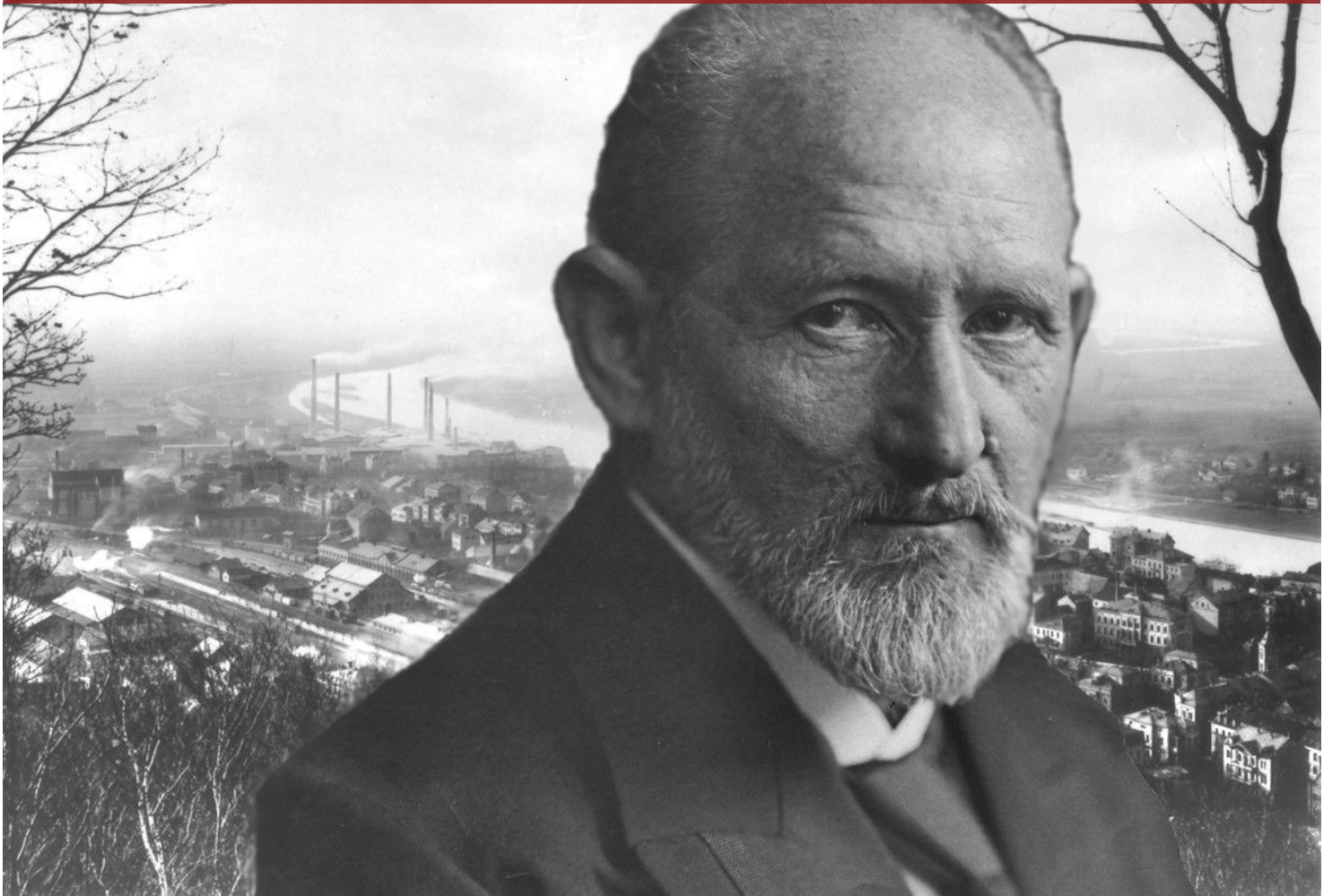


One of the founders of HeidelbergCement

Life and Work of the cement pioneer Friedrich Schott

Scientist, Organiser, Patriarch, Patron



HEIDELBERGCEMENT

Der Heidelberger Portländer

Contributions to the company's history and corporate culture, Issue 13

The present work by Karola Birkle was accepted by the historical department of the University Mannheim as a bachelor thesis in April 2021.

What particular influence did the Jewish-Protestant parental home Schott have in the development of leaders/leadership personalities in the young Portland cement industry?

The advancement of the cement pioneer Friedrich Schott

Life and Work of the cement pioneer Friedrich Schott

Scientist, Organiser, Patriarch, Patron

[published by HeidelbergCement AG]

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Berliner Straße 6, 69120 Heidelberg

Cover photo: Friedrich Schott, 1930.

Layout/Design and Realisation: Unternehmensarchiv HeidelbergCement

Translation: Kurt Armstrong - Sydney

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Introduction

The building materials industry was always a close companion of the rapid industrialisation in the 19th and 20th centuries. With the invention of a new type of cement in 1824 by the English mason Joseph Aspdin (*1778, †1855), the so-called Portland cement, a new binding agent had come onto the market.¹ Portland cement was superior to the then common Roman cement in terms of workability and strength development. Nevertheless, the cement was still far from being fully developed. On the European mainland, every effort was therefore made to produce a product comparable to the English cement. It took half a century until the knowledge about the required material was available and the chemistry of the setting processes was essentially understood. Cement pioneers needed scientific knowledge, tenacious perseverance and investors in order to survive in the cement market, which was fiercely competitive from the beginning. The first German pioneers in Portland cement production can be found in the 1850s and 1860s.² With the foundation of the German Empire in 1871, a number of new cement plants were established. Those belonging to educated, enlightened Jewish circles and an am-

bitious, disciplined Protestant middle-class often formed the core of successful companies. As Jewish-Protestant converts, the Schott family from Gandersheim and Seesen am Harz, with many children, combined the ideals of both worlds in a fruitful way.

The young cement industry made special demands on science, technical ability, but also on commercial skills. Friedrich Schott brought some of these qualities with him. He was born on 27 December 1850 in Gandersheim, the son of Emil August Schott and Louise Dervedde.³ He was influenced by his father, a well-read researcher heavily influenced by the liberal ideals of the enlightenment. On the other hand, his mother, herself from a peasant background, taught him hard-working and strict Protestant discipline. She often had to lead the large family through crises.

In the present case, it is a fortunate circumstance that a contemporary source from Louise Schott, née Dervedde, has survived in the form of her memoirs, albeit only as a transcript.⁴ The ancestry information can be found in the various church records from the 1850s onwards. The history of the Jews and of the Jacobson Insti-

tute, where Friedrich Schott's grandfather worked, is the subject of broad scholarly study and is well documented, so that secondary sources can be used here appropriately.⁵ From the 1870s onwards, Schott's life is quite well documented in documents of the HeidelbergCement Archive, especially

during the years when the Heidelberg and Leimen cement plants were being developed. Personnel files and numerous tributes as well as biographical publications supplement these sources.



LOUISE SCHOTT,
née Dervedde, ca. 1855.
Source: Fam. Schott von
Römer.

Political reality in the German states 1800-1850

The fundamental framework conditions for the development of the Schott family in Seesen were the far-reaching political and social reforms in the late 18th and 19th centuries. The Enlightenment as the driving force of "peasant liberation" as well as secularisation formed the background of social progress. The latter had a significant influence on the process of emancipation of Protestant and Jewish elites. While the French Revolution of 1789 had abruptly led to the abolition of serfdom in France, in the German states this was a gradual process that took 150 years.

The first basic liberties had occurred here in the wake of the peasant uprisings that followed the plague in the 16th century. Due to a lack of agricultural labourers, wages rose, however this also resulted in food shortages due to uncultivated fields. A similar situation arose after the Thirty Years' War as well as after the Seven Years' War. In 1771 and 1772, another sharp drop in prosperity followed due to crop failures and inflation. The restrictions that prevailed from the legal relationships between feudal lords and peasants were increasingly seen as a major obstacle to the reconstruction of agriculture.⁶

At the beginning of the 19th century, Napoleon rapidly brought almost all of Europe under his control. Under pressure from Napoleon, 112 small German states and imperial cities were abolished in 1803 and assigned to the larger principalities. In France he established the French State Bank. His numerous policies resulted in an upswing of the economy. In 1804, Napoleon implemented the Code Civil, a modern, uniform legal system that also applied to the conquered territories. The freedom and rights of the individual and the protection of property were enshrined in the Code Civil, as was the equality of all men (women however were yet to be recognised). Education was now also controlled by the now increasingly centralised states.⁷

The 'Jewish Question' and the Right to a Name

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The emancipation of the Jews was also a historical process that took centuries. It began during mercantilism and made great progress during the Enlightenment, when Jews were gradually recognised as equal citizens.⁸ Until this time, they had lived outside the corporative order. "Jewish emancipation" as a term first appeared in the 1830s.⁹ Since Jewish life varied greatly depending on the region, it is hardly possible to generalise the process. Above all, the contrasts between town and country and East and West were significant. Around 1800, Jews made up about 1% of the total popula-

tion. At the end of the 18th century, Jews rarely lived in ghettos, but still mostly formed spatially segregated groups. There were however still restrictions, such as specific taxes, which often determined their quality of life. With social change, came also a demand for the improvement of Jewish life.¹⁰ In progressive Jewish circles, the Jewish Enlightenment or 'Haskala', emerged from the 1770s onwards, based on the ideas of the European Enlightenment. It was important in the process of Jewish emancipation, also as a mediator between the Jewish and Christian elites.



JEWISH CEMETERY
in Seesen, 2021.



INTERTWINED HANDS on a Jewish gravestone. This element can be found on the future festival hall in Leimen, as a symbol of the consensus between the workers and the entrepreneur. It was a cast of the hands of Friedrich Schott, and the former labour leader Emil Rüdigers.



The Jewish heads of the movement focused primarily on education. Among the representatives of the Haskala in Germany was Israel Jacobson, founder of the Jacobson School, which laid the foundation for the development of the Schottländer family and Friedrich Schott.¹¹

In 1791, in the French National Assembly, the granting of unrestricted citizenship rights was realised for the first time; this also included Jews. Under this influence, emancipation laws were passed in many German states. However, civil professions often remained barred to them even after 1791, after they had been granted citizen status.¹² In 1815, a unification of the various Jewish laws was to be decided at the Congress of Vienna. However, this was rejected. In the epoch of Vormärz, radicalisation towards the Jewish population occurred again. Many therefore made no further effort to improve their situation as Jews, however opted for baptism and adaptation to Christian society. In the southern German states, discussions on emancipation continued until the revolution. The end of restrictions was passed by the Landtag of the Rhine Province in 1843 and brought about the complete equality of the

Jews. In Prussia, the question of improving the situation was raised again in 1847.¹³

Until the 18th century, the Jewish part of the population did not bear any family names. The names were composed of the child's name and the father's name as a surname. This made it difficult to recognise individual families by name alone.¹⁴ At the end of 1807, the constitution of the Kingdom of Westphalia decreed "*the equality of all subjects before the law, and the free exercise of worship by the various religious societies*".¹⁵ In the Duchy of Brunswick, which became part of the Kingdom of Westphalia under Napoleon's rule, Jews had to adopt fixed family names from 1808.¹⁶ The official registration of persons was to be simplified by the legal regulation of Jewish naming. However, the adoption of fixed family names also promoted the emancipation process. The implementation of these diverse name legislations however, dragged on until 1846.¹⁷

Origin of the surnames Schottländer and Schott

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The origin of the Schott family leads to Gdansk, where it can be traced back over several generations. Since Gdansk had always had very restrictive laws against the settlement of foreigners, settlements of "undesirable" persons and non-professional trades developed in the immediate vicinity. The undesirables also included Jews, who were not allowed to settle in the commercial centre of Gdansk from the 16th to the 19th century. As early as the 14th century, Scottish sailors had founded a linen weaving settlement called Old Scotland.¹⁸ From the 13th to the 17th century, Gdansk was one of the great maritime trading cities of the Hanseatic League and was considered the granary of Europe. Particularly close relations existed with Italian maritime and trading cities. In these trade relations, the Jews played an indispensable role as intermediaries between the Polish landowners and the customers in the West. This was not least because of the credit business and the Hebrew and Jewish language, which was an almost indispensable means of communication in international trade.¹⁹ After the first partition of Poland in 1772, the newly acquired province of West Prussia under Prussian

rule was still subject to Friedrich Wilhelm I's general privilege of 29 September 1730. This provided for toleration of the Jews, who were indispensable in trade, but at the same time their social situation in Prussia was to be prevented. There were 15,000 Jews among the 580,000 inhabitants. Weighing up the economic benefits, the successor Friedrich II promoted Jewish merchants who had trade relations with Poland, but at the same time had 4,000 poor Jews deported to Poland. The capital of West Prussia, Danzig, maintained its anti-Jewish policy during Prussian rule. Since Danzig did not become part of Prussia after the first partition of Poland, Friedrich II decided to make the city compliant with economic struggle measures. The surrounding towns, such as Old Scotland, which were inhabited by craftsmen, factory workers, trading Jews and Mennonites, most of whom ran distilleries and breweries, were militarily occupied on 16 September 1772.

"It was ill-mannered crafts and trades as well as illicit commerce that had found refuge here under the protection of Polish ecclesiastical and secular lords, not suffering in the city, yet living off it. Their smuggling and surreptitious trade, in which Jews as well as

*non-Jews were involved, were favoured by the many strangers in Danzig, soon also by the Prussian combat duties and the new trade route via Stolzenburg to Elbing and Königsberg."*²⁰

A census in Old Scotland at this time showed, out of a population of 10,500, 1,257 Jewish people. This made it the largest Jewish community in West Prussia. The order to move the trade fairs from Bydgoszcz to Old Scotland, with the aim of harming Gdansk's trade, further increased Old Scotland's importance. The flourishing of the communities around Danzig offered some protection for the Jewish population, since otherwise in West Prussia the ruthless resettlement of Jews from the countryside to the border towns was usually carried out against their resistance.²¹

The Schott family history can be traced back to a progenitor named Joachim Joseph. He was a descendant of Jews exiled from Spain and Portugal. As emigrants, his parents probably lived in one of the Sephardic (Spanish-Jewish) centres, such as Emden or Hamburg. Joachim Joseph had three sons: Moses Joachim, Marcus Joachim and David Joachim. All the above are recorded in Old Scotland at the time of the Prussian occupation in

1772. David Joachim (*1730 Old Scotland) was a "Schutzjude" (protected Jew) and traded in old gold and silver.²²

His eldest son Jacobson Bendit (also Barukh Shotlender, Bendet, Bendix, *11.03.1763 or 1764 Old Scotland near Danzig, †21.07.1846 Seesen)²³ will later found the Schott family in Seesen with his French wife. His place of birth is occasionally given as Gdansk, which is plausible as it can be proven that Jews resided in the city centre of Gdansk. More likely, however, is the birthplace of Old Scotland, which was presumably his home and place of residence for many years.²⁴ In his youth, there is evidence of Rabbi Elchanan's activity as a community rabbi from 1752 to 1780. Elchanan was extremely popular because of his scholarship, righteousness, peacefulness and modesty. In view of Bendit's later career, he seems to have exerted great influence on him. The existence of a Chewra (charity) in Old Scotland suggests that the inhabitants originally came from Jewish centres such as Frankfurt, Breslau, Vienna or Prague, which maintained such institutions. The Chewra maintained infirmaries, care for the poor and took care of the ransoming of prisoners who had vio-

lated the Jewish laws.²⁵ The welfare institutions and respected teachers like Elchanan gave Bendit the necessary support and orientation when he became an orphan around the age of 16. The fate of his twelve years younger brother Jacob David Schottländer (*24.06.1776 Old Scotland) is unclear. Penniless, Bendit went to Poland, perhaps through the mediation of Elchanan, to become acquainted with the Talmud, i.e. the rabbis' interpretation of the text in practice and in everyday life.²⁶ A rabbi recommended him and so he returned to Germany as a Talmud student ("bahur"). His wanderings took him to Glogau an der Oder around 1797 and to Breslau (Wrocław) in 1798/99, where he received rabbinical training. He then found employment in Berlin around 1799/1800 as a tutor in the house of the banker and sugar manufacturer Jacob Herz Beer (*1769 Frankfurt/Oder, †1825 Berlin), the father of the composer Giacomo Meyerbeer.²⁷

Reform Judaism and Education

Education was a highly respected commodity in Jewish families. The school situation, however, was inadequate, especially in the countryside and in small towns. In rural regions, the mostly very small Jewish communities did not have their own schools. The Jewish pupils thus learned mainly Hebrew as well as reading and writing by reproducing religious scriptures. Their colloquial language was Yiddish. Christian schools did not accept Jewish pupils, although this was more often the case the other way round.²⁸ This situation led Israel Jacobson, Braunschweig court banker, to plan to build a school for a small Jewish community.²⁹ Israel Jacobson was born on 17 October 1768 and originally enjoyed a strict religious upbringing, but soon developed his own enlightened deist worldview.³⁰ In 1801 he acquired the first building for this purpose in Seesen. His long-term goal was to improve the living conditions of the Jews.³¹ Originally, he planned to train them in a craft in addition to elementary education. Religious and industrial schools were to be combined, but this was not realised. Pupils from poorer backgrounds went to the institute free of charge. Students from wealthier families paid 100 to



BENEDIKT SCHOTTLÄNDER, ca. 1810.

Source: Fam. Schott von Römer.

150 Thaler per year.³² A few years after the foundation of the institute, Jacobson bought a new building in Seesen with his own funds. This was large enough to accommodate about 50 to 60 pupils and the teachers.³³

Presumably, Jacobson Bendit also met Israel Jacobson in Berlin, who also maintained contacts with the House of Herz Beer. Thus, Jacobson Bendit Schottländer was initially a

tutor to Israel Jacobson from around 1801. He shortly after also taught at the Jewish Jacobson Reform School in Seesen. He received high praise from, among others, the Ducal Brunswick Chamber Agent Karl in a letter dated 8 August 1804 for a reading book that he had published at the beginning of his activity especially for use in the Jacobson school.

The letter mentions the name Benedict for the first time, which is a reference to his conversion to Christianity.³⁴ During the new personal status laws, Jewish families, like Bendit, often took the name of the (former) place of residence, i.e. the surname Schottländer. If they converted to Christianity, they shortened the name to "Schott", as happened with Benedict in 1808.³⁵

The political reforms introduced by Napoleon in France, including the introduction of the Code Civil on 21 March 1804, were applauded by Schottländer, as were the drastic changes after 1806 in the small German states. Benedikt Schottländer was guided by the ideals of the Enlightenment. As a deist, his belief in a God was based on reason and not on revelations of holy scriptures. Israel Jacobson sent Benedikt Schott to

Paris as his representative in 1806. He was well received and presented the Israelite deputies assembled by Napoleon with a memorandum on the necessity of better education for the Jews.³⁶

Christian pupils were also taught at the institute, and there were Jewish and Christian teachers for them.³⁷ In 1807, 70 pupils were taught in four classes.³⁸ One year later Benedikt Schott took over the management of the institute.³⁹ On 14 September 1828, Israel Jacobson died of a hemorrhage in Berlin, where he had lived since 1814. He was buried in the Jewish cemetery on Schönhauser Allee in Berlin.⁴⁰

In Paris, at the age of 43, Benedikt Schott had met Therèse Franq (Frank) (*14.08.1790 Paris, †8.11.1860 Seesen, Catholic), who was only 16 years old. They married and had four sons and two daughters⁴¹ - Eduard⁴² and Theodor⁴³, Emil August⁴⁴ and Constanz⁴⁵, Sophie⁴⁶ and Louise⁴⁷, who were either baptised Catholic as children or later converted to the Protestant faith.

Jewish-Protestant parental home

Emil August (*4.01.1812 Seesen, †29.10.1886 Braunschweig) was to be baptised as early as 1826 however refused, which was accepted. Five years later he was to change his mind. He already had Protestant religious instruction at a young age in the Jacobson Institute. On 18 August 1831, he was baptised as a Protestant by a friend of his, Pastor Peters from Herhausen.⁴⁸ It is to him that we turn our attention in the following.

Emil August was interested in nature and agriculture and therefore began training as a forester.⁴⁹ The area around Seesen was densely wooded and had previously been a hunting ground of the Dukes of Brunswick. Emil found his first job as a hunter in the ducal hunting lodge. Emil admired the research of Alexander von Humboldt, which motivated him to soon conduct his own research. Unexpectedly, the opportunity arose to follow his urge to explore further. The housefather of the Jacobson Institute, Seligmann Meyer Ehrenberg, had a son-in-law whose brother owned a plantation in Jamaica. The brother wished to marry a cousin from the area, whom the son of the house father was to accompany to Jamaica. Emil decided to travel with him and had to come to

the institute where the father of the house lived for the occasion. On the way there, the then 24-year-old met his future wife, Louise Marie Henriette Dervedde (*26.04.1830 Kirchberg am Harz, †27.08.1910 Heidelberg), for the first time, however she was only six years. At a young age she came to live with her uncle, Friedrich Wagenführ, and her aunt, with whom she had a good relationship.⁵⁰

Emil left for three years, only to return to Brunswick serving as a land economist.⁵¹ In this function he was responsible for so-called separations, i.e. early land consolidation, mainly in the Schöningen and Helmstedt area southeast of Braunschweig. After the abolition of the tithe and the abolition of agricultural land formerly used jointly in three-field farming, land consolidation had become necessary. In order to privatise agricultural land, the land also had to be remeasured and reclassified. The separation fundamentally changed the landscape and created today's geometric field shapes. Parallel to the private redistribution, there was a large-scale change of use and intensification of cultivation. This was another area of Emil's work, in which he taught the farmers about artificial fertilisation and the

EMIL SCHOTT, ca. 1855.
Source: Fam. Schott von Römer.



effect of lime.⁵² Justus von Liebig's work on agricultural chemistry from 1840 remained misunderstood for a long time. Emil, however, had put Liebig's teachings on chemical fertilisation into practice very early on.⁵³ Emil had to carry out 'separations' near Seesen in 1846 and lived with his parents at the institute. As he often had to travel to appointments, he had Louise's uncle, Friedrich Wagenführ, drive him by carriage. In May 1846, Emil met Louise again by chance. Louise was 16 years old at the time and had just finished primary schooling when Emil courted her.⁵⁴

During this time Louise's relationship with her uncle increasingly deteriorated, as she writes in her memoirs. The aunt tried to ignore the discord and "*found solace for all suffering in the garden*". During Emil's inevitable visits, he was always greeted very politely and kindly by the uncle, certainly not least as a good customer

of driving services and as the son of the respected former headmaster Hofrat Benedikt Schott.⁵⁵ The uncle, however, did not seem particularly pleased by the visits, fearing to lose influence on her and a cheap source of labour. Louise writes: "*...when he [Emil] was away, I got the scolding, although I was quite innocent.*"⁵⁶ Similarly, he also disliked her reading the contemporary novels Emil slipped her. These included Werther's Lotte, Goethe's Faust, Hermann and Dorothea, and novels by Countess Pelzer and Leni Lewald.⁵⁷ Emil was persistent, even erecting a maypole in front of Louise's house at Whitsun 1846.⁵⁸ Meanwhile, Emil's father, the court counsellor, as he was referred to everywhere, died on 21 July 1846. He had run the Jacobson School for over three decades and only retired on 1 July 1838 at the age of 75. Emil then moved out of the institute with his mother and cousin (Fanny Schottlän-

der, daughter of Benedikt's brother Jakob) into a smaller flat.⁵⁹

In the late summer of 1847, Louise accepted his marriage proposal, although the age difference between the two was great - she was 17 years old and he 35.⁶⁰

"The fact that I then decided to give him my consent was probably first and foremost his unlimited perseverance, which had to convince me of his

*strong love, and then there was also the pity and persuasion from many sides."*⁶¹

Emil was heavily involved in Kreiensen at that time and lived with Pastor Peters in Herrhausen near Gandersheim. The latter had baptised him at the time and was well acquainted with the Schott family. Louise now left home with the support of her aunt, without saying goodbye to Un-



Aerial view of **GANDERSHEIM**. Baderstrasse, at the bottom on the right, temporary residence of Friedrich and Hermann Schott, before 1934. Source: Urban museum Seesen.

76.	Hoff, Johann geboren am 17. September 1821. (Der Name ist geistig übernommen.)	Christliche Liebe geboren am 17. September 1821.	von Hoffmann geboren am 17. September 1821.	von Hoffmann geboren am 17. September 1821.	Hoffmann Liesel geboren am 17. September 1821.	Der Herrmanns Christliche Liebe geboren am 17. September 1821.
77.	Rohde, August geboren am 29. April 1830. (Der Name ist geistig übernommen.)	Christliche Liebe geboren am 29. April 1830.	von Rohde geboren am 29. April 1830.	von Rohde geboren am 29. April 1830.	Rohde Liesel geboren am 29. April 1830.	Johanna von Rohde geboren am 29. April 1830.
78.	Hirshfeld, Ernst geboren am 24. März 1826. (Der Name ist geistig übernommen.)	Christliche Liebe geboren am 24. März 1826.	von Hirshfeld geboren am 24. März 1826.	von Hirshfeld geboren am 24. März 1826.	Hirshfeld Liesel geboren am 24. März 1826.	Der Vater von Hirshfeld geboren am 24. März 1826.
1.	Mary, Johann geboren am 10. Oktober 1849.	Christliche Liebe geboren am 10. Oktober 1849.	von Mary geboren am 10. Oktober 1849.	von Mary geboren am 10. Oktober 1849.	Mary Liesel geboren am 10. Oktober 1849.	Der Mutter von Mary geboren am 10. Oktober 1849.

CHURCH REGISTER of the Protestant Church Gandersheim. Register of the born and baptised in 1849, p. 260 no. 56.

cle Friedrich. At home with her parents in Kirchberg, she was reproached for gambling away the possible inheritance.⁶² Finally, the family climate was so oppressive for her that she requested for Emil to fetch her, to which he placed her to live with his mother.⁶³ Emil was a democrat and Louise described him as very hard-working, "he did twice the work of his colleagues".⁶⁴ Through Emil she was able to travel around, they made many trips to surrounding villages.⁶⁵ Emil rented a larger flat in Gandersheim and bought furniture for it in Brunswick. The wedding took place on 10 October 1848.⁶⁶

Exactly one year later, 10 October 1849, she gave birth to a boy, whom she also breastfed herself. However, Louise developed a milk stasis, which resulted in mastitis. Babies who had been weaned were usu-

ally fed diluted cow's milk, which sometimes led to intolerances and stomach cramps. The weakened children then often died from infections or pathogens that multiplied in the gastrointestinal tract. This is likely to have occurred to Louise's child, who died of meningitis in the early spring of 1850.⁶⁷ The second son Friedrich was born on 27 December 1850, often referred to as Fritz within the family.⁶⁸ "He was quite small, but healthy. [...] We had to call the doctor again, who diagnosed a severe inflammation. [...] Since the child and I were lit, we had no choice but to take a wet nurse, with whom we were quite lucky. [...] The little one then developed both physically and mentally as early as none of my other children ever did again."⁶⁹ The wet nurse was Friedrich's good fortune; she breastfed Friedrich for more than 15 months and he survived as the now eldest son and developed into

the most important pillar of the family. Louise was to bear a total of 19 children, of whom, however, only 14 survived infancy.⁷⁰ When her daughter Karoline Marie Emma (*12.10.1855 Seesen, †18.03.1856) died a few years later, Louise was now aware of the cause of infant mortality but was unable to tackle the problem, for at least

four more children did not survive. *"I had fallen ill again while feeding myself and had spared the expense of a wet nurse. But then I saw that the milk for teething children should mainly come from the mother ... [and so] for lack of it the many babies died in recent times."*⁷¹



HERMANN SCHOTT in front of the old custom house, 1922. Source: Archive urban museum Seesen.



Old custom house Seesen, former **RESIDENCE OF FAMILY SCHOTT**, rebuild in Grauhof close to Gosslar. Source: Dirk Stroschein/urban museum Seesen, 2018.

In the summer of 1851, Emil was transferred to Seesen and lived there. In the autumn, the family moved there, probably to Braunschweiger Straße 5, "a draughty corner flat", as Louise noted.⁷² Friedrich developed well and was his mother's favourite from the start: *"Little Fritz was not yet a year old when he walked alone in the room and already spoke coherently."* In April 1852, their third son Hermann was born and looked after by a wet nurse. Emil had not been happy in his job as a civil servant for some time. Not least because his professional advancement was hindered by his liberal, democratic attitude and as a supporter of the Frankfurt National Assembly.

More and more he let his assistants take care of the surveying business and pursued his technical and scientific interests. He now concentrated on mining.⁷⁴

After the birth of his daughter Louise Therese Agnes (*21.04.1853 Seesen, †1931), Emil travelled to England in June 1853. At that time, chalcocopyrite had been found near Wolfshagen, which was being mined by an English mining company. Emil, who had a good knowledge of minerals and a large mineral collection, managed to attract investors in England for a neighbouring older mine. Emil personally managed the mine for an extensive period until it became evi-

dent that the mine was not profitable. On his travels he had also discovered a slate quarry, which he operated additionally at his own expense. But since the slate was difficult to split, he also had to give it up on this venture.⁷⁵

Emil could not fulfil his official duties as a forestry officer to the usual extent due to his numerous ventures and had to hire more assistants. He had to pay the assistants their weekly salary. He received a small fixed salary for separations and advances for larger jobs. Only when the separation was completed was everything paid out. Louise therefore often had to write to him, and the family was sometimes short of money: *"He would then count on larger sums, some of which were then cut off."*⁷⁶

Her husband Emil continued to work on his experiments, but they were not particularly financially rewarding. The garden they still rented, however, yielded a good harvest that could provide for the family, as otherwise money was very tight.⁷⁷ Louise, who had the burden of the household and the children, had little understanding for Emil's inventiveness: *"My husband had such a restless mind, no sooner had one idea been carried out than another was born. Unfortunately, he was not practi-*

*cally inclined, he only ever lived in illusions that later dissolved into castles in the air."*⁷⁸

Louise therefore often disagreed with his plans, which is why he presented her with a *fait accompli* and did not involve her in planning. During this time Arthur Hagen approached Emil with the idea of building a brickyard in Kreiensen. Good lime and clay deposits were available, and in addition, a new main junction of the Hanoverian southern railway was being built by 1854.⁷⁹ Hagen raised money and Emil took over the management of the company. Simple brick kilns and drying sheds were quickly built, as well as a lime kiln on leased land. Louise's youngest brother became bookkeeper and manager. Tiles, bricks, drainage pipes and lime were produced, which initially proved profitable.⁸⁰ This proved to be the driving reason for Emil to quit the forestry service for good after 25 years: *"My husband had been in the service for 25 years in the meantime and had retired without telling me a word, of course he only got half the pension for the short years, just as I now also only get half a widow's salary later."*⁸¹ Louise correctly recognised the situation and was often able to partially



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EMIL SCHOTT'S POST FOR MANY YEARS, former hunting lodge, today city museum Seesen, 21/11/2018.

recover the financial losses with good harvests from her own garden. In addition, she planted sugar beet for a sugar factory nearby and peas for a canning factory. She had parted with her main breadwinner at the time, a cow, due to the expense. From the proceeds, however, she had bought two goats.⁸² By Easter 1854 they had moved to another flat with a garden, which belonged to her family doctor. Louise, who enjoyed the garden, continued to keep the family afloat with its yields. In July, their second daughter Johanna Marie Helene (*22.07.1854 Seesen, †1895) was born. Eventually a flat became available on the upper floor of her aunt's house in Jacobsonstraße, where she had spent her childhood. After some hesitation because of her uncle, the family nevertheless moved into the larger flat in the spring of 1855. Fritz was immediately the favourite of his aunt and uncle: *"We had a large flat, especially a large central hall from where we could get into the other rooms. It went through the whole deep house and*

*there were windows in front facing the street and out the back facing the garden and yard. There my husband had a very large study, so he took on several helpers to work with him."*⁸³

Emil's successful brother-in-law and cousin, Julius Schottländer, advised Emil to abandon all mining projects in Wolfshagen and concentrate on the brickworks in Kreiensen. He also provided him with a large sum of money for its expansion. Emil then managed the business in Kreiensen alone and travelled there daily by train. There were rich farmers in Kreiensen, but no leased land could be obtained from them. Therefore, Emil leased fields and meadows in Seesen to provide for the horses. Louise had to care for and manage these and the household alone.⁸⁴ Around 1855, Emil set up a laboratory in his uncle's house with the aim of producing Portland cement from the Kreiens material. He had extensive knowledge of chemistry and had likely already become aware of the Portland cement industry during his trip to Eng-

land. That year, Bleibtreu had also produced the first Portland cement in Stettin, which was certainly an incentive for Emil. He had a small kiln built into a larger chimney. He mixed the finely crushed samples with water and, to his wife's chagrin, used all kinds of household moulds, which became spoiled. Of the cement, Louise reports, "*It became so hard that you could hardly make a scribble in it with a knife.*"⁸⁵ Emil gave up the experiments with cement. In the meantime, the brickyard was temporarily doing well, having recently started making slag bricks from lime and the coal ash from the ring kiln. Later, he hired a potter to make earthenware (stoneware) in specially built kilns. However, the pots were unusable due to lime inclusions. Louise's brother was very unhappy about this, as on the whole no profit could be made. He left the brickworks and Emil took over the business himself.⁸⁶

Emil continued to experiment with all kinds of things in his laboratory and the fumes poured through the whole house. At the beginning of 1861, Emil fell out with his uncle due to concerns over laboratory activity and the fear the house would burn down. Emil therefore rented another spa-

acious flat quite far away from the uncle and aunt. Emil's brother-in-law and cousin Julius Schottländer had taken over a small garden from his mother's estate and, on Emil's advice, bought another of the same size. Emil leased this for his experiments. He experimented with fertilising using old rags and other artificial fertilisers and grew exotic plants for which he heated the soil with pipes. In the summer of 1861, he had a wagon of barite transported from the Harz Mountains to the garden and fired it in specially built ovens. He wanted to produce luminescent night paints, especially the so-called Firmament White⁸⁷, and had hired a worker for this purpose. The production succeeded, but he did not pursue it further.⁸⁸

After the birth of Sophie Conrardine Pauline⁸⁹ (*29.07.1861 Seesen, †1889) and Martha Auguste Emilie⁹⁰ (*8.11.1862 Seesen, †1929) the family counted eight children.

Schottländer, a brother-in-law who was baptised Catholic, owned a villa in Nice. He persuaded Louise to allow her daughters to attend a girls' boarding school and offered to cover the expenses. Louise, who had little schooling herself, was distanced from this idea. However, Louise urged

Schottländer to dissuade her husband from the projects in Wolfshagen. Schottländer then made a large sum of money available to Emil for the expansion of the brickworks.⁹¹

Emil had placed the greatest hopes on the invention of a gas cooker, which he patented. The invention was ahead of its time. It was not until the end of the 19th century that gas cookers became somewhat common in Germany, primarily in the cities. He had one manufactured for a Berlin trade exhibition in 1882 and had it brought to Berlin by Louise's brother. Before the exhibition had opened however, the gas cooker was destroyed by a fire in the main building. This event took its toll on the now 70-year-old and put an end to his inventive endeavours: *"When he told me about his great dejection, I felt terribly sorry for him. Yes, he was an unlucky fellow with all his undertakings. But I was convinced that his impracticality and inconsistency were mostly to blame for his failures. Yes, after this last blow, when he had cherished such great hopes, his courage was gone, and he must have paused with his inventions."*⁹²

Louise, who had a strict Protestant upbringing, always acted

with a strong sense of duty. In Protestantism, it was important to fulfil one's duties in everyday life and to devote oneself to the world. Work was a means of "inner-worldly asceticism". To resist sleeping too much and to not waste time were the commandments. She lived very frugally, as evidenced, for example, by the fact that she always mended old clothes and was not wasteful with food. According to Max Weber, this controlled way of life was also called the Protestant work ethic, which shaped workers as well as entrepreneurs.⁹³ As a result, it was important to her to urge her boys to be diligent so that they would bring home good grades at school. For her girls, she saw no point in education, but employed them in the household and later sent them to different households as maids.⁹⁴

Youth and school years

The children were born almost every year. As already mentioned, the third daughter Karoline Marie Emma (*12.10.1855 Seesen, †18.03.1856) died when she was six months old. Louise only overcame her death with great difficulty. After the birth of Louise Emilie Sophie (*2.04.1857 Seesen, †1907), Friedrich was about to start school, and Louise now had five small children to look after. On top of these demands, she also took care for the family of her brother-in-law, Julius Schottländer, who was temporarily in

England, and her own mother-in-law in Schafoldendorf.⁹⁵ In this situation, the parents decided to place the two older children, Friedrich and Hermann, with relatives in Gandersheim. There they were enrolled together in the citizen's school. The following year, son Emil August Eduard Ludwig⁹⁶ (*13.07.1858 Seesen, †26.01.1884) was born, this led to Friedrich and Hermann eventually spending their entire primary school years in Gandersheim.⁹⁷



JACOBSONSQUARE in Seesen today.



FRIEDRICH SCHOTT WITH HIS FAMILY in front of the parental home in Seesen, May 22, 1876.

Friedrich Schott's youth was shaped on the one hand by his father's scientific and technical research and on the other by his mother's strict Protestant upbringing. According to his own account, Friedrich Schott "enjoyed a good, strict upbringing in his parents' home and an excellent school education."⁹⁸ As a result, he later recounted, he also learned to go his own way and to be hard-working and determined.⁹⁹ From autumn 1862, he and his brother attended the Jacobson Institute in Seesen, and as the eldest, Friedrich was taught free of charge.¹⁰⁰

As Friedrich's father Emil was mainly in Kreiensen and his mother Louise, with the help of a wet nurse, looked after his younger sisters, did the housework and also farmed, Friedrich and his brother Hermann, who was almost the same age, were often left unsupervised: "There were big squares near the house and they romped around a lot there, were quite lively and even got the name

'Schottstaugenichtse' (Schott 'good-for-nothings') from a woman in the neighbouring house, who they didn't like, because they annoyed her a lot".¹⁰¹

Louise strove to ensure peace and order and an orderly life. After the children brought home bad grades, it was important to her that Emil dealt with them, but she writes that this work was too boring for him. "I asked my husband to take care of their work after all, as it was impossible for me, and a minor one for him. But it was too boring for him and it went on like that."¹⁰² Finally, Louise took care of this problem and ordered a boy from a higher class to come home and explain the schoolwork to her boys. As a result, their grades improved.¹⁰³ Fritz and Herrmann were confirmed at Easter 1865, but remained at the institute for two more years until the then final class, the Obersekunda (11th grade, Mittlere Reife).¹⁰⁴

Studying chemistry in Braunschweig

Friedrich's father Emil was well versed in inorganic chemistry, as has been shown on several occasions. He worked in mining and had a large mineralogical collection.¹⁰⁵ His interest in the production of Portland cement has already been mentioned and it is quite possible that this had influenced Friedrich. Louise mentions in her memoirs that Friedrich was prepared for study in Emil's laboratory. Friedrich went to the Polytechnikum in Braunschweig in 1867, at the age of 17, where he was to study chemistry.¹⁰⁶

At the Polytechnikum, Prof. Friedrich Ludwig Knapp (*22.02.1814 Michelstadt, †8.06.1904 Braunschweig) had taught technical chemistry since 1863. He is considered the founder of chemical technology. He was married to Katharina Elisabeth Liebig, the sister of the chemist Justus von Liebig. This circumstance could indicate that Emil Knapp knew about Liebig.¹⁰⁷

In any case, Knapp made a special effort with Friedrich and suggested cement chemistry to him in the fifth semester.¹⁰⁸ Friedrich then devoted himself to binder chemistry, which was still largely unknown. His first research dealt with the hardening processes of sulphuric acid lime (gypsum

CaSO_4). It was known that sulphuric acid potassium (potassium sulphate K_2SO_4) hardened when brought into solution with gypsum. His aim was to find out on which compound reacted in order to create this hardening process. He was finally able to explain the influence of the potassium sulphate by the formation of a double salt.¹⁰⁹ He then investigated reactions of sodium sulphate with gypsum. After this preliminary work, he dealt with the so called 'Scott's cement'. This was a burnt lime treated with sulphur vapours, which no longer slaked, but showed hydraulic properties. Normal burnt lime does not harden under water. Friedrich found out that the composition of Scott's cement is identical to the decomposition products of calcium sulphate at high heat. In this way, he also found simpler ways of manufacturing Scott's cement, in which he simply annealed gypsum and burnt lime together.¹¹⁰ It is remarkable that Friedrich Schott's findings were valid for a long time. He published his work, for example, in journals such as the well-known Dinglers Polytechnisches Journal. His talent and skill for recognising connections and his single-mindedness were unmistakable.¹¹¹ After completing this research, he in-

Polytechnisches Journal.

Herausgegeben

von

D^r. Emil Maximilian Dingler

Zweihundertundneunter Band

Jahrgang 1873.

26

XI.
Aus dem chemisch-technischen Laboratorium des Carolinum
zu Braunschweig.
Der Scott'sche Selenitmörtel; von Friedrich Schott.

Es ist beinahe zwanzig Jahre her, das General G. V. D. Scott mit einem neuen hydraulischen Mörtel auftrat, den er durch Einwirkung der Dämpfe von brennendem Schwefel auf glühenden Kalk erhielt. Der Borgang bei der Bildung dieses Cementes, sein Wesen, seine Eigenschaften und die wissenschaftlichen Grundzüge auf denen sie beruhen, sind vor drei Jahren in einer besondern Abhandlung von mir dargelegt

-VII e. 52.

Material den Namen „Selenitic Mortar“, „Selenitmörtel“,

worden. ²¹ Später erkannte der General, daß bei dieser Behandlung des Kalles etwas schwefelsaurer Kalk gebildet werde und daß man dasselbe in der Mischungs- und Umständlichkeit des Verfahrens, und damit zusammenhängend die Kohäsivität des Produktes nicht aufgewogen; es fand keinen nennenswerten Eingang in die Praxis. Um nun die Vortheile seines Verfahrens mit den wirtschaftlichen Forderungen des jetzigen Baubewesens und seinem ungeheuren Verbrauch in England zu bringen, kam der General vor etwa drei oder vier Jahren auf eine „sehr einfache Abänderung“ die durch den wunderbaren Erfolg des größten Aufsehens (namentlich bei der Londoner internationalen Industrieausstellung von 1871) erregte und vielleicht Epochen im Mörtelfach machen wird. Sein Gedanke war, dem gebrannten Kalk den Gyps (oder die Schwefelsäure) lediglich beim Lösen zuzusetzen, ohne ihn nochmals damit zu besetzen. Sein Gedanke „sehr einfache Abänderung“ ist, wie aus dem Nachstehenden hervorgeht, ein gänglich verschiedenes Princip. Dabei wird die Wirkung des Gypses auf den Kalk, wie sie vorher umständlich und theuer war. Es genügt in der That das Wasser, worin man den gewöhnlichen Kalk wie üblich löst, vorher mit einigen Tropfen Gyps zu versetzen und das Ganze in dem gewöhnlichen Verfahren zu hauben umgewandelt. Er löst sich mehr wie gewöhnlich und erfährt eine ihrer unmitttelbaren Erscheinung in ²² harten etc. sechs quickly.“

B			
	Portlandcement	Selenitmörtel, Kalk von Barrow	Durham
am			
4,2	—	21,7	21,2
22,7	26,0	26,9	21,5
18,4	21,6	21,9	24,5
20,4	15,4	21,5	27,8

November 1872.

“DER SCOTT’SCHER SELENITMÖRTEL“. Publication by Friedrich Schott in Dingler’s Polytechnical journal, yr. 1873, vol. 209, p. 30-45.

investigated the hardening phenomena more closely, especially the water absorption after hardening. However, the irregularity of the results did not allow any far-reaching conclusions to be drawn. Prof. Knapp proposed continuing the research for a doctoral thesis in Göttingen. Friedrich, however, declined due to lack of financial support.¹¹²

When the Franco-Prussian War broke out on 9 July 1870, Friedrich decided to do his military service and volunteered "to be rid of this and to be able to devote himself unhindered to his future task in life". This expressed, on the one hand, his attitude of patriotic duty towards the state,

but on the other hand also a certain aversion to the military, which is felt again and again later. He was initially however, not accepted because he was considered underweight and was able to complete his studies after the sixth semester. After the end of the war in May 1871, he then completed a year of voluntary military service.¹¹³ After his military service, he completed his academic research. He now wished to gain knowledge in practical business management.¹¹⁴

First jobs in the cement, lime and brick industries



FRIEDRICH Paul Julius Schott (*22/12/1850 Gandersheim, †20/02/1931 Heidelberg).

The victorious war of 1870/1871 and the founding of the German Empire encouraged many to take entrepreneurial risks. The Vorwohl Portland cement factory Planck & Co. A.G. was founded by the engineer Prüssing and the merchant Planck in 1872.¹¹⁵ On Knapp's recommendation, Friedrich

was hired as laboratory manager. This was not altruistic, as Knapp himself had a financial stake in the Vorwohl cement factory, which was currently under construction.¹¹⁶ As the factory was still under construction, Friedrich Schott also had to help with the commissioning. He was promised an extra bonus for this, but he did not receive it. The preparatory work for commissioning consisted of lengthy series of tests, which did not satisfy him.¹¹⁷

His father Emil advised him to quit and join him in Kreiensen for the time being. He was doing successful business with lime at the time and had established customers in the wider area. Friedrich was intended to travel and recruit new customers. On a long trip to Hamburg in the spring of 1875, Friedrich read, rather by chance, an advertisement in the *Fliegende Blätter* for the Portland-Cement-Werks Schifferdecker & Söhne OHG in Heidelberg.¹¹⁸ They were looking for a chemist as plant manager. Friedrich applied while still on his journey.¹¹⁹ Back in Kreiensen, his father showed him the letter from Heidelberg in amazement. It was an invitation from Schifferdecker with the promise that he would be reimbursed for his travel expenses.¹²⁰

Employment at Schifferdecker & Söhne in Heidelberg

28

It was the time when numerous Portland cement plants were founded in the German Empire. It was often entrepreneurs from outside the industry who were enthusiastic about the new Portland cement. One of the founders of the Portland cement plant in Heidelberg was the beer brewer Johann Philipp Schifferdecker. His family had been brewers in Mosbach for generations. He himself was the oldest of 24 children and had emigrated to his uncle in Königsberg due to his lack of prospects in the extended family. His son Paul had studied chemistry in Heidelberg and graduated with a doctorate.¹²¹ At the age of 71, Johann Philipp had decided to sell his well-running brewery to his youngest brother and other partners, as none of his children wanted to take over the brewery.¹²² He is said to have become aware of Portland cement during a train journey from Königsberg to Heidelberg. A fellow traveller gave him the tip to invest his fortune in a Portland cement factory.¹²³ Without further ado, Schifferdecker bought the Bergheimer Mill in Heidelberg in bankruptcy proceedings on 10 January 1873. Together with his son Paul and son-in-law Rudolf Heubach, he converted it into a cement plant. After one year, in mid-1874, the company was officially en-

tered in the commercial register as a general partnership. However, the quality of the cement was consistently poor in the first year of operation and the product was returned by customers due to instability caused by magnesium hydroxide.¹²⁴ Thus, the first business year ended with a deficit of 150,000 Marks, as the partners lacked the necessary scientific education and technical knowledge.¹²⁵ The interview with Friedrich Schott must have been very satisfactory for the Schifferdecker family. As one of the few trained cement chemists of the time, Friedrich Schott apparently had an immediate idea of where the problem lay.¹²⁶ Looking back, his mother describes the situation of the Heidelberg Portland Cement Works, Schifferdecker & Sons as follows: "*The son [Paul Schifferdecker] had no experience yet, so they had made bad cement, which they got back in part, and were now in the greatest embarrassment. ... Fritz then accepted the offer but with the reservation that it would be up to him alone to do the analyses and the samples, otherwise he could not promise anything. ... They then worked according to his instructions and the cement got better and did not come back.*"¹²⁷



JOHANN PHILIPP SCHIFFERDECKER, founder of Portland cement plant Heidelberg, ca. 1880.

On 1 July 1875, Friedrich Schott joined the company as chemical-technical plant manager. The quality deficiencies of the cement were essentially due to an excessively high magnesium content in the raw material. His research into the behaviour of magnesia (magnesium carbonate) and his operational experience from Vorwohle quickly enabled him to identify the causes of the quality problems in the raw material. Until this point, farmers had been quarrying limestone on their plots of land and transporting it to the factory on a contract basis.¹²⁸ Through tireless diligence, Schott succeeded in finding more suitable raw material, which was almost free of magnesium, in the immediate vicinity of the Rohrbach quarries on Leimen's land as early as 1876.¹²⁹

Schott also systematically planned his private life. Friedrich had maintained a close circle of friends since his youth. He had a childhood friend Emma Fischer (*27.02.1852, †1.04.1928) in Seesen, but so far, he had not asked her to marry him. *"Since he was afraid that he might lose her if he left Seesen, he had already asked his father while he was studying and in Vorwohle. His father thought a*



VILLA OF FRIEDRICH SCHOTT, built in 1877 at Mühlenstrasse (today Fehrentzstrasse) in Heidelberg.

lot of him but advised him to wait with the engagement".¹³⁰

He was strongly encouraged to find a definite professional sphere of activity first. Apparently, the permanent job he secured at the Vorwohle cement factory since 1872 was not enough. He became engaged to Emma at Christmas 1875, because he was worried about losing her while he was working in Heidelberg. *"It was now decided to celebrate a triple engagement at Christmas. Now that Fritz was in such good standing, his bride's father had no objection."¹³¹* At that time, financial circumstances were not the best, so the wedding took place together with his two sisters Agnes and Helene. Friedrich married on 21 May 1876¹³², and a year later he built himself a spacious villa with a garden on his own land in Mühlenstraße, now Ferentzstraße, directly adjacent to the Heidelberg factory.¹³³ On 6 May 1877 his first son Otto (*6.05.1877 Heidelberg, †1.07.1916 Fricourt) was born. Two years later, his second son Ehrhart was born (*31.07.1879 Heidelberg, †19.04.1968 Heidelberg).¹³⁴

Scientific work in the Portland cement industry

30

During his employment at the Vorwohl cement works, Friedrich Schott was concerned with the synthetic production of the minerals in the cement clinker, which he believed were decisive for hardening. He attributed this to a lime silicate and found that hydrated lime precipitates in crystal form during hardening. The amount of water required for the setting process was also related to this. After further experiments to determine the release of hydrated lime in different solutions, he concluded that hardening takes place through the formation of different silicates, which vary depending on the burning process.¹³⁵ Of particular importance were his investigations into the effect of adding magnesium and gypsum.

He produced a synthetic silicate (2MgO SiO_4), from which he could deduce that magnesium in Portland cement was harmless up to a certain percentage. This finding was later useful to him at the Heidelberg cement works.¹³⁶ In order to improve the problem of the durability of concrete under the influence of sulphate ions from soils, exhaust gases or seawater, the effect of the sulphate ions had to be clarified precisely. The latter reacts with calcium aluminate and calcium

aluminate hydrates to form ettringite. This mineral has a volume eight times greater than that of the starting materials, resulting in a high crystal pressure that explodes the concrete structure.¹³⁷ In 1892, Wilhelm Michaëlis identified the so-called cement bacillus, ettringite drift.¹³⁸ Friedrich Schott then succeeded in demonstrating that the alumina (Al_2O_3), which is the starting product for the formation of ettringite, can be replaced by iron oxide, so that the Portland cement is not destroyed even by gypsum in high concentrations.¹³⁹

Friedrich Schott continued his scientific work in the following period, but since the foundation of the Association of German Portland Cement Manufacturers in 1877, he increasingly concentrated on cement standards and cement testing.¹⁴⁰ To this end, Friedrich Schott, along with Rudolf Dyckerhoff and Karl Goslich, also researched the correct grain size, chemical composition and size of the standard sand, which played a key role in the strength tests.¹⁴¹

From 1897 onwards, the four most important clinker minerals had been described. Further fundamental studies on mineralogical phases in three-component systems had been



FRIEDRICH SCHOTT AND HIS SECRETARY in the management office in Leimen, 1900.

published in 1915.¹⁴² Friedrich Schott therefore also devoted himself to the crystallisation processes during hardening. In 1921, he demonstrated on thin cement slabs laid on top of each

other and hardened in water that they can grow together due to hydrated lime crystals that form between them, and that monocalcium silicate is precipitated.¹⁴³

Expansion of the Heidelberg plant

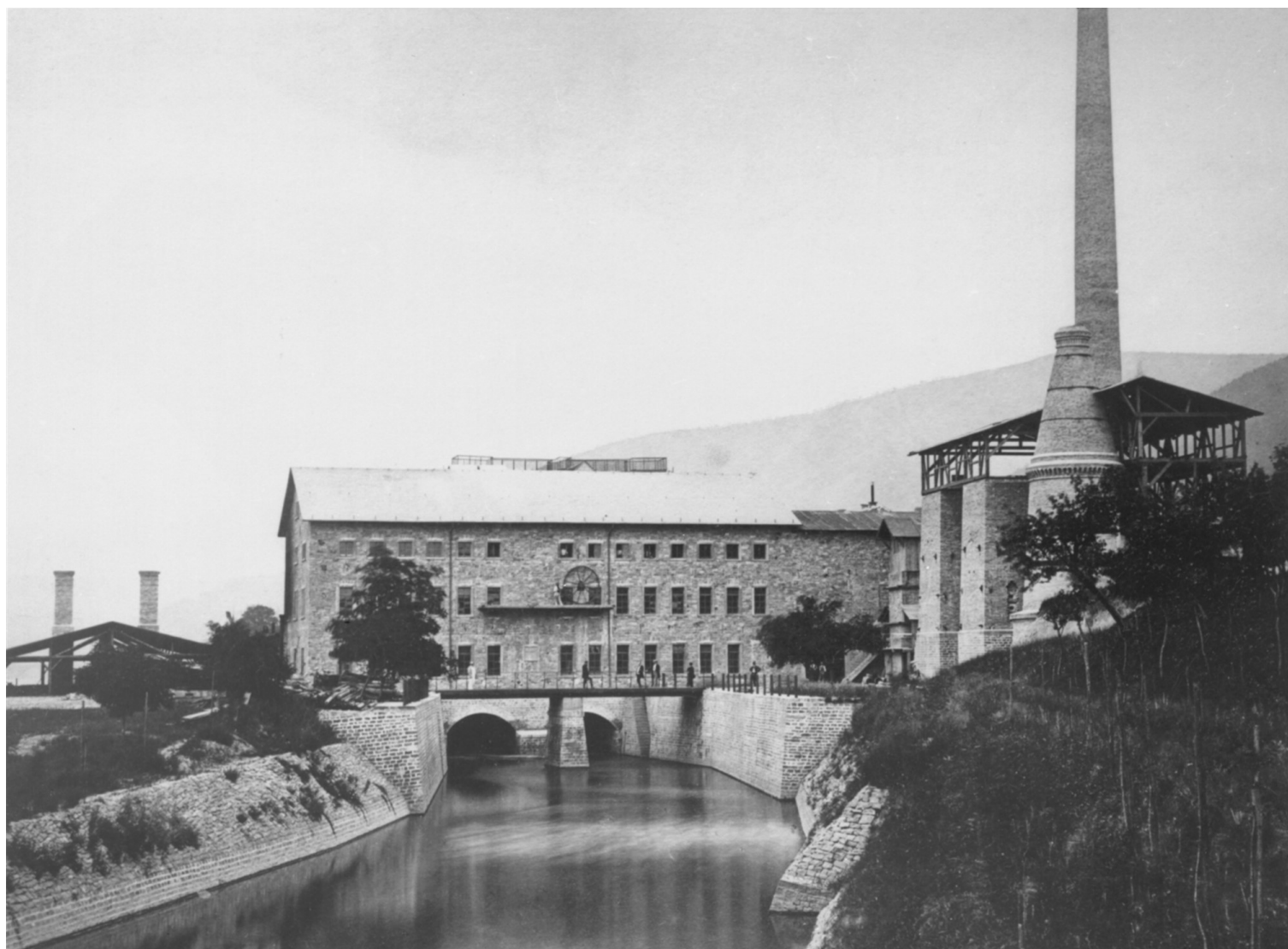
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Friedrich Schott's first measures improved the quality of the cement considerably, so that a stable customer base was established within a short time. The production conditions were initially very manageable. When Schott joined the family company, there were approximately three shaft kilns in operation. Production was increased in the first five years simply by increasing the number of shaft kilns to nine.¹⁴⁴ Once income had become stabilised, the first major investments could be made. Schott fundamentally changed the production process in 1880. Here he was able to apply his knowledge from Vorwohle. He had a Hoffmann ring kiln built with Dorsten dry presses, resulting in significant fuel savings. However, the dry process resulted in higher dust emissions. The increase in production capacity also required adjustments to the quarry operations. In 1879, therefore, the entire quarry operation had already been converted to the Rüdersdorf fall operation and run under the quarry's own management. A major investment was the connection of the quarries to the main railway line in Kirchheim in 1881.

In the mid-1880s, Portland cement consumption increased sharply

while prices fell. Schott reacted by continuously investing in machinery and additional ring kilns. In particular, the power requirement had to be increased by new turbines and steam engines, as waterpower was no longer sufficient. Productivity and cement production increased by leaps and bounds to 369,342 barrels (66,482 tonnes) in 1888.¹⁴⁵ In the first 15 years of operation, the number of workers had grown from about 30 to 668. The first surviving wage books from 1887 show that only German workers were employed in the cement plant. In addition, a large proportion of them were day labourers. It was common for many to be laid off in the winter and then not rehired until spring. The work in the ring kilns was heavy labour in great heat and, as in the quarry, was paid on a piecework basis. Currently, Schott did not have any particular social responsibility towards the workers, because the factory only had very primitive sanitary and social facilities. This was to change fundamentally in later times.¹⁴⁶

Meanwhile, there were drastic changes in both Schott's and the founding family. At the age of 75, Friedrich's father, Emil, suffered pneumonia and remained debilitated.¹⁴⁷ He



RAW MILL BUILDING built by Schifferdecker presumably in 1875, today club house of the rowing club Heidelberg 1898 e. V., 1875.

died in Brunswick on 29 October 1886.¹⁴⁸ Two years before his death, Emil wrote a will favouring his wife Louise and his children. He granted his wife usufruct for life, and after her death Friedrich was to distribute the money to the siblings. In the process, allowances already paid for education were to be offset. This equalisation of inheritances reflects Emil's great sense of justice. It was also important to him that his wife Louise was provided for.¹⁴⁹

The family of Julius Schottländer (*28.08.1815 Berlin, †1.07.1874 St. Petersburg), Emil's brother-in-law and cousin, had close family ties to the Schott family. He had financially supported Emil's ventures and the educa-

tion of his daughters. After his sudden death, Sophie Philippine Therese, née Schott (*5.11.1815 Seesen, †25.11.1887 Heidelberg) sold the villa in Nice and left St. Petersburg. Since her youngest son Julius Gustav Adam (*12.04.1860 St. Petersburg) had studied medicine in Heidelberg and had become an assistant doctor in the gynaecological clinic in the meantime, she also moved there in 1887. Friedrich had found her a large house in Rohrbacher Straße 57. Sophie bought the house primarily to provide for her daughter Ella Gabriele Mathilde, who was disabled by meningitis (inflammation of the brain).¹⁵⁰ Sophie herself only lived there for a short time and soon died. As executor of Ella Gabriele Mathilde Schottländer's

will, Friedrich sold Rohrbacher Straße 57 after her death on 14 November 1921 to Portland-Cement-Werke Heidelberg - Mannheim - Stuttgart AG, which used the building as an administration building until 1963.¹⁵¹

About a year after Emil's death, on 1 October 1887, Johann Philipp Schifferdecker died. The company then transformed itself into a public limited company on 17 March 1888. The new company "Portland-cementwerk Heidelberg vormals Schifferdecker & Söhne Actiengesellschaft" was entered in the commercial register only a few days later. The share capital initially remained in the Schifferdecker family. In addition to Friedrich Schott, Otto Hornung and Otto Wagenbichler were appointed to the board of directors. With the death of Johann Paul (*14.01.1846) on 24 July 1889 and Rudolf Heubach (*1838) on 24.01.1895 in Heidelberg, the founding generation had ceased to exist. As a result of continuous capital increases, the Schifferdecker family gradually disappeared from the supervisory board.¹⁵²

The Heidelberg factory had grown considerably over the years and restrictions due to its proximity to Heidelberg became increasingly no-

ticeable. Surrounding the factory was not only the botanical garden, which had only just been relocated there, but also a clinic. Protests about smoke and dust nuisance were triggered by the submission of a planning application for a second ring kiln. As a result, new facilities were subject to stricter licensing requirements. In 1888, cement prices fell drastically. As a result, a 'cement goods factory' was opened on the site as an expansion.¹⁵³

Louise continued to live a busy and frugal life; this is also evident when Friedrich provided her with money. She generally only wished to accept during extreme emergencies.¹⁵⁴ Louise thought about where she would end her "laborious life" and decided to move in with Friedrich in Heidelberg.¹⁵⁵ She enjoyed the little things. She especially enjoyed the garden that adjoined Friedrich's house in Heidelberg. From her memoirs it can be concluded that she came to Heidelberg in April 1893. At the beginning, however, she was not alone, but lived for another year and a half together with her daughter Emma in the flat that Friedrich had made available to her near his house.¹⁵⁶

The Heidelberg mill continued to expand its capacity until the night



Cement mill building at the millrace **AFTER THE FIRE** of February 4, 1895.

of 4th to 5th February 1895, when the largely wooden constructed mill was destroyed by a devastating fire. Only the mill building, the ring kilns and steam engines remained standing. Louise had a good view from her flat in Bergheimer Straße.¹⁵⁷ She describes in her memoirs how she experienced the fire. *"With the house, the danger was not so great, but the factory was lost. After the steam engine was installed, long belts were led from it around the whole factory, including the cooerage. The fire must have been caused by a short-circuit, and with the belts it spread throughout the whole factory, so that it burnt out that night except for three high chimneys."*¹⁵⁸

The damage, which amounted to millions, was covered by the insurance company. Following this, Schott immediately tried to get permission to rebuild so that it could continue to supply customers. Since, as already mentioned, there were repeated protests about smoke and dust nuisance, this undertaking was not exactly easy. An agreement was reached with the city of Heidelberg that the administration of the factory would remain in Heidelberg for another 15 years and had to pay an annual fee of 20,000 marks. The provisional resumption of operations was approved.¹⁵⁹ However, production was to be relocated to Leimen.

New construction of the Heidelberg Portland Cement plant in Leimen

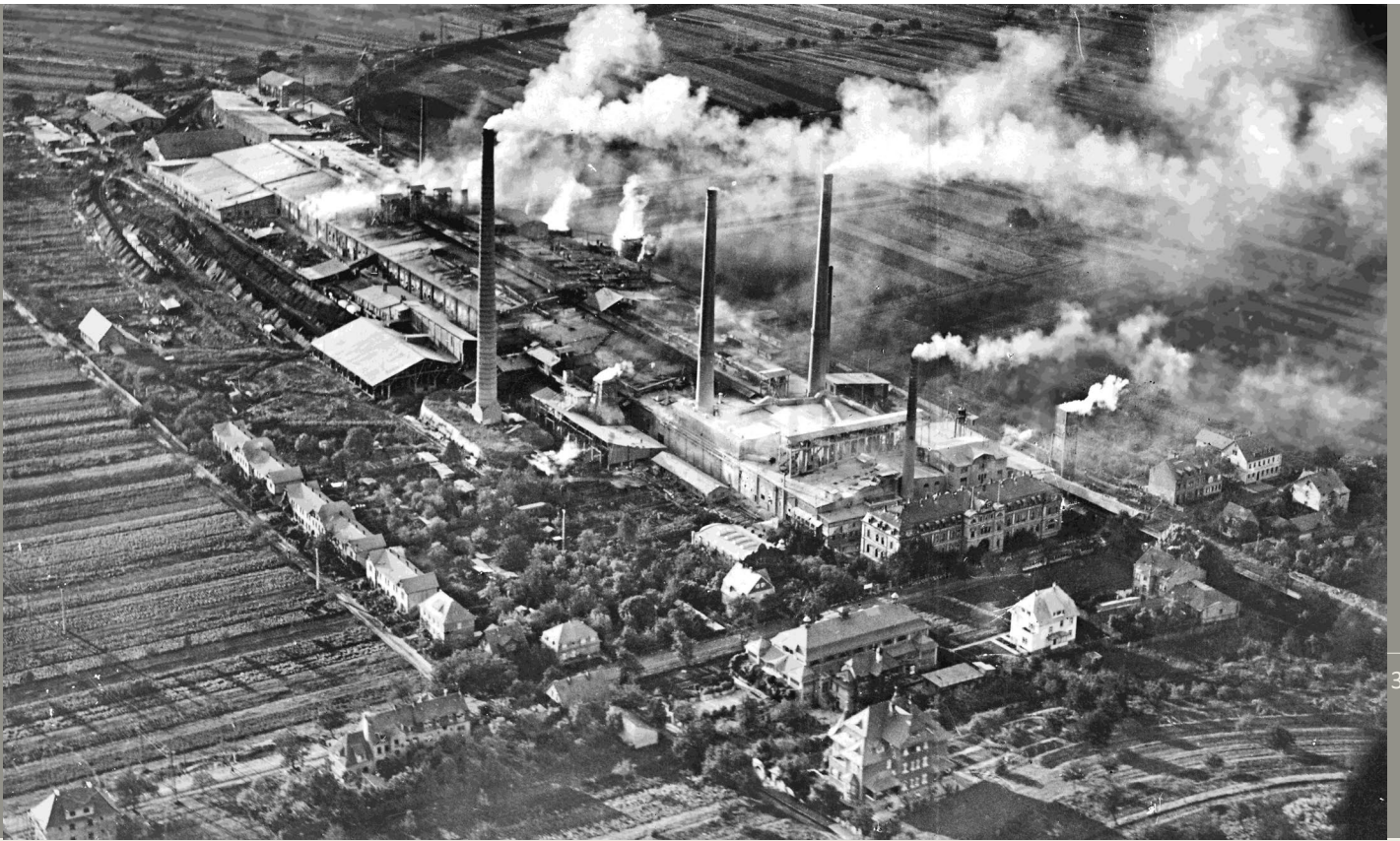
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The new plant in Leimen was built within two years and was the largest industrial building in the German Empire.¹⁶⁰ During construction, care was taken to ensure that buildings at risk of fire, such as the cooperage, were built outside the site.¹⁶¹

For the new building, Friedrich Schott needed an engineer to draw up the detailed plans and supervise the assembly. For this, he brought his brother Otto Benjamin Sylvester (*31.12.1869 Seesen, †15.05.1937)¹⁶² from Frankfurt. Otto was working there on behalf of the Stuttgart steam



ADMINISTRATION BUILDING of the cement plant Leimen, Rohrbacher Strasse 95, 1900.

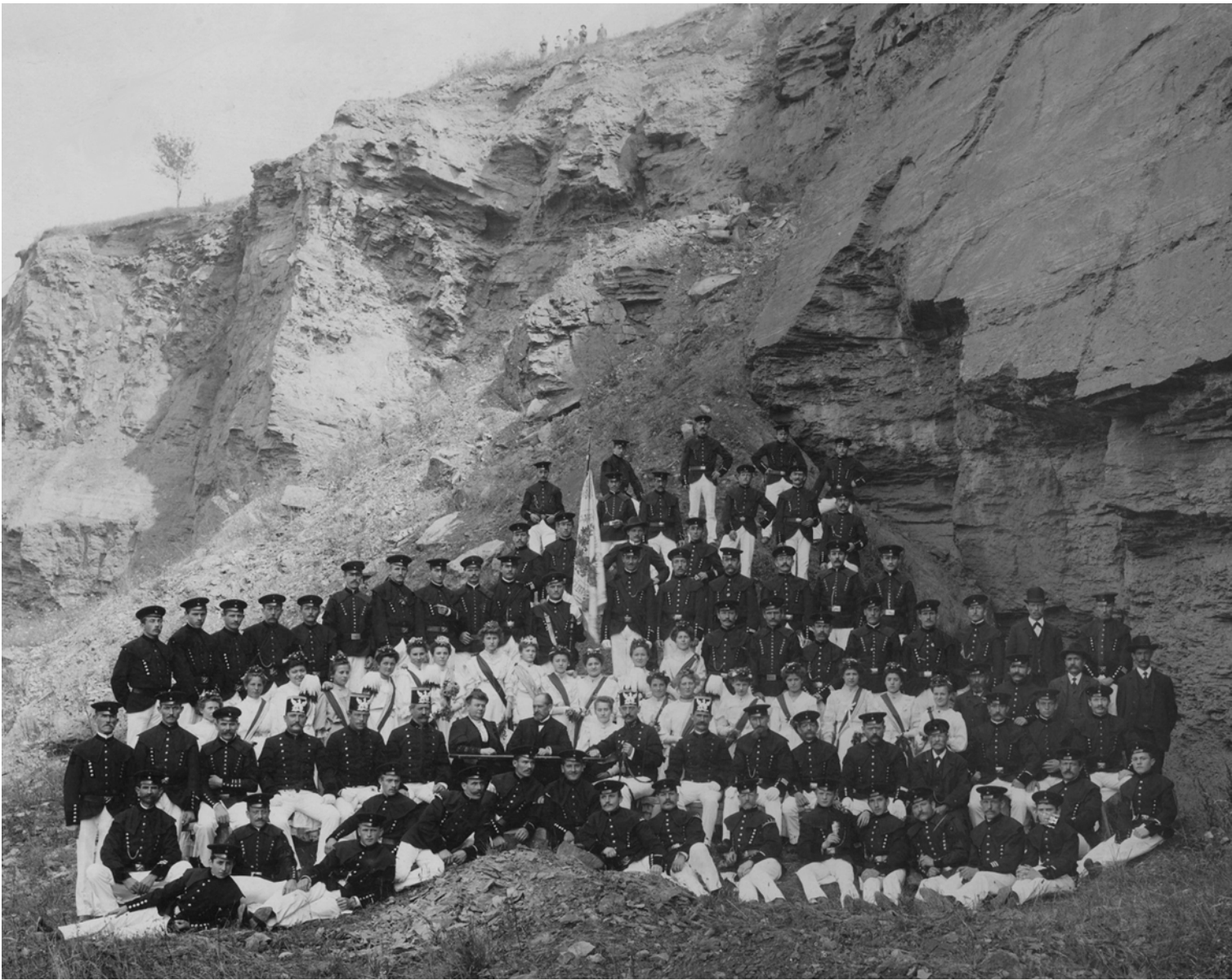


Aerial view of the **CEMENT PLANT IN LEIMEN**, ca. 1937.

engine factory Kuhn. Friedrich had already discussed plans to hire Otto during a walk with his mother in January before the fire.¹⁶³ Otto supervised the locksmith's shop with great dedication, often from 6 in the morning until 12 at night, because he feared he would not be able to meet his brother's demands. *"Otto did not have it easy. Since it was a completely new plant, it was natural that some projects did not work out and a lot of work was done in vain. Otto was also kept away from suppliers and had to take care of the repair shop. There were also new mills that had come into operation, which he did not know yet, and then there were repairs, so he often could not work undisturbed for days. Since the new factory was to be built entirely of iron and cement, it had to be calculated very precisely and fit, which was hardly possible with all the disruptions."*

Production started at the end of 1895.¹⁶⁴ Transport routes were opti-

mised, as was the flow of materials. This led to the factory in Leimen becoming not only the largest, but also one of the most modern in the German Empire. As in the Heidelberg factory, heat-saving ring kilns were also built in Leimen. However, these required many workers who were not readily available locally. For this reason, many Italians were recruited for the work.¹⁶⁵ Despite the latest construction methods, the factory in Leimen soon reached its capacity limit. In order to keep production high, it was important to install another, more efficient furnace.¹⁶⁶ After a few years, Schott decided in 1902 to replace the still relatively new ring furnaces with automated waste heat rotary furnaces. He also had a patent for the use of waste heat in steam boilers. In this way, he achieved kiln efficiencies of 33%, which had hardly been reached in the cement industry until then.¹⁶⁷ His elder son Otto (named after his uncle) also worked as a chemist at the Lei-



GROUP PICTURE OF MINERS in uniform and flag in the quarry Leimen on the occasion of the celebration of St. Barbara, in the middle **FRIEDRICH SCHOTT WITH HIS WIFE EMMA**, 1895.

men plant. From 1906, he managed the Offenbach Portland cement factory that had been acquired.¹⁶⁸ In 1907, Friedrich Schott's son Ehrhart became a plant chemist in Leimen. He became deputy plant manager in March 1911 and was appointed to the Managing Board in 1916.¹⁶⁹

Before the beginning of the First World War, the production capacity reached 185,000 tonnes, still making it one of the largest cement plants. The First World War resulted in a sharp drop in production, as the markets collapsed. However, the low point had not yet been reached in 1918. The empire was in transition to a

republic, and the social question became more and more important. Workers' councils and trade unions were formed in the factories with the aim of creating legally regulated working conditions for the entire cement industry.¹⁷⁰ An improvement in average wages had already been achieved in the period since the foundation of the joint stock company in 1889. Since then, wages had risen by almost half (until 1909). However, a significant improvement only occurred in the period 1924 to 1929.¹⁷¹ This was only possible due to the increasing influence of the trade unions and massive rationalisation in the cement industry.

Organiser of the German cement industry



FRIEDRICH SCHOTT,
1900.

Between 1895 and 1914, numerous cement factories were founded, which ultimately resulted in production outpacing demand. At the time of the foundation of the Heidelberg plant, in 1873, the cement price had reached its peak. It fell continuously until 1906. At the same time, sales volumes stagnated, which meant that production had to be carried out at cost price. Due to high fixed costs and the equal value of the standardised product, ruinous competition arose in the 1890s as a result of wild price undercutting. This led to rationalisation measures in the factories, but also to closures and company takeovers.¹⁷² Friedrich Schott had achieved significant progress for the Portland cement industry in cement research and in the technical field. In the economic battle of all against all, however, he saw a waste of resources and the downfall of the cement industry. Syndicates were not forbidden in the Empire, and so he first sought a price agreement with the most important South German manufacturers. He succeeded in establishing a clearing and cost centre at the end of October 1894 to monitor the price conventions. The factories undertook to report the monthly shipment quantities to Heidelberg.¹⁷³ The

conventions led in several steps to increasingly fixed forms of contract. Friedrich Schott was always in the position of leadership. On 21 January 1904, the "Süddeutsche Cement-Verkaufsstelle GmbH (SCV)" was formed as a completely new syndicate of 26 plants, which became a model for other sales associations. This had its headquarters in Heidelberg and was based on the South German Association founded in 1893.¹⁷⁴

Tenacious perseverance and the gift of persuasion were necessary to bring the conflicting opinions together to form a common approach. Schott had also been involved in the formation of the Rhenish-Westphalian Cement Association. Ultimately, the entire syndicate system of the German cement industry at that time was based on his suggestion. The foundation of the "Centralstelle zur Förderung der Deutschen Portland-Cement-Industrie" (Central Office for the Promotion of the German Portland Cement Industry) in 1911, which became the "Deutscher Zement-Bund" (German Cement Association) during the war in 1917, is also largely due to his efforts.¹⁷⁵

At the association level, Schott had been auditor in the Association of

German Portland Cement Manufacturers since 1887. In 1899, he took over the chairmanship from Dr. Hugo Delbrück for ten years. During this time, he built the association laboratory in Karlshorst and pushed ahead with the revision of the standards. He finally succeeded in enforcing them against great opposition.¹⁷⁶

Parallel to his presidency, the Heidelberg company expanded by taking over several plants.¹⁷⁷ A significant step was the merger with the Mannheim-Portland Cement Factory in 1901.¹⁷⁸

Against the background of the decline of the cement industry during the First World War, Friedrich Schott offered the merger to the Stuttgart real estate and construction business¹⁷⁹, which was about the size of the Heidelberg Group. Intensive connections had already existed with this company for decades. In August 1918, Schott succeeded in persuading the Stuttgart company to sign a merger agreement.¹⁸⁰ At the age of 69, Friedrich Schott retired from the company's board of directors in 1919. However, he continued to be active as a member of the supervisory board, serving as its chairman from 1923.¹⁸¹



GOLD COIN in commemoration of the celebration of the 50th anniversary of the Association of German Portland Cement Manufacturers, 1927.

Schott's welfare institutions

Friedrich Schott was a staunch opponent of social democracy. When a debate in the Baden Estates Assembly on the introduction of unemployment insurance in 1914, he reiterated his earlier position on workers and claimed to represent only the interests of the state. *"Thus, I am clear from the outset that on the part of Social Democracy my remarks will be described as dictated by the point of view of interests, but the calmly reflecting*

and self-thinking worker will agree with me."

He distinguishes between three types of unemployed, namely those who did not want to work and lived off the charity of fellow men: *"In my opinion, these people do not deserve the honorific title "worker".*" In the second group he includes seasonal workers and occupational groups dependent on the weather, who are well paid and do not need additional sup-



WORKER'S HOUSE at Kieslochweg in Leimen, 1900.

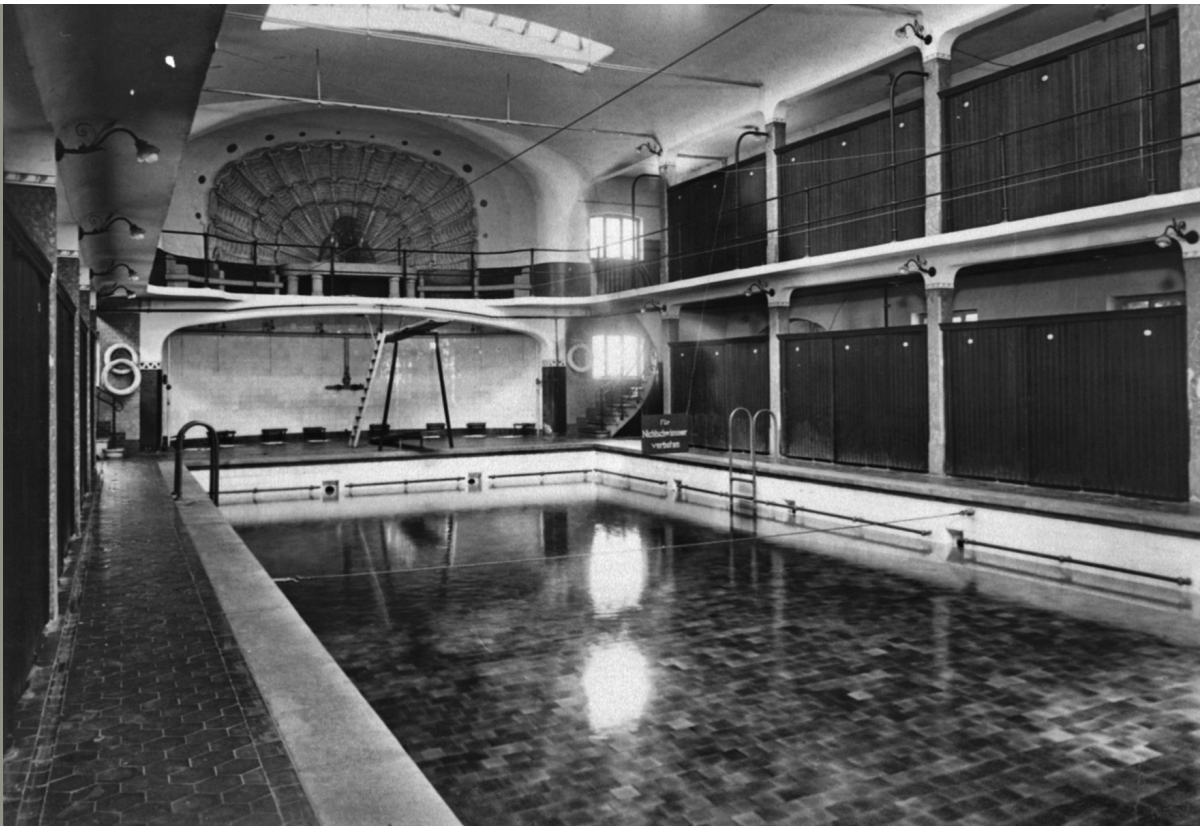
port. Finally, he sees the largest group in the 'changers', who changed jobs voluntarily and, in his view, completely unnecessarily. "I firmly believe that most workers do not want a handout. I see in such alms-like support a weakening of the moral strength of our people, in which in former times the saying was generally valid: *self is the man!* In my opinion, however, welfare cannot be met by insurance either, for the first

basis for this is lacking the same interest and the same risk. The industrious workers who regularly stick to their work would certainly soon refuse to pay for the 'migratory birds'."¹⁸² Based on these convictions, he developed a system of welfare institutions as a political defence.

As already mentioned, only simple sanitary and insignificant welfare facilities were available at the Heidel-



CHORAL SOCIETY OF THE ASSOCIATION OF MUNICIPALITIES OF THE CEMENT PLANT LEIMEN in front of the south entrance of the festival hall (Friedrich Schott, first row in the middle; Otto Schott, first row second from the right side), 1914.



Art nouveau **INDOOR SWIMMING POOL OF THE PLANT**, ca. 1935.

berg cement works. The workers were almost without exception of German descent. For the new, much larger factory in Leimen, numerous foreign workers had to be recruited. The working hours were twelve hours with alternating shifts. Since the work, especially in the quarries, was paid on a piecework basis, family members also helped if the worker could not manage the workload.¹⁸³ The isolated location on the border of the Heidelberg district in the rural area also changed the social situation of the workforce. In addition, there was the proximity to the Fuchs wagon factory in the Kirchheim district, whose workforce was well organised.

Friedrich Schott was also an outspoken opponent of the trade unions. In a later leaflet circulated during the 1923 Reichstag elections, he wrote a statement typical of him in response to a newspaper article by a trade union secretary: "*What some understand by Volksgemeinschaft. Coercive*

measures in the Kingdom of Schott". He blamed the trade unions for the inflation and appealed to the workers: "What have you gained from your cash contributions [trade union fees]? ... Whoever tells you that you can achieve happiness and prosperity in any other way than through work, diligence and thrift, do not believe him, he is lying to you!"¹⁸⁴

In order to counteract the increasing trade union influence and the high turnover of workers, Schott created various well-thought-out factory facilities.¹⁸⁵ During his 25th anniversary of service in 1900, he had twelve houses built from his private fortune for "well-behaved deserving workers". After several years, he had set up various welfare institutions to discourage the growing unionisation.¹⁸⁶ In addition, a canteen was introduced on the factory premises in 1906 and an indoor swimming pool a year later, as well as various welfare funds and benefits in 1907. In 1909 the large work-



FESTIVAL HALL, ca. 1937.

ers' festival hall was built, the construction of which related to the workers' association founded in 1903. Above the entrance to the festival hall was a relief of two intertwined hands, symbolising the unity between entrepreneurs and workers.¹⁸⁷ Through this association, which soon had several hundred members, Friedrich Schott also influenced the workforce outside working hours.¹⁸⁸

In addition to creating factory facilities, Friedrich Schott also donated anonymously to public cultural and welfare institutions. He is likely to have donated a large amount to the establishment of the Heidelberg public library in 1904. He also donated a plot of land to the city for the construction of a hospital.¹⁸⁹ Friedrich Schott donated the Consul Reinhard Papyrus Collection to the University of Heidelberg in memory of his grandfather, Benedikt, who was also a renowned Egyptologist.¹⁹⁰



80TH BIRTHDAY OF FRIEDRICH SCHOTT at the hotel Europäischer Hof in Heidelberg. Friedrich Kirchhoff, Friedrich Schott, Fritz Brans, 1930.

Political Commitment to the National Liberal and German People's Party (DVP)

Friedrich Schott was a man of principles from which he did not deviate throughout his life. This can be read out in unison in practically every tribute and all lore. As has already been shown, his pietistic striving sprang from the education he received from his mother. He owed his father not only his interest in chemistry, but also his social, permissive attitude, which sprang from Emil's Jewish character. Emil's wife Louise quotes a statement by Emil's landlord in Kreiensen after the sale of the brickworks: "... he was far too good and trusting towards people, and they cheated and stole from him. Many people would miss him," Louise added, "... I knew very well that he was very right about that." Indirectly, she admits that she would have behaved differently.¹⁹¹

Life in the extended family demanded certain consideration from Friedrich, but as the eldest he was also able to assert himself. At the end of her memoirs, his mother describes her son Friedrich as a person who would always have done good despite ingratitude: "Unfortunately, he has also reaped a lot of ingratitude, but that doesn't stop him from always doing good, in that he is superior to me, because I can't easily forget when some-

one has been ungrateful and impertinent."¹⁹²

In comparing the two quotations, it becomes clear that Friedrich's basic social attitude corresponded to that of his father. In Louise's postscript, however, it becomes clear that she certainly advocated subordination and gratitude. As will be shown, Friedrich's behaviour as a promoter was also demanding towards others. The measure was his own steep career, which he essentially saw as a result of his own skill and diligence. He took a guiding principle of his life from Goethe's *Singspiel Lila* (see appendix).¹⁹³ Goethe's play is about Lila's delusions, which blind her to reality. With the gradual introduction to reality, a psychic cure, she is cured. This thought probably captivated Schott all his life, namely, instead of complaining and closing oneself off to realities, to face up to fate and fight. Help would then come of its own accord. This led him to take irreconcilable positions in his dealings with political opponents and the trade unions. Accordingly, he pragmatically relied on patriarchal welfare concepts on the one hand and economic mergers on the other. He also shied away from femininity as a weakness, as the poem shows. His



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PRIVY COUNCILLOR OF COMMERCE

Dr. Eng. h.c. Friedrich Schott, 1930.

professional success, his function as head of the family after his father's death may have reinforced his attitude. Except for his mother, whom he idolised, and his wife Emma, he had few relationships with women. He often had strained relations with his sisters.

Friedrich's political interest was probably aroused by his father, who, as mentioned, was enthusiastic about the German Revolution of 1848. Disinterest and a restrained aloofness towards her husband's political views is noticeable in his mother Louise, when she used to say: "[Emil] was a hopeless democrat".¹⁹⁴ There is no evidence of when Friedrich first became politically active, but he eventually found his political home with the National Liberals and their successor organisation, the German People's Party, during the Weimar period. His patriotic attitude for the German Empire becomes clear

Gunn
 August Post
 mit bestem Danke und
 der Bitte sich wieder einmal
 unserer Freundschaft zu erinnern.
 Heidelberg den 10. April 1927
 Friedrich Schott

POSTCARD of Friedrich Schott,
 April 10, 1927.

in his voluntary registration for military service. With his position as director of the Heidelberg Cement Works, he also belonged to the circle of dignitaries that constituted the National Liberals.

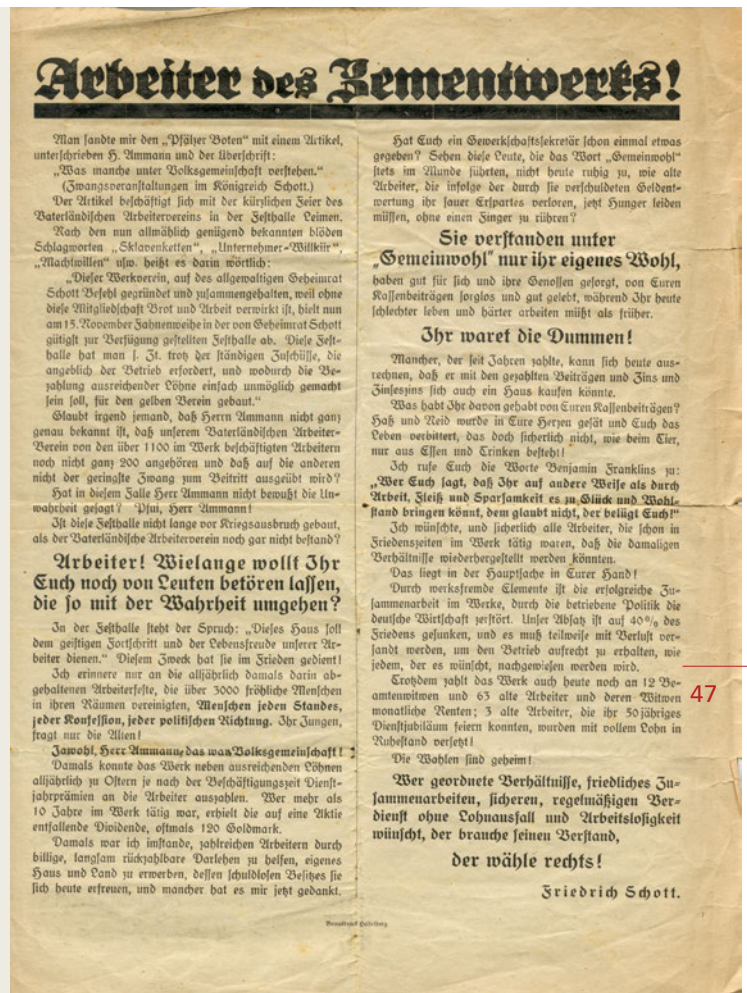
During Friedrich's time as a student, the National Liberal Party was founded in 1867 as a split from the German Progress Party. It particularly represented the interests of the national-Protestant educated and propertied bourgeoisie. For over a decade it was the strongest parliamentary group in the Reichstag. Its economic policy focused on the establishment of a modern industrial state. It followed Reich Chancellor Otto von Bismarck in the Kulturkampf, and to some extent in the introduction of the Socialist Laws. The conservative wing finally swung completely to Bismarck's line in the Heidelberg Programme.¹⁹⁵

In Baden in particular, the Kulturkampf staged by the Catholic Church in the 1860s and 1870s led to a closing of ranks between the National Liberals and the Grand Duke.¹⁹⁶ As will be shown, Friedrich was a supporter of Bismarck and especially of the Baden Grand Duke. The exclusion and persecution of social democracy, the

formation of class antagonisms and the social polarisation of society had led to sharp antagonisms between trade unions and employers. The census suffrage, moreover, denied the working-class participation in bourgeois democracy.

Friedrich only became politically active, however, with the construction of the new cement plant in Leimen. Wherever he could, he opposed the trade unions in an often polemical, sharp tone. He made the workers dependent on him by providing company flats, which had to be vacated immediately if they lost their jobs, and by a system of seniority bonuses. The seniority bonuses, which increased with each year, were only paid if there were no unexcused absences: *"I had no strikes for 45 years, the little word 'uninterrupted' had a good effect. People who could safely count on M 100 to M 120 at the end of the year did not go on strike, because otherwise they would have to work another 10 years before they could get that again. Of course, we always listened to reasonable demands."*¹⁹⁷

This "Schott system" or "Schott kingdom" made him hated by trade unions and social democrats alike. In a letter during his 50th anniversary of



Pamphlet of Friedrich Schott concerning the **REICHSTAG ELECTION**, 1923.

service he showed a pronounced class consciousness: *"We had a nice party in our workers' festival hall. When the Grand Duke's congratulatory telegram was read out, the hall, filled with more than 1,000 civil servants and workers, was filled with general shouts and clapping of hands, and when I entered the hall again at 12 o'clock at night with my wife, in which more than 1,000 people were happily celebrating, great jubilation broke out and spontaneously the Germany song was sung standing up. That is much nicer than class struggle and class hatred."*¹⁹⁸

As will be explained, Friedrich was prepared to "always listen to reasonable demands". In 1905 he founded a workers' committee, which existed until 1919, in which workers could present grievances as petitioners.¹⁹⁹ It

then decided alone on the fairness of the demands. His top priority was the unconditional fulfilment of duty and obedience, whereby "well-behaved and deserving workers" who kept away from "stranger[s], discord[ing] influences" could benefit from his welfare institutions.

In the first meeting, Friedrich Schott made it clear how important it was to maintain the harmony that had existed for many years between workers and company management. It was in his interest to resolve problems directly with the workers and not in a roundabout way via the trade unions. However, he did not deal with the worker personally, but listened to the problem.²⁰⁰

He himself also saw his activity, albeit in a different class, as pure fulfilment of duty. On 9 January 1931, shortly before his death, he wrote in a letter, referring to a Bismarck quote, that he wanted to work until the end: *"Even if I had long since become old iron, I still hope to be able to work for a few more years in these bad times. A good horse dies in the sills [meaning in the work harness]" I fear, however, that I will hardly experience the recovery of our economy.*"²⁰¹

In his lifestyle, Friedrich Schott

was ascetic: *"He didn't smoke, didn't drink much, and yet he wasn't a killjoy, but always had fun with others."*²⁰²

That gave him credibility. His perseverance in pursuing his goals together with his successes brought him recognition. Even his bitter opponents paid him respect.

Weber analyses the relationship of the modern business ethos with the rational ethics of ascetic Protestantism. According to Weber, the character of entrepreneurship is primarily Protestant, because Protestants would have tended to follow a technical school career.²⁰³ This is also applicable to Friedrich Schott. Also, his way of seeing the interaction with the workers is Protestant in character. As already mentioned, he expects "well-behaved" workers who did not instigate any strikes and obediently did their work.

As leader of the National Liberals in the Heidelberg-Wiesloch constituency, he ran in autumn 1913 against Georg Pfeiffle of the SPD, who had been victorious in this constituency since 1905. Surprisingly, Schott carried off a clear victory and entered the Estates Assembly of the Baden Landtag on 27 November 1913. His party friend,



Son **OTTO SCHOTT**, 1915.

Christian Bitter (*30.10.1878 Rohrbach, †24.05.1950 Heidelberg), mayor of Rohrbach, thanked him in a long passionate letter: *"You have given us, dear party friend, a shining example of willingness to sacrifice and willingness to work in the service of our national-liberal party, which we will always strive to emulate. [...] We hope that the brilliant victory will offer you a small compensation for the many adversities, inconveniences and disturbances which are all the more apparent in your case because you are engaged in the most strenuous professional work."*²⁰⁴

The preserved speeches in the state parliament show Friedrich Schott as a committed industrialist. He voted against unemployment insurance because, in his view, as already mentioned, many workers would only become unemployed because they left their jobs unnecessarily - instead of doing their duty.²⁰⁵ However, the speeches also illustrate



Son **DR. EHRHART SCHOTT**, ca. 1928.

Scott's ambivalent attitude towards the war. He criticised the fact that a lot of money was available for the war, but not for civilian tasks: *"Only the war with its bonds ... has taught us to reckon with large sums of money, yet for the so important peacetime work of canalising our rivers the values would suffice which are now being blown into the air on our western front in a few days."*²⁰⁶

From his point of view, the First World War again demanded a sense of duty and sacrifice. His two sons Otto and Ehrhart were deployed on the front line in France. A few days before Otto's death, he was still writing cheering letters to his parents. It is remarkable that Friedrich Schott and his wife Emma agreed to publish the very personal letters in the trade journal *Tonindustrie-Zeitung*.²⁰⁷ Was this a call to persevere and show a willingness to make sacrifices?

The post-war situation with revolutionary turmoil particularly challenged Schott's fighting spirit, as the left-wing parties he hated were on the rise. His party friends paid him respect for this: *"When after the revolution many of our German citizens hung their heads and no longer showed any power of resistance, the almost seventy-year-old still governed with almost youthful freshness and thus saved many things that would otherwise have been lost"*.²⁰⁸ When his son Ehrhart was attacked by an angry workforce in 1919, he intervened and calmed tempers. But he could also become quite combative and aggressive against political opponents. Thus, he reported retrospectively in a letter to Bergrat Proeschel: *"In the worst time after the revolution, I was informed one day by telephone by our Lord Mayor and the battalion commander that the Social Democrats wanted to storm my house and offered military help. At that time, I explained to the gentlemen that I was used to defending myself if attacked, that I would forego protection and would shoot as a hunter with Sauposten [large-calibre shotgun pellets]. Just make sure there are enough ambulances. On that the cowardly fellows stayed away."*²⁰⁹ At this time, Friedrich

Schott was a member of the German People's Party, which had largely emerged from the National Liberals. During the course of the 1920s, however, the party split several times. Anti-Semitic tendencies within its own ranks and the increasing competition from the DNVP and NSDAP finally led to the DVP's irrelevance in 1932 and its eventual cooperation with the NSDAP in 1933.²¹⁰

In reaction to the anti-Semitic propaganda before the elections to the National Parliament in 1929, Friedrich Schott signed several appeals against discrimination against Jews, among others at the 'Verein zur Abwehr des Antisemitismus' or 'Association for the Defense against Anti-Semitism'.²¹¹ In Heidelberg especially, Dr Arnold Ruge, as spokesman for four reactionary parties, the German National People's Party, the Protestant Social Party, the Baden Peasants' League and the Free German Citizens' League, had stirred up sentiment against Jews. He distributed a leaflet of the 'Federation for the German Family and People's Power' in Karlsruhe, which spoke, among other things, of Jewish shirkers in the war and war usurers. The Verein zur Abwehr des Antisemitismus coun-



FRIEDRICH SCHOTT WITH WIFE EMMA at Mühlenstrasse 8 (today Fehrentzstrasse) in Heidelberg, 1925.

tered this with its own leaflet. In response to Ruge's insinuations about pogroms, it warned: *"If the German people - which we never believe ... let themselves be carried away to pogroms, then the blame for this disgrace would not fall back on the Jews, but on you, Mr Ruge and your ilk."*²¹²

The death of his wife Emma, née Fischer (*27.02.1852 Seesen, †1.04.1928 Heidelberg)²¹³ had a deep impact on Friedrich. Two years earlier he had celebrated the golden jubilee of his marriage with her. With her death, the perception of his surroundings also changed. He argued with the new board of directors and over-

stepped his authority as chairman of the supervisory board. He also used all his authority to push through the dismissal of the executive board member Dr. Carl Vogel against all others on the supervisory board. In the process, he also fell out with his brother Adolf Schott, who refused to support him in this matter.²¹⁴ The turmoil eventually led to health problems, including several heart attacks.

Appreciations



Commemorative coin of the German cement federation due to the **50TH WORK ANNIVERSARY** of Friedrich Schott, 1925.

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Friedrich Schott lived a full but also busy life, receiving numerous honours for his achievements. He is praised above all for his merit in saving the Heidelberg cement plant from 1875 and the subsequent construction of the Leimen plant. In 1906, he was therefore appointed Kommerzienrat and a few years later, in 1911, at a jubilee celebration of the Deutscher Handelstag, he was awarded the title Geheimer Kommerzienrat.²¹⁵ For Friedrich Schott's 70th birthday, an article about his life was published in the *Tonindustrie-Zeitung*. There he is described as energetic, hard-working and a man with commercial vision. *"What he tackled succeeded, what he set as a task was solved."*²¹⁶ The Technical University in Braunschweig, where he once graduated, also celebrated him for his achievements. For example, he was awarded an honorary doctorate for pioneering achievements in the German cement industry on his 80th birthday and from then on bore the title Dr. Ing. h.c. (honorary doctor).²¹⁷ Friedrich Schott also became Honorary Chairman of the Association of German Portland Cement Manufacturers, as well as becoming an honorary citizen of Leimen on 1 January 1925.²¹⁸ A few months later,

the city of Heidelberg also decided to award him this title on his 50th anniversary of service. The decision was made by the city council with 14 votes to 6.²¹⁹ Furthermore, he received various medals of honour.²²⁰ Today, there are still streets and a bridge in Heidelberg and Leimen named after him: Friedrich-Schott-Straße in Heidelberg-Pfaffengrund, Geheimrat-Schott-Straße in Leimen or Friedrich-Schott-Brücke in Eppelheim-Pfaffengrund.²²¹ Friedrich Schott died in Heidelberg on 20 February 1931. He was buried in the cross denominational Bergfriedhof cemetery.²²²

Conclusion

Friedrich Schott was one of the leading personalities in the young Portland cement industry. He worked as an entrepreneur, researcher and politician from the founding of the German Reich to the end of the Weimar Republic. His ethical, moral and political views had their roots in his parental home. Jewish traditions were familiar to him through his grandfather Benedikt and his father Emil, even though they both later converted to Protestantism. From this side, he experienced education, a thirst for research, life according to set rules and striving for unity, but also generosity and a sense of family. Professionally, he was guided by his father Emil, who taught him basic chemical knowledge and interested him in cement production through his experiments. Through the Protestant virtues of his mother Louise, perseverance, frugality and a practical orientation were fostered in him. At a young age, he had to live with relatives for several years during his primary school years, together with his younger brother Hermann. Friedrich received much praise from his mother as a bright and eldest son and was pushed by her into responsibility for his siblings at an early age. As a result, as the eldest son, he often

had to take on the role of father and a leadership position, as his father Emil was often away from home for long periods of time. On top of that, Emil was portrayed by Louise as amiable, but increasingly as unworldly and not fit for life. His father's economic unsuccessfulness links Friedrich more closely to his mother and her virtues.

After his employment at the Portland-Cement-Werk Heidelberg, Schifferdecker & Söhne in 1875, he became the family's benefactor and he provided for his brothers' education. For this, he received great gratitude from his mother. His father appointed him executor of his will, which is a sign of Friedrich's conscientiousness and trustworthiness. Friedrich's behaviour towards women was often distant and patronising. This is also reflected in his relationship with his sisters, which was rather strained. Due to his good education, his self-confidence and his own research, he succeeded in joining Johann Philipp Schifferdecker and mastered the problems that arose. His father's optimism about progress was also transferred to him. He, too, relied on new technologies and made major investments, but calculated the economic benefits sharply. His ideas and



FAMILY GRAVE OF FAMILY SCHOTT. Sower motif and in the background the cement plant Leimen. „As you sow, so shall you reap“, 2021.

research were always scientifically and technically up to date and fundamentally oriented, so that they remained valid for a long time.

The Protestant part of his socialisation is reflected in his position as plant manager in the cement industry. When tensions arose between trade unions and entrepreneurs at the end of the 19th century, he, like other entrepreneurs, reacted with defensive strategies. For him, as in Protestantism, only a narrow path led to the kingdom of heaven, and that was through work, diligence and discipline. He saw the fulfilment of duty as a task that each class had to do for itself, but which encompassed the

authorities, entrepreneurs and workers as a unifying bond. Instead of demanding law and justice, the worker should practise obedience and diligence and thus be the architect of his own fortune. This brought him into sharp opposition to the trade unions and the SPD. Friedrich Schott created well thought-out welfare institutions at all locations, as well as support funds and bonus systems, in order to bind the workers to the company and keep them dependent.

In addition to his scientific and technical skills, his negotiating skills were essential to Schott's success. It was virtually a mission for him to unify the national cement industry in order



LITHOGRAPHY OF THE CEMENT PLANT LEIMEN on a reference writing, 1898.

to avoid competition at all costs. The well-established Heidelberg cement works emerged stronger from the unification in the cement associations. By placing his brothers and his sons in leading positions, he had loyal and like-minded support for years. The drastic changes brought about by the First World War once again challenged Friedrich Schott's fighting spirit. However, he struggled with the innovations of the Weimar era, found it difficult to retire from office and found fault with the new style of leadership in the executive board at the end of the 1920s.

As there has been little family research in the cement industry so far, the statements made cannot be generalised. However, there are indications that, for example, in the Westphalian cement centre of Beckum-Ennigerloh, the founders came pre-

dominantly from Protestant and Jewish circles. The rationality of the cement industry, as a capital-intensive, science-based and location-bound, standardised basic industry, virtually demands entrepreneurs with corresponding capitalist business ethics. Since the product has a small range, hardly differs from that of the competitors and the price is therefore not elastic, success depends on the optimised manufacturing process with simultaneous cost minimisation.



Appendix

List of the children

1. Ludwig Theodor Friedrich (*08/10/1849 Gandersheim, †12/03/1850)
2. Friedrich Paul Julius (*27/12/1850 Gandersheim, †20/02/1931 Heidelberg)
3. Hermann Heinrich Felix (*18/04/1852 Seesen, †1934)
4. Louise Therese Agnes (*21/04/1853 Seesen, †1931)
5. Johanna Marie Helene (*22/07/1854 Seesen, †1895)
6. Karoline Marie Emma (*12/10/1855 Seesen, †18/03/1856)
7. Louise Emilie Sophie (*02/04/1857 Seesen, †1907)
8. Emil August Eduard Ludwig (*13/07/1858 Seesen, †26/01/1884)
9. Sophie Conradine Pauline (*29/07/1861 Seesen, †1889)
10. Martha Auguste Emilie (*08/11/1862 Seesen, †1929)
11. Marie Anna Dorothea (*23/11/1863 Seesen, † nach 1885)
12. Wilhelmine (Minna) Auguste Therese (*02/07/1865 Seesen)
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15. Felix (früh gestorben)
16. Otto Benjamin Sylvester (*31/12/1869 Seesen, †15/05/1937)
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- 204 HC-Archiv, HVo294: Materialsammlung: Werke I, Leimen, Weisenau, Nürtingen. Brief von Christian Bitter an Friedrich Schott, 21.10.1913.
- 205 Badische Landesbibliothek Karlsruhe, Protokoll: Verhandlungen der Ersten Kammer des Badischen Landtag, p. 655-658.
- 206 Ibid., p. 655-658.
- 207 Dr. Otto Schott †, in: Tonindustriezeitung, Sonderdruck No. 95, Jahrgang 1916.
- 208 HC-Archiv, DS2365: Friedrich Schott, Kommerzienrat Friedrich Schott 70 Jahre, 1920.
- 209 HC-Archiv, HV5506: Personalunterlagen Deutschland: Geh. Rat Dr.-Ing. Friedrich Schott, Heidelberg. F. Schott an Bergrat Proeschel, Amberg, 3.8.1925. Shotgun pellets from a calibre of 6,1 mm are termed as „Sauposten“. Their use is prohibited in Germany today.
- 210 Schubert, Klaus; Klein, Martina, Das Politiklexikon, Deutsche Volkspartei (DVP), 7., updated and extended edition, Bonn 2018.
- 211 Gräfe, Thomas, Antisemitismus in Deutschland 1815- 1918, 2016, p. 203. The **Verein/Society** published news weekly, whereby anti-Semitic Agitatoren should be discredited and prejudices disproved. The members came predominant from left-wing liberal circles.
- 212 Oeffentliche Kundgebung gegen die antisemitische Hetze, in: Mitteilungen aus dem Verein zu Abwehr des Antisemitismus, 29. Jahrgang, No. 4, Berlin 17.02.1919, p. 29.
- 213 Heidelberger Geschichtsverein e.V., Friedrich Schott, URL: <http://www.s197410804.online.de/Personen/SchottF.html> (Status: 20.04.2021); cf. Gespräch mit Dieter Schott am 29.10.2005 in Göppingen: After the death of Emma Friedrich had two housekeepers. Art teacher Thekla Kratz, whose father owned the **Schlossquelle** and Anna from the clinic administration.
- 214 HC-Archiv, HV5505: Personalunterlagen Deutschland: Adolf Schott, München.; HC-Archiv HV5506: Personalunterlagen Deutschland: Geh. Rat Dr.-Ing. Friedrich Schott, Heidelberg.
- 215 HC-Archiv, SD0006: Nachlass Dieter Schott, 21.02.1931.

- 216 HC-Archiv, DS2365: Friedrich Schott, Kommerzienrat Friedrich Schott 70 Jahre, 1920.
- 217 Ibid.; HC-Archiv, SD0006: Nachlass Dieter Schott, 21.02.1931; HC-Archiv, HV0158: Persönlichkeiten der Heidelberger Zement AG, 1913-1969, p. 92.
- 218 STA Leimen: Friedrich Schott Ehrenbürger der Stadt Leimen.
- 219 HC-Archiv, HV0669: Friedrich Schott, Ehrenbürgerbrief der Stadt Heidelberg.; HC-Archiv HV5506, F. Schott an Bergrat Proeschel, Amberg, 3.8.1925.
- 220 HC-Archiv, HV0158: Persönlichkeiten der Heidelberger Zement AG, 1913-1969, p. 94.
- 221 Heidelberger Geschichtsverein e.V., Friedrich Schott, URL: <http://www.s197410804.online.de/Personen/SchottF.html> (Status: 20.04.2021).
- 222 Ibid.
- 223 NLA Wolfenbüttel: Schriftverkehr zu Kirchenbüchereinträgen, Namen und Daten der Kinder Schott; cf. Schott, 1909.
- 224 Goethe, Lila. 1777. 2. Act, 2. Scene.

Johann Wolfgang von Goethe, Lila.

Musical comedy

Craven thought, timid swinging
womanish hesitation, fearful complaint
turns no misery, neither sets oneself free.

All forces to keep for defiance,
Never give in, arise strongly,
Send for the arms of the **Lords/gods!**²²⁴

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