse, based on the American model.

At the same time, new transportation connections expanded options for mobility. In addition to the connections to the Stadtautobahn 100 (city freeway) and the A 111 autobahn in the 1970s, the Siemensdamm and Rohrdamm stations on the Number 7 subway line were instrumental in shortening the routes to the other parts of (West) Berlin. Here, on October 1, 1980, some 70 years of planning came to fruition – for an extension of the subway lines to Siemensstadt had been announced even before World War I and had been repeatedly brought up ever since. Yet at the same time that the subway opened, traffic on the Siemensbahn route was halted as the number of users had dwindled over the years. Exactly 13 years earlier, West Berlin's last tram line, the 55, which ran through Siemensstadt, had been shut down.

On the one hand, those making changes at Siemensstadt, especially in the 1970s and 1980s, did not shy away from tearing down some historic buildings, including the former Westend Kabelwerk, which had been severely damaged in the war, as well as the Wernerwerk and the Kleinbauwerk. On the other hand, reconstruction and restoration work helped preserve many of the characteristic outlines of Siemensstadt as an industrial and residential area. In 1994 and 1995, 12 individual buildings and the most important plant housing settlements were declared

Innovative electrotechnology – the high-voltage test area with Parabolic Hall and associated laboratory buildings on the grounds of the Schaltwerk, 1982

protected historic monuments – three-quarters of all the buildings dating from the era before 1945. Thus, Siemensstadt became one of the most extensive protected historic sites in the country.

For Siemensstadt as an industrial location, the process of adapting to technological change meant a continuous expansion and retooling of production, research, and service infrastructures. The Parabolic Hall in the high-voltage test area of the Siemens Schaltwerk, built between 1958 and 1961; the plant for electronic control systems, built in the 1980s; software developments since the 1990s – all exemplify significant innovations in electrical technology, automation, and industrial digitalization. Unlike earlier decades, when considerations of space kept other companies from being offered anything more than isolated slots at Siemensstadt, Siemens also began actively encouraging other firms to move in. Siemensstadt still maintained its close connections with the universities and research institutions in the Berlin region; Siemens continued to play an important role as a cooperating partner and provider of third-party funds.

Despite all disruptions, Berlin is today Siemens' largest production site worldwide, with more than 10,000 employees, and the company is one of the German capital's five largest employers. As a focal point of production, Siemensstadt is further enhanced with departments for engineering, research and development, vocational and advanced training, customer service, and sales. Most recently, Siemensstadt – today a district with some 12,500 residents, including many Siemens employees and their families – has become a high-quality location that can offer a profitable combination of historic significance and future potential. This fruitful synthesis is now being given visible expression in the project for a new "work and life world," the biggest single Berlin investment in Siemens' history. On a 70-hectare area, models will be developed for an innovative integration of production, research, work, and modern forms of living. The self-contained, campus-like layout of Siemensstadt offers ideal conditions for new residents and for an interaction among companies, startup centers, and scientific institutions.

In the Werner-von-Siemens-Center for Industry and Science on Rohrdamm, formerly the Industrie- und Wissenschaftscampus Berlin (IWCB – Industry and Science Campus Berlin), more than two dozen partners are collaborating on research projects. Here, in close proximity to the production sites, research on new types of materials and drives is being carried out in cooperation with the Fraunhofer Society, the German Federal Institute for Materials Research and Testing, and the Technical University of Berlin. In addition, the A32 Entrepreneurs Forum Berlin Siemensstadt was launched in March of 2019 on the grounds of the Dynamowerk under the roof of the historic industrial architecture. The forum, measuring 1,000 square meters, provides space for collaborative work and the creative exchange of knowledge

and ideas between Siemens employees and startups.

The “new Siemensstadt” is now also one of the Berliner Zukunftsorte – Berlin’s locations of future innovations. These includes sites in Germany’s capital city that set themselves apart through their particularly close link between business, research, and technology facilities. They are playing a role in helping Berlin to attract knowledge-based industries of the future and to strengthen the innovation and competitive capabilities of the regional economy.

This means that, exactly 120 years after the Westend Kabelwerk – the first production site on Nonnenwiesen – was commissioned and just a few years before the 125th anniversary of the first acquisition of land in 1897, not only will Siemens’ special relationship with Berlin be reinforced, but Siemensstadt’s traditional focus on the future will be imbued with new life.

Notes

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2 Mosing: "Siemensstadt. Die elektrische Metropolis," in: *Der Anschluß. Zeitschrift für den Elektrohandel*, October 1931, pp. 20–27, quote p. 22.

3 Siemens Historical Institute, Siemens-Archiv-Akte (SAA in the following) F1781, Werner Siemens to his son Wilhelm, November 13, 1886.

4 Siemens, Georg: *History of the House of Siemens, vol. 1:* "The Era of free enterprise," Munich 1957, p. 171.

5 SAA 4.Lk 45, Denkschrift Carl Dihlmann "Bemerkungen zum eventuellen Preisgeben des Grundstücks am Nonnendamm," March 11, 1898 (full transcript in Ribbe, Wolfgang / Schäche, Wolfgang: *Die Siemensstadt. Geschichte und Architektur eines Industriestandortes*, Berlin 1985, pp. 64–67).

6 SAA 67.Le 179, Charlottenburger City Syndic Maier, March 5, 1904, quoted from Hengsbach, Arne: "Planung und Erschliessung der Siemensstadt 1897–1908" (im Auftrag der Zentralen Abteilung für Bauten u. Anlagen der Siemens AG), n. p. (Berlin) 1981, p. 22.

7 Archive of the Spandau City Historical Museums ASMS, Magistrat E6, Charlottenburg city manager to the minister for public works, Berlin, March 21, 1904.

8 ASMS, Magistrat E6, minutes of a discussion on April 1, 1908, with Lord Mayor Schustehrus, City Planning Councilor Bredtschneider, City Syndic Maier, Wilhelm von Siemens, Alfred Berliner, and Karl Janisch.

9 Friedrich-Ebert-Stiftung FES, Bibliothek, *Vorwärts* (online), http://fes.imageware.de/fes/web/, March 7, 1905 (last consulted: October 31, 2019).

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11 ASMS, Magistrat E21, speech by City Representative Dr. Stemmer: *Spandau und Groß-Berlin* (print), July 17, 1919.

12 Siemens, Georg: *Geschichte des Hauses Siemens, vol. 2*: "Technik als Schicksal 1903–1922," Munich 1949, p. 196. [chapter not included in the English edition]

13 SAA, *Siemens-Mitteilungen* No. 70, July 1, 1925, Hermann Schmitz: "Siemensstadt," pp. 2–3, quote p. 3.

14 Dihlmann, Carl: "Die Fabrikbauten der Siemens & Halske A.-G. am Nonnendamm," in: *Elektrotechnische Zeitschrift* (Centralblatt für Elektrotechnik) 21 (1900), issue 24, pp. 477–484, quote p. 480.

15 SAA, *Siemens-Mitteilungen* No. 167, November 1935, Hertlein, Hans: "Baurat Janisch zum 65. Geburtstag," p. 238.

16 SAA, *Siemens-Mitteilungen* No. 128, June 1930, quoted from "25 Jahre Siemensstadt," pp. 20–21, quote p. 20.

17 SAA 33002, contract between Siemens & Halske and Siemens-Schuckertwerke with the city of Spandau (represented by its municipal administration), December 12, 1907, § 7.

18 Siemens, *History of the House of Siemens, Vol. 1*, p. 323.

19 *Von der Werkstatt zur Werkstadt. Ursprung, Entwicklung und Gestalt des Siemens-Konzerns*, n. p. 1930, p. 51.

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26 SAA, *Siemens-Mitteilungen* No. 175, July 1936, "Siemensstadt … ein Gespräch," pp. 122–125, quote p. 125; SAA, *Siemens-Mitteilungen* No. 134, Oktober 1931, "Siemensstadt als Bauausstellung," pp. 2–5, quote p. 4.

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Siemensstadt in Berlin is inseparable from the history of Siemens, the global electrical engineering company. Beginning in 1897, the company developed a modern industrial site here, marked by its unique architecture and the residential units that were constructed in parallel. This booklet takes readers on a journey, starting with the 19th century history precursing Siemensstadt, continuing on through its heyday at the beginning of the 1930s, and concluding with the current plans for a new Siemensstadt.

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