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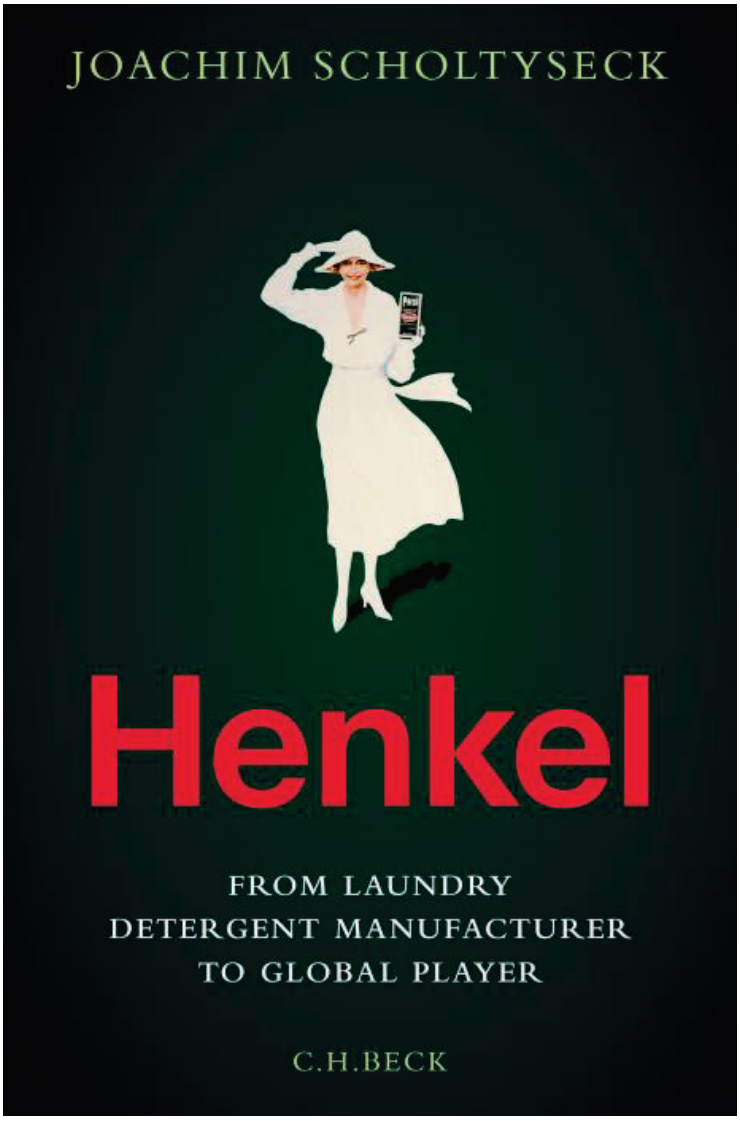

Joachim Scholtyseck
Henkel
From Laundry Detergent Manufacturer to Global Player

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From Detergent Manufacturer to Global Player

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C.H.Beck

With 155 images

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Appendix

Introduction

It was German historian Reinhart Koselleck who introduced the well-known idea that historical sources have the power to "veto" our interpretations.[1] But he also pointed to the "experiences" that individuals can recall from their own memories. These can be compared to "the glass eye of a washing machine, behind which now and then this or that colorful piece of laundry appears, all of which is contained in the tub."[2]

The history of the Henkel family company has been linked to an image like this – the laundry tub and the modern washing machine – for almost 150 years. Today, it operates under the legal form of Henkel AG & Co. KGaA; its origins lie in the manufacture of detergents. The company was founded in 1876 by a young man who would probably be classified today as a start-up entrepreneur. The small company grew steadily, experiencing tremendous success with the development and launch of its Persil detergent in 1907. In the interwar period of the 20th century, it grew further by also trading in adhesives for craftsmen and tradesmen and came to operate as a Europe-wide corporation. Today, despite all the global crises and upheavals, Henkel is a global player with its two business units, Adhesive Technologies and Consumer Brands. Around 47,150 employees work in 55 countries and at 161 production sites worldwide, 8,350 of them in Germany. The largest production site is currently the plant in Bowling Green, Kentucky, in the United States, followed by the main plant in Düsseldorf, the group's headquarters in Germany, where around 6,000 employees work. With total assets of over 30 billion euros, Henkel has a solid equity ratio of over 60 percent. As a group traded on the Frankfurt stock exchange (DAX) from the index's very beginning with sales of 21.5 billion euros and profits of almost 3.1 billion euros (2024), the company is successful not only with its consumer brands but also with its industrial business.

Henkel likes to refer regularly to its founding figure Fritz Henkel and points to its long history and the tradition of its brands, which offer orientation, identifica-

tion and a natural framework of values. As in other successful German family companies, the preservation of assets and the passing on of specialist knowledge are especially important: company before family, long-term profitability and reinvestment in the business before excessive dividends and distributions – that is the credo.[3] For a company that has been constantly comanaged by the family in the fourth, fifth and now sixth generation, the question inevitably arises as to what the right recipe for success is – because all companies are fundamentally subject to a "constant threat to their existence."[4] In Germany, family companies make up between 80 and 90 percent of medium-sized enterprises, generate around 50 percent of all sales revenue and employ around 60 percent of all employees. Thus, they are not, as is often assumed, an anachronistic relic or a dying model.[5] Henkel exemplifies "robustness in a crisis": The dreaded "Buddenbrooks effect" – the assumption that a family's entrepreneurial strength wanes by the third generation at the latest[6] – did not come to pass. Nor has the dangerous situation that arises for family companies from the fifth generation onward, namely, that they are more likely to come to an end due to internal disputes rather than economic problems.

This book will describe the reasons Henkel has been able to survive. Strategic agility, a pioneering spirit, persistence, endurance, optimism and communication skills play a role, as do the courage to take risks and the typical and necessary structural shifts from a paternalistic family company to a management-led company. Henkel's unique legal form of a limited joint-stock partnership requires a close examination of its governance structures,[7] alongside its leaders, partners, and competitors like Procter & Gamble, Colgate-Palmolive and Unilever. Other once powerful opponents like the major soap company Schicht, on the other hand, are hardly known today. In recent years, however, global adhesive manufacturers have emerged as key competitors against whom Henkel must assert its dominance. And, of course, we cannot overlook the indispensable element of luck – a factor that source-oriented historians do not like because fortune is difficult to prove or calculate.

Continuities and breaks characterize Henkel's development, as does the fact that, for a variety of reasons, straightforward and strategic planning was not always evident. For example, did Fritz Henkel consciously behave differently from other entrepreneurs when he designated his sons Fritz Jr. and Hugo as successors rather than convert the company into a stock corporation like other contemporaries? What significance did other family members have in Henkel's history? It is essential to look at the branch structure with three family lines, with a shareholding ratio of 40:40:20. This structure has been carefully preserved and maintained to this day – not only in terms of business policy, partnership agreements and inheritance regulations, but also in terms of values.

After the First World War, managers from outside the family became important, although they remained in the background for decades. Since the 1980s, family members have wisely been withdrawing from the operational business. What were the reasons for this? Were these developments seen as a conscious turning point, and was any thought given to the long-term consequences?

Companies cannot survive without sufficient reserves. Capital is a shy deer. Fritz Henkel was already well aware of this. How did the founder and his successors raise the money for the company? A self-made man, Fritz Henkel had a strategy that included each of his two sons receiving a forward-looking, systematic education: cleverly, one learned commerce and the other chemistry and engineering. But was this decision made consciously or did it arise more by chance from the two sons' natural inclinations?

Was Fritz Henkel a chemical and commercial pioneer, or was his strength more in his ability to intelligently recognize the trends of the period and, as one of the proverbial "heroes of the time,"[8] to translate them into unbeatable branded products? Is he a prime example of Joseph A. Schumpeter's model of a dynamic and creative entrepreneur who, while not creating new technologies, develops existing ones further, finding innovative uses for them?[9] Was the diversification of the company, which was no longer just producing bleaching soda and Persil at the beginning of the 20th century, an indication of a forward-looking strategy? Did the company deliberately enter into adhesive production in the 1920s and into oleochemistry in the 1930s, or did Henkel take these paths pragmatically because the opportunities presented themselves?

Fritz Henkel had the advantage of having founded his company during the Bismarck era, when economic development provided unique opportunities for action, perhaps to an extent that only arose again during the "economic miracle" after 1945. Had the customs borders not been abolished nor the German Empire been founded in 1871, things would certainly have turned out differently. Even so, the economic conditions in which Henkel's success began indicate that a company can never ignore politics, as the following decades showed: The First World War, the period of inflation, the Great Depression, National Socialism, the Second World War, the division and reunification of Germany, the increasing unification of Europe, the fall of the Berlin Wall and of the Iron Curtain and globalization were all factors that Henkel had to take into account, and it still has to consider political developments and globalization today. Did members of the Henkel family – starting with Fritz Henkel Sr. – think politically? How did top managers react to political opportunities, challenges and dangers?

The field of cooperation and competition plays a central role. From the late 19th century, Henkel had to operate in a veritable network of associations, cartels

and interest groups. Ever since the success of Persil in 1907, the British company Lever (later Unilever) served as a kind of archrival to Henkel, and after the Second World War Procter & Gamble, Colgate-Palmolive and Reckitt joined the fray on the European detergents and cleaning products market. The history of these rivalries has not yet been comprehensively told. This study therefore seeks to answer the question of how Henkel generally behaved toward its competitors.

Can Henkel's history be written primarily as a history of detergents? Almost everything speaks against this, although Persil is still its best-known product – especially in Germany. Today, Henkel is a diversified and globally active company – and even in its early days it was by no means just a "one trick pony" but was known for a wide range of branded products. Since the 1920s, the company has been present in the market for adhesives and industrial cleaners, and since the Second World War also in the market for cosmetics and personal care products. In addition, it operated a considerable industrial business, initially (and now almost forgotten) mainly in water glass (liquid sodium silicate), and in the 1930s in oleochemistry.

While Henkel had bestsellers whose brand history deserves to be told, it also had flops to report: Like all consumer goods producers, Henkel had a long list of products and brands that quietly and secretly disappeared into obscurity. The description of such developments should, in turn, answer the question of whether luck and coincidence were factors or whether Henkel made pragmatic decisions to part with brands without sentimentality when they brought no benefit or even threatened to damage the company.

The sort of globalization that could be observed in many German companies in the chemical and electrical industries in the 19th century did not really happen at Henkel until well into the period of West Germany. But after the company attempted to create a European sales network beyond the domestic market before the First World War, it continued its international expansion from the 1920s, systematically building up Europe-wide production. After 1945, it had to reconstruct this production with great effort since these structures were almost completely lost in the Second World War. Henkel only began to go global through gradual advances in the 1960s.[10]

Anyone who believes that companies only have "rational decision-making processes by a group of far-sighted men who do the right thing at the right time"[11] is wrong not only from a gender perspective but also because decision-making is influenced by complex social dynamics. A company is a "quasi-autonomous organism" whose "sole goal and life principle […] appears to be to generate continuous growth."[12] The history of Henkel, therefore, should also help answer the question of whether the "internal economic environment" is stable enough to

provide "learning opportunities."[13] Abstract explanatory models do not help, either. Individual decision-making processes cannot be fully explained using business reports, balance sheets or statistical and quantifying material alone, not to mention econometric methods. In other words: The "empirical diversity and contradiction of lived life" cannot be "calculated."[14]

To answer these questions about the company's calculation, motives, rationality, bad luck and coincidences, the only thing that one can do is read the files. One can supplement the perspective on the management by examining the work and wage structures, the operating and social policies, and the relationship between management, employees and workers – in other words, by examining the "micropolitics"[15] of the firm. In addition to those who worked in the factories in Aachen and Düsseldorf, Henkel also had, since the launch of Persil, a relatively large group of employees who, as traveling salesmen, sold Henkel products to their audience, including, above all, women. Even so, this history of Henkel cannot cover every aspect of the working world and everyday life at the company. Some topics, such as the factory fire brigade founded in 1911, can only be addressed very briefly, although one can fortunately find detailed information about it elsewhere.[16] The same applies to the company's provisions for old age, retirement regulations, pensions, company health insurance, pension funds and occupational safety.[17] That a company like Henkel wishes to give an account of its history is not unusual. Numerous large German companies no longer present themselves from an internal perspective in a "Festschrift" (a commemorative publication), as was long the case, but instead rely on a scholarly study with a broad source base – a study that must also critically examine the company's traditional "master narratives." This starting point resulted in the creation of four main chapters structured chronologically and thematically. Theoretically, a structure based on business units or divisions would also have been possible. Then detergents and cleaning products would have been front and center, but so would the chemical products, which have no longer played a role since they were carved out in 1999. During nearly the first fifty years of Henkel's existence, it had no separate adhesives unit. A history organized by business units would also have required omissions in the presentation of the cosmetics and toiletries business, which only became important after 1945.

Organizing the history according to the company's changing legal forms – from Henkel & Cie to today's Henkel AG & Co. KGaA – would certainly have been interesting for lawyers but would have ignored important economic and political turning points in Henkel's 150-year history. An arrangement according to company leaders and "regencies" would have done justice to the importance of Fritz Henkel and his successors as almost dynastic personalities. Categorizing by

significant innovations and important brands – the introduction of Persil in 1907 is just the most important example – was also tempting but would have underrepresented the idea that Henkel is a diversified and heterogeneous company. A geographical structure would have done justice to today's Henkel, which operates on all continents – but real globalization can only be said to have occurred in the last third of the 20th century. Accordingly, there is no single, ideal approach to analyzing Henkel's history. Despite some drawbacks, a chronological structure with thematic subchapters is the best solution.

The first part deals with Henkel during the period of high industrialization up to 1930. The founder Fritz Henkel, in producing bleaching soda and water glass, was active in an industry adjacent to chemistry, which, alongside the electrical engineering industry and mechanical engineering, was one of the guiding stars of the industrialization process and led to a surge in globalization due to the growing transport infrastructure. Was Fritz Henkel a pioneer, a "first mover," or did he merely use his commercial instinct to pick up on existing trends and implement them skillfully? Why did he part ways with his two partners after just one and two-and-a-half years, respectively? How can we explain the company's relocation from Aachen to Düsseldorf and its subsequent move within the city? Finally, was the start of production on March 9, 1900, in a spacious new factory in what was then the suburb of Holthausen south of Düsseldorf an indication of the company's growing industrial clout? With the introduction of Persil in 1907, the company had at its disposal a branded product that enjoyed breathtaking success. Would the resulting rapid growth have been possible without Persil? What, in turn, did this triumph mean for the structure of the company with its patriarchal corporate culture and a workforce that had, until then, remained small enough for everyone to know one another?

The outbreak of the First World War in 1914 brought Henkel's development to an abrupt halt. The following years were marked by constant crises but also by important restructurings, such as the creation of a management board in 1919. Fritz Henkel gradually assigned tasks to his two sons, Fritz Henkel Jr. and Hugo Henkel, who had been carefully trained to be his successors. In the 1920s, an important branch factory was founded in Genthin in central Germany and foreign business was also systematically built up. The year 1930, however, brought a threefold crisis: Fritz Henkel Jr. and Fritz Henkel Sr. died in quick succession, the global economic crisis posed new challenges, and, finally, the company was only able to fend off a hostile takeover attempt by the Unilever Group with difficulty.

The second part describes the period after 1930 and analyzes the efforts of Hugo Henkel, who was by then solely responsible for management, to lead the company through the crisis and through the years of the Nazi dictatorship. But

what were the reasons for the company's arrangement with the National Socialist regime – even though its managers, who came from a National Liberal background, had previously kept "big politics" out of the company to a great extent and were by no means enthusiastic supporters of the Nazi ideology? Was it mere opportunism? Did Henkel fear that the company would be left behind by more powerful rivals such as I. G. Farben? Why did it become a National Socialist "model company"? Why was Hugo Henkel forced to take a back seat in 1938? How can we explain the attempt made by his nephew, Werner Lüps, as Hugo's successor at the head of the company, to either eliminate the major competitor Unilever on the continent or at least keep it in check and make Henkel the dominant European detergent manufacturer during the Second World War? Though not an arms company, Henkel became integrated into the war economy. The analysis of the working and living conditions of the prisoners of war and the foreign and forced laborers in the Henkel companies, as well as an examination of the "aryanizations" that took place during this period, should help to clarify the question of motives and responsibilities. Part two also addresses the company's strategies in the last phase of the war, when its aim was to survive the impending downfall of the Third Reich. The description of the end of the war, the subsequent occupation by the Allies, the trusteeship phase and the threat of the company being dismantled provide an opportunity to raise questions about continuities and ruptures.

The third part covers the period from the "economic miracle" to the beginning of the 21st century. The reasons for the company's successful resurgence, which was by no means solely due to the renaissance of Persil, are of interest here. Henkel's long path from being a manufacturer of detergents to becoming a company that turned to personal care in the 1950s and expanded into the adhesives sector through constant acquisitions is the focus of this discussion. What role did consulting firms play with their advocacy of greater diversification? Why did Henkel slowly withdraw from its chemicals business beginning in the late 1980s? Were company takeovers, cooperations and joint ventures part of a long-term corporate strategy? How can we explain the fact that Henkel focused on environmental protection and sustainability relatively early on? Why did the company, from the Konrad Henkel era onward, increasingly transfer responsibility to managers from outside the family – managers who headed Henkel as it became a constantly expanding and changing global player – while the Henkel family withdrew from the operational business? How did Henkel justify its conversion into a limited joint-stock partnership in 1975 and its "Initial Public Offering" (IPO) ten years later? Were the company's almost revolutionary changes a consequence of the realization that, as a detergent manufacturer, it was too

small to be able to keep up with the trend and meet the challenges of globalization?

The fourth part examines the company's international business after the Second World War and up to the turn of the millennium, addressing both the difficult reconstruction of that business and its subsequent globalization. It focuses less on comprehensiveness than on fundamental developments. How did Henkel manage to buy back the foreign subsidiaries it had lost in the Second World War? How can we explain its surge in internationalization beginning in the 1960s, which took it to the United States, Latin America and the Far East?

The final part extends beyond the beginning of the 21st century and addresses current issues. Given that brands frequently change owners and, of the global "mega-brands" in today's Henkel portfolio – Persil, Loctite and Schwarzkopf – only the premium detergent Persil was developed in-house, is there a common Henkel DNA? What significance and function do the business units have for Henkel? What does it mean that the Laundry & Home Care and Beauty Care units were merged in 2023 to form Henkel Consumer Brands while Adhesive Technologies remained unchanged? Finally, the question of corporate identity must also be asked: Are claims such as "Pioneers at heart for the good of generations" just empty words from Corporate Communications, or is there more to it when people talk about "values" or, in modern parlance, "purpose"? And, last but not least: Is Henkel still a classic family company today?

Sources and literature

Family companies are generally more interested in their own history than are companies with other ownership and organizational structures. Establishing traditions is considered good form, and this is reflected in the maintenance of a professionally managed archive. Henkel began to keep consistent records – beyond just the structure of management – around 1900, almost a quarter of a century after its founding.[18] Fritz Henkel and his two sons were fans of verbal agreements; accordingly, there are few reliable sources for the early period. At the same time, the company library was set up early – in 1910 – and became a central place of remembrance.[19] The company's 50th anniversary in 1926 gave rise to the creation of a museum-like space where material on the family and advertising brochures, posters, photographs, and around 300 folders with documents, were collected.[20] These form the nucleus of the holdings of today's Henkel Corporate Archives (Konzernarchiv, called Corporate Heritage since 2022) at the headquarters in Düsseldorf-Holthausen. Documenting around 200,000 products, it is one

of the largest product archives in Europe, storing around six kilometers' worth of files and consistently inventorying and adding to its holdings in the spirit of modern archive maintenance.[21]

Nevertheless, some blind spots remain: Women played an important role in the family and company, but this is hardly reflected in the surviving documents, so that one must, in this case, too, apply the statement that an archive is often not only a "place of remembrance" but also a "place of forgetting."[22] The records on foreign business, on financial holdings from the 1930s and on production in the Third Reich are comparatively good, although files were systematically destroyed in the last weeks of the war. The minutes of meetings of the management board are particularly informative for reconstructing business development after 1945. The minutes of the shareholders' committee, the actual center of power in the company, are just as informative from 1975 onward. As with all companies, however, it should be noted that current developments are often in the foreground in these records; only rarely were overarching aspects discussed. Failures and flops, along with their causes, were reported on rather briefly. The company's social policies can be traced fairly adequately. But the situation is different for some personnel decisions; in the early 1990s, the human resources department destroyed all personnel files of employees who had worked at the company up to 1945.[23]

Additional records from other archives help to address questions that cannot be fully answered using the holdings in Düsseldorf alone. The files in Evonik's Corporate Archives provided insights into Henkel's decades-long relationship with Degussa. The holdings of the National Archives in Washington, DC, and the National Archives in Kew (Great Britain) provided information on the occupation period after 1945 and the Allies' strategies toward the Henkel company. The employee magazine *Blätter vom Hause*, founded in 1914 and initially intended for the sales employees, proved to be extremely important.[24] The employee magazine *Henkel-Bote*, which was published from 1932 onward, was particularly informative about the Nazi era. The *Henkel-Blick*, which replaced the *Blätter vom Hause* in 1972, and from 2001 the employee magazine *Henkel-Life* were equally helpful.

The first accounts of Henkel's history date from the early 20th century and were often based on materials that must now be regarded as at least partially lost. Remarkably, there is still no real historical biography of the company's founder apart from a hagiographic overview written by Josef Wilden in 1933.[25] The anniversary publications from 1916 and 1926 provide basic information on the company's development from a contemporary perspective. The year 1936 offered the company another opportunity to look back proudly, but this publication was already heavily under the influence of the Third Reich.[26] In the early postwar period, as with other large companies, the Nazi era remained largely a taboo subject

or was obscured rather than illuminated by incomplete accounts.[27] These omissions and evasions – executed with varying degrees of skill – downplayed problematic aspects of the company's history or fostered the self-righteous claim that company managers had been innocent victims of the regime. From 1969 onward, the corporate archives produced a "publication series" that helped to elucidate aspects of the company's and various products' history. Whaling and the histories of water glass, glycerine and glue production were also examined in the following years. The focus of these publications, however, was on detergents, although Henkel had already become much more than just the producer of Persil. Even in the commemorative publication published for the company's 100th anniversary in 1976, this tendency was still predominant.

The study "Menschen und Marken" (People and Brands), written by Wilfried Feldenkirchen and Susanne Hilger and presented in 2001 to mark the 125th anniversary of the Henkel company and tell its history, represented an important step. Based on an analysis of selected archival sources, it was the first Henkel publication to deal fundamentally with issues like forced labor in the Third Reich – largely ignored up to then – with the transparency such topics require.[28] This study also brought the range of Henkel's brands more clearly into focus, along with the company's development abroad, which is presented in a detailed overview by Theo Schatten and Wolfgang Zengerling. However, a comprehensive analysis of internationalization, for example, was hardly possible. This is what this study aims to do; it will also present some brands that have been neglected thus far, along with Henkel's main brands today, Persil, Schwarzkopf and Loctite.

Some events and contexts, especially those of recent times, can only partially be discerned in the files. Accordingly, it was helpful to conduct numerous interviews with contemporary witnesses about the strategies of the shareholders' committee, the management board and the supervisory board. Jan-Dirk Auris, Simone Bagel-Trah, Christoph Henkel, Carsten Knobel, Ulrich Lehner, Bruno Piacenza, Christa and Paul Plichta, Helmut Sihler, Hans-Dietrich Winkhaus and Albrecht Woeste made themselves available for extensive discussions.

Current announcements on sales and profits, returns, loans, reserves and hidden reserves are based on publicly accessible sources such as Annual Reports and press releases. As usual for such projects, the company gave unrestricted access to its corporate archives for the University of Bonn's grant-funded project and waived any right to influence the content of the manuscript and book in any way.

Part One

The beginnings of the company 1876 to 1930

Favorable conditions? Fritz Henkel's family background

Fritz Henkel came from Hesse. The family's origins, which can be traced back to 1450, were unremarkable. His ancestors were craftsmen and farmers, sometimes local councilors, lay judges, aldermen of the Grand Duchy of Hesse, and occasionally mayors. Some of the members of far-flung branches of the family with the common surname Henkel were potash boilers who came from Wallau in southern Hesse, where Fritz's father was born. This has led some to assume that this connection brought Fritz Henkel into contact with soap and detergent production. However, the available sources leave this point unproven.[1]

Fritz Henkel's father, Johann Jost Henkel (1809–1874), grew up on a farm in Wallau. He was a sophisticated person and initially became a tutor to Prince Wittgenstein; in 1829, he was appointed "grand ducal schoolteacher" in the municipality of Vöhl – part of the Frankenberg district. He held the office of "elementary teacher" for decades until his death in 1874. In addition, he managed the local "Herrschaft Ittersche Spar- und Leihkasse", a community-based loan fund, founded in 1829.[2] Farmers and craftsmen were able to obtain loans from this fund, which had the most depositors of any such institution in the Grand Duchy of Hesse;[3] this form of procuring money was becoming common. As a citizen committed to the common good, Johann Jost Henkel was elected treasurer in September 1835. Yet, he also gave farmers in his community advice on questions concerning fruit farming and field management. Looking back, Fritz Henkel proudly reported that, seventy years prior, his father had achieved the necessary "merging of the goods in his community" to implement the government's social policy initiatives.[4] But this was not just agricultural aid. The loan fund also stepped in in the event of emigration or sales. Nevertheless, the loan recipients were obliged to make an annual installment payment, as Fritz Henkel explained: "My father also ensured that he could defer interest payments for up to three years in order to support agriculture when it had suffered extraordinary damage

View of Vöhl in the mid-19th century.

due to bad harvests and livestock diseases. He had also stipulated that one could get a loan of up to 600 guilders by signing a promissory note at an interest rate of 1 percent, the same rate as for mortgages, to be able to help in this way in exceptional circumstances in agriculture."[5] His father was committed to the subsidiarity principle, that is, to helping people help themselves. He only helped farmers who had "drawn straight furrows in the field" – an educational measure.[6] The cash register – stored in an oak chest with three locks and compartments for books and coins – was hidden in the chimney during the Revolution of 1848 out of fear of a possible explosion.[7]

On March 20 of that fateful year, Fritz Henkel was born, the fifth of six children.[8] Later on, he occasionally noted that he had "seen the light of day in 1848, the year of freedom, as the son of a country teacher."[9] It would be difficult to overestimate the bond Fritz Henkel felt toward his family or the formative influence his loving and adoring parents and his parental home had on him. He always emphasized his gratitude to his family. The tranquil rural idyll, the conversations he had with his father on walks in the meadows and forests, and his father's teaching garden all left a lasting impact on him. His father was "a very capable teacher" and "a great man in other respects as well."[10] Fritz Henkel ad-

Johann Jost Henkel and his wife Johanette. These portraits reflect the earnestness of Protestant working life in the mid-19th century.

mired his independence as an official in the service of the Grand Duchy and was grateful that he "learned to hear and see through him."[11] Fritz was repeatedly called upon to perform "writing and calculating tasks" for the "Savings and Loan Bank."[12] What becomes particularly clear in these descriptions is the great extent to which Fritz's father, whom he described as a "cheerful and conscientious character," influenced him as a role model. He did not provide Fritz with general wisdom for life but rather gave him the following advice: "Stay healthy and love your neighbor as [you would love] yourself."[13]

While Fritz Henkel repeatedly referred to his father's influential personality, his mother Johanette (1807–1881) had little presence in his memoirs. Although Fritz Henkel always emphasized her great achievements, he only dedicated a few lines to her. He claimed he was "lucky enough to be raised in an excellent nursery. My mother was an admirable housewife and a wonderful mother."[14] The lack of sources is all the more regrettable because his mother, who was two years older than her husband Johann Jost Henkel, whom she married in 1832, came from a respected paper-making family from Wallau.[15] Accordingly, she must have been more than equal to her husband in terms of status and finances. Some have assumed that Fritz Henkel's inclination toward sales can be traced back to his

Fritz Henkel in 1865: a young man from the Hessian countryside for whom the world is open.

mother, but there are no meaningful sources to support this. In keeping with the circumstances of the time, she was regarded as a strong woman who stood by her husband's side in his role as a teacher.

After elementary school, Fritz Henkel attended high school (Gymnasium) in nearby Korbach, where he was more interested in physics and chemistry than in ancient languages.[16] He was an average student, although his mother recognized her son's talents early on. When her husband occasionally expressed worry about his academic performance, she replied that "He will still be our best."[17]

The young man's National-Liberal leanings developed in the crucial years during which Germany became a nation-state. Fritz Henkel later reported to his biographer Josef Wilden that the students in Korbach heard their superiors rave about "intellectual movements and political currents in the big cities, the Federal Parliament in Frankfurt, overcoming the small-state system that was hindering all developments, and the longed-for unification of the Reich."[18] In numerous speeches later on, Fritz Henkel repeatedly pointed out how important the unification of the empire was for economic development. He recalled this spirit of optimism at the outbreak of the First World War that had led to a change in attitude:

"When one was asked during the time of my youth, what kind of a countryman are you, one never said, 'I am a German;' rather, one uttered the name of one of the large or small states that comprised the German Empire. We had forgotten that we were Germans."[19]

He made a career decision early on. It was not initially possible for him to have a job at the post office, which would have meant a secure career as a civil servant, because of his "improper age,"[20] but his father had confidence in his son's prospects. Even in his old age, Fritz Henkel talked about his departure from the small town into the wider world. When he was just 17, Fritz would explain, his father poked him and said, "Now, look for a small place in a big city."[21] He remembered seeing a telegraph pole for the first time while traveling to Elberfeld and seeing a Morse code machine for the first time at a railway station.[22]

1871:
A new nation experiencing an economic boom

The vigorous zeal of the German Empire, founded in 1871, provided Fritz Henkel, as a businessman and entrepreneur, with the basis for breaking through the educationally grounded, cautious worldview in which he had been raised. Numerous trade barriers that had slowed the German economy's industrial "take-off" for decades fell away. Germany completed the transition from a backward agricultural state to an industrial state. The founding of the empire significantly expanded the German customs union of 1834, the liberal Prussian trade policy, the economic policy provisions of the North German Confederation and its trade regulations, and the opportunities created by railway traffic and telegraphy, triggering a real "start-up boom." In 1873, the Swiss historian Jacob Burckhardt noted a "further extraordinary increase in acquisitiveness" and its consequences: "The so-called 'best minds' turn to 'business' or are set aside by their parents for it."[1] The contours of Bismarck's patriarchal interventionist state began to take shape. It was characterized by a preference for expansive surveillance coupled with the promise of security and the regulatory mix of social partnership, provisions for risk, and a consensus society – a mix still quite familiar today.[2]

The Coinage Act and the founding of the Reichsbank, along with the amendment of the Stock Corporation Act and the creation of the Reich Trade Regulations, were all a part of this. The total of seven currency areas – with a whopping 33 central banks – came to an end with the stroke of a pen. The introduction of the Goldmark, which made conversion into thalers and guilders unnecessary, created a monetary system that guaranteed reliability based on the gold standard. Fixed exchange rates facilitated transnational cooperation on the goods and capital markets. The Civil Code created a previously unknown uniform legal certainty; it made economic transactions simpler and appropriately sanctioned norm violations. Even more important for innovative entrepreneurs was the es-

tablishment of a uniform patent law, which also put an end to the previous small-state system for patents. The Imperial Patent Office, founded in 1877, symbolized the impact of the Imperial Patent Act passed in the same year, which created legal certainty that inventors and entrepreneurs alike could rely on.[3] The law generated transparent procedures and stimulated competition because applicants had to ruthlessly disclose the technical and scientific background of what they sought to patent, which, in turn, forced companies to become professionalized and even to set up testing laboratories. In the complex international patent disputes surrounding Persil in the years after 1907, especially, this would become vital to Henkel's survival. When it came to patents, timely registration was important, so they were often used as a "weapon in economic warfare,"[4] which Henkel offers a particularly impressive example of.

The scientification and professionalization of training at German universities and technical colleges served as a model, contributing to Germany's position as a technological "world power."[5] Compared to other European countries, the empire's sound education and school system succeeded particularly well in "achieving a solid level of basic education and keeping up with the best in the area of academic education and relevant technical and scientific research."[6] The euphoria of the "age of the founders" quickly disappeared, but the economy was dynamic. Machines and technology continued to be used ever more often in this time of transformation from skilled craft production to industrial production.

In these years of large-scale industrial production, which marked the transition from manufacturing to factories and the change from the "master economy" – that is, an economy of master craftsmen – to the "engineering economy,"[7] an increasing division of labor between production and distribution became apparent. Private consumption in Germany became a pillar of economic growth from these years onward, with unemployment falling and real wages rising.[8] Growing prosperity, better hygienic conditions, and better health went hand in hand and raised the demand for goods. Society grew increasingly wealthy as the economic system made inexpensive mass production possible. Wholesalers, middlemen, mail-order companies, purchasing associations, and other such large-scale purchasers now took goods directly from producers' warehouses and organized further distribution.[9] Thomas Nipperdey has described these upheavals as a revolutionary "breakthrough of bourgeois society," "of the big market, of free competition, of capitalism, of mobility, of the principle of performance, against all class and bureaucratic restrictions."[10] The empire created the opportunities in which a company like Fritz Henkel's, a start-up avant la lettre, could flourish. Participation and individual rights to freedom, but also the security of being able to rely on the rule of law, were indispensable to this. These circumstances also ex-

plain the characteristic trust in the "General Dr. von Staat" that Thomas Mann ironically invoked.[11] Some specific ambivalences arose, including, for example, anachronistic agricultural tariff regulations, which serve as a reminder that the modernization process was not linear. The expanding export-oriented industries vehemently opposed protective tariffs, which agricultural associations and parts of the iron and steel industry advocated as protection from unwelcome foreign competition.[12]

Against the backdrop of scientification, urbanization, and rationalization, and amid differentiation among social movements, Germany, as a highly industrialized society, underwent an "unmistakable surge in participation, emancipation, and democratization."[13] The constitutional monarchy was indeed a Janus-faced constitutional hybrid that smacked of compromise – recognizing the principle of monarchical rule while simultaneously giving parliament the right to codetermination. However, it aligned overall with the "normal case of European constitutional standards in the 19th and early 20th centuries."[14] The pointed remark the Swiss historian Werner Näf once made that the empire was a "monarchical state with a democratic addition"[15] is at best half-true. Society in the empire was more progressive than the traditional image we have of a "domineering authoritarian state" would lead us to believe. The "order of state life in constitutional-monarchical form" also corresponded to the "constitutional understanding of broad segments" of Germany.[16] The Reichstag provided a forum for political discussions and debates that the public perceived as active, so that all sides came to use and instrumentalize it. The German Empire's general, equal, and direct male suffrage had an "educational function" and led – if not intentionally, then at least in fact – to Germany's hierarchical society becoming more politically and culturally equalized. The path to complete parliamentarization was open. Accordingly, historians have now replaced the theory of a supposed German "special path" with the idea of it having its "own path."[17] However one defines "bourgeoisie," the essential elements of bourgeois liberal thinking are the insistence on a right to self-determination based on reason, the limitation of the state's political power, and a competitive, largely self-governing economy based on private property. The bourgeoisie optimistically expected improvement in social conditions through economic change and social progress; it was a versatile habitus community that affirmed the state and became part of the establishment.

Germany's social legislation was progressive and forward-looking, especially in comparison to other European countries, whatever the instrumentalizing motives behind it may have been. The aim was "to find a form of protection from the risks of modern employment that was economically sensible and likewise functional for that time."[18] The authoritarian state began to dissolve, fostered by the

separation of powers and the "largely unplanned evolution of the federal constitutional system" both of which contributed to this dissolution.[19]

Technologically speaking, the empire achieved a high-profile position, with its heavy and steel industry, electrical and chemical sectors all becoming particularly prominent. Its research programs and experimental procedures, coupled with patent law provisions that promoted science and professionalization, explained the "shift in industrial leadership from Britain and France to Germany."[20]

The empire also grew increasingly international. For the first time, it was possible to speak of a globalized economy. The convergence of the world economy – one need only recall the dramatically falling transport costs – prompted a networking of the world, although this did not necessarily stand in conflict with nationalism and imperialism. As borders opened and restrictions eased, merchants emerged as the most important players in the growing interconnectedness of global markets. By adapting to the changed circumstances while helping to shape them, they linked distant markets, connected different production regimes, and contributed to the development of business law that extended across borders.[21] New means of communication, whether by rail, ship, or telegraph, made the world a smaller place. The triumph of cross-national liberalism was breathtaking.

We know little about what prompted Fritz Henkel to depart for Elberfeld in the mid-1860s, but what we do know comes from a description he himself published in 1916 on the occasion of the company's 40th anniversary.[22] In this key document, he wrote, "Even as a boy I showed a keen interest in chemical processes; it was therefore clear to me that I would turn to this profession. I received my business training in a flourishing chemical factory, at Gebr. Gessert in Elberfeld, where I remained for a number of years and, as the company's authorized signatory, took part in its actual management."[23]

It was probably Fritz Henkel's brother Wilhelm who brought him to Elberfeld. Ten years his senior Wilhelm had found work in the textile industry there.[24] Fritz stayed with him for a while. Elberfeld was a thriving industrial town whose textile industry used chemical innovations, dye extracts, and aniline dyes. Whereas the liturgical year and the harvest calendar still determined the daily rhythms in Vöhl, Elberfeld became something like that era's Silicon Valley of Germany. One of the most innovative of the companies contributing to this reputation was the Chemische Fabrik Gebr. Gessert. Founded by the brothers Carl, Theodor and Dr. Julius Gessert, it had just moved from Breslau to Elberfeld in March 1865.

Fritz Henkel joined in this new company as a 17-year-old business apprentice in April 1865, so he took part from the start. Within the company, he handled all business responsibilities for eight months when one of the owners fell ill, main-

taining contact with the laundries, dye works, and textile factories.[25] Gessert produced various acids and lubricating grease for export to Great Britain, along with alizarin from anthracene, a red dye discovered in 1869.[26] Numerous alizarin factories settled in Elberfeld. Local red dye works and calico printing works were the dye's primary buyers.

Those in charge of teaching the clerk often sent him on business trips. Henkel was particularly impressed by Vienna, where Gessert sent him in 1873, the year the World's Fair took place there. The industrial exhibition marked a kind of awakening for him, which contributed to the especially prominent presentation of Henkel products at later exhibitions.[27] Henkel stayed at Gessert for nine years. When the company was converted into a stock corporation called Chemische Industrie AG, he became its managing director.[28]

During the Long Depression, beginning in 1873, the Gessert company, with little capital and poor management, began to have financial difficulties. Alizarin manufacturers were engaged in "almost murderous competition," causing some to fall by the wayside.[29] Carl Gessert left the company in 1872, and it went into liquidation in 1873; a foreclosure auction halted the process two years later. Carl Rumpff, a co-owner of the Bayer company and Friedrich Bayer's son-in-law, purchased the liquidation assets in January 1877 for 640,000 Goldmarks, transferring them to Friedrich Bayer & Co. in 1879.[30]

Fritz Henkel was able to turn necessity to virtue in time. Apparently not satisfied with the idea of spending his future as a hired businessman, the slim young man with a full, reddish beard[31] wanted to be his own boss. In Elberfeld he saw the potential that modern chemistry offered for the production of cleansers and laundry detergents. In this field, a traditional, almost sluggish understanding of production and distribution still prevailed throughout Europe: thousands of soap makers supplied a fragmented market. New opportunities presented themselves for a young man with ideas, and he realized that the private household was the real point of contact.[32]

After the Gessert company went bankrupt, Henkel had to reorient his career and moved to Aachen for professional reasons. He resided in a house at Lothringer Strasse 90 in Burtscheid, southeast of the city center. On October 2, 1873, he married 21-year-old Elisabeth von den Steinen (born in 1852), the daughter of a merchant and business owner from Elberfeld.[33] Although marriage was a proven means of finding "like-minded entrepreneurial potential and often capital beyond one's circle of brothers" in the 19th century,[34] pecuniary considerations seem to have played only a minor role in this love match. From a financial perspective, there would certainly have been better matches, but, in this case, private hopes and economic sense went hand in hand. The couple's firstborn child, August,

Fritz and Elisabeth Henkel's wedding photo from 1873. The setting appears traditional, but the young entrepreneur was already one of the forward-looking pioneers in the German Empire.

born in July 1874, died at the age of almost five in Vöhl, most likely while in the care of his grandmother. They had three more children, Fritz Jr. (1875), Hugo (1881), and Emmy (1884). In Aachen, the family already had a nanny, an unmistakable sign of a middle-class prosperity.[35]

In 1874, Henkel started working for the ammonia soda factory in Grevenberg, just a few kilometers north of Aachen. Chemist Moritz Honigmann[36] ran the company, which he had founded in 1871. Ammonia was an innovative basic product needed in the production of artificial soda and was just as promising as the alizarin Henkel had learned about in Elberfeld. Knowledge of the chemistry of fats had grown in the meantime. Honigmann had learned about a promising ammonia process in one of the factories of Ernest Solvay, the founder of the Belgian company that bore his name. After the Franco-Prussian War of 1870–71, Honigmann wanted to break away from Solvay's dominance, so he experimented with his own ammonia soda process, simplifying the processing of the soda lye using sodium bicarbonate. In March 1874, Honigmann and a partner founded the company "Honigmann & Eller" in Aachen, but it was dissolved by December 1875. In January 1876, this small production facility, which was popularly known in Aachen as "Honigmann's Ammonia Booth,"[37] was transferred to Honigmann as the sole owner. Henkel was only briefly involved in Honigmann's experiments,

A family photo from 1894: Hugo, Fritz, and Emmy, Fritz and Elisabeth Henkel's three children.

which, contrary to expectations, turned out to be unsuccessful. But during this time, he undoubtedly gained important knowledge for the later production of water glass.[38]

After this interlude, on August 31, 1874, Henkel became a partner in the Aachen-based company at Hochstrasse 43, Fellinger & Strebel, a wholesaler of chemicals and paints; it was then renamed Henkel & Strebel. In order to become a partner, Henkel needed to provide a certain financial cushion. The sources do not indicate whether the social advancement he was beginning to experience here was due to his own business activities or to the support of his or his wife's family. In any case, he now ran this "wholesale chemicals and paints business" together with Wilhelm Alexander Strebel, with Carl Strebel registered as an authorized signatory.[39]

The time was not exactly ideal for starting up a commercial venture. Aachen, a medium-sized city with around 80,000 inhabitants, had been hit hard economically by the Long Depression of 1873. The 1876 Annual Report of the Chamber of Commerce of Aachen and Burtscheid stated that a crisis of such magnitude had

Fritz Henkel in 1876: a start-up entrepreneur of the chemical-technological revolution.

"perhaps never occurred since the Thirty Years' War," and noted that its end was not yet in sight. In any case, Henkel & Strebel also remained an interlude. After just a few months, Henkel realized "that a commercial venture was not for me, and I longed to return to manufacturing."[40] On September 24, 1877, before the commercial court in Aachen, Henkel and Carl Strebel declared the dissolution of Henkel & Strebel, the trading company that they had formally established three years earlier. The business, including assets and liabilities, was transferred to Strebel, whose company was deleted from the company register the following spring.[41]

Meanwhile, Henkel had met two other businessmen, Otto Dicker, who came from a brewing family in Willich in the Lower Rhine region, and Otto Scheffen, a merchant from Düsseldorf. In August 1875 the two moved to Aachen and founded the Rheinische Wasserglasfabrik in the municipality of Merkstein in neighboring Herzogenrath under the name "Scheffen & Dicker."[42] They manufactured a product already known in the Middle Ages under the name "Liquor Silicum" (pebble juice), which Goethe even mentioned in "Dichtung und Wahrheit" (Poetry and Truth). It would soon become an important basic raw material for detergents.[43]

1876 and 1878: Universal detergent, Henkel's bleaching soda and water glass

The beginning of the Henkel company can be dated to September 26, 1876. On this day, the three entrepreneurs Otto Dicker, Otto Scheffen, and Fritz Henkel had the company Henkel & Cie entered in the commercial register of the Aachen District Court by a secretary of the court: "The company begins on this day and can be represented by any partner."[1] In the list of new tradesmen and retailers, Henkel & Cie was entered as a "detergent factory." The water glass factory Scheffen & Dicker also operated at the same address.[2] The founders of the company, which would be called a start-up today, were entering into a field that dealt with detergents and cleaning agents in the broadest sense – a chemicals industry that was undergoing technological upheaval.

In these years, in addition to water (which was not always available in sufficient quantities), a whole range of substances were used for washing: sand, ash lye, soapwort, rosemary, honey, bean flour, and barley sauerkraut. In the 19th century, people had grown more aware that hygiene and cleanliness could prevent widespread infections. As the number of water pipes increased in the industrialized countries of Europe, more and more people came to understand that it was important to combat filth. "Epidemiology, germ theory, and sanitary reforms"[3] went hand in hand. Even in the "less well-off classes of society," a contemporary work noted, people were striving to "make the human being better."[4] Instead of soft potash soap, people now used solid soda soap. Although numerous local and regional soap makers in family businesses produced most of it, skilled craft businesses and small industrial businesses that used technical processes to produce soaps became increasingly important.[5] Additives such as dyes and fragrances were used, new products revitalized the market, and innovative manufacturing processes became the norm.

Washing and what was called "the big wash"[6] were still a woman's job. The

It looks like valuable crystal, but it is water glass: Industrially manufactured sodium silicate is a mass-produced product that, when mixed with soap and soda, is an indispensable raw material for detergent production.

image of the "idyll of happy and chatty goings-on by the stream or village well" never corresponded to the reality of the hard work of "treading laundry" in troughs and tubs, scrubbing on the washboard, and dealing with huge piles of laundry: "Heat, lye steam and sweet soapy fumes were hardly conducive to promoting the dignity and social status of women. The last step was bleaching, a less laborious but often no less lengthy undertaking crowned with modest success. Chlorine bleaching, with all its pitfalls, had long been known from its unpleasant side. So it was up to the housewife to choose the appropriate method and to approve of the result or to be annoyed by it."[7] Washing clothes in a washtub, basin or vat was a tiring, time-consuming, and meticulous process. It involved soaking, boiling, washing, rinsing, bleaching on the "bleaching meadows," as Erich Kästner described them in his poem "Trockenplatz," and, finally, bluing, starching, drying, wringing and, last of all, ironing and folding.[8]

During the American Civil War (1861–1865), a gelatinous mass that looked like glass when it solidified was also used as a soap substitute and was therefore called "water glass," a "collective term for glass-like solidified or water-dissolved melts of sodium and potassium silicates, melted from quartz sand and soda or

From the end of 1876, the small production facility was located in a rear building on Rudolfstraße in Aachen. The former shoe factory even had a proper chimney! The townhouse facing the street served as both office and residence.

potash."[9] Scheffen & Dicker was one of the first German companies to produce water glass for detergents. In the summer of 1874, Otto Scheffen had visited the specialty company Klingenberger & Co. in Grünstadt in the Palatinate and asked its owner, Mathias Klingenberger (1840–1919), whether he might be willing to set up a water glass factory. The project was delayed for a few months before a new building complex covering a total of 2,700 square meters was built on a plot of land in Herzogenrath under Klingenberger's management in August 1875. Klingenberger was under contract to take over the management of the water glass factory for ten years from September 1, 1875, and received a – rather generous – monthly salary of 170 Goldmarks, plus five pfennigs for "every hundred pounds of good water glass produced and sold in the factory." Room and board were also provided.[10] Henkel & Cie initially found its home at Lochnerstrasse 15 in Aachen's city center. The factory, with modest dimensions of 31 by 16 meters, was conveniently located near the Aachen–Mönchengladbach railway line and, in addition to the production area, had residential buildings and a "comptoir," or small shop.

In late 1876, the company purchased at auction a plot of land at Rudolfstrasse 15 in the northeast segment of Aachen's city center for 50,200 Goldmarks. It had a three-story factory and a residential building with a cellar, side wing, and a small courtyard. The total area was 715 square meters. This was where the production of the shoe factory Fritz Schaller & Comp. had been located until it was liquidated in 1875.[11] It is not known who financed the purchase; since Fritz Henkel neither inherited a large sum of money nor married rich, it seems likely that he contributed capital as a partner in the wholesale business and that his partners did likewise. According to information in the Aachen address book, this building complex also housed a "comptoir" of the Rheinische Wasserglasfabrik in Herzogenrath. Nothing is known about the exact circumstances of production on these premises. The warehouses of the wholesale company Henkel & Strebel still stood, so they were probably used for distribution.[12] The number of employees is also a matter of speculation. A later list indicated that the initial number of staff could no longer be determined, but that it was "quite low, probably up to 10."[13] It is possible that there were only three employees, among them the construction craftsman Peter Willems (1854–1898), whom Henkel hired right at the start.[14] Since no wage and salary lists have survived, the question is unlikely to be resolved.

The banks were rather tight with loans and were very strict about controls. Even later, when the company had moved to Düsseldorf, Henkel had to repeatedly disclose the company's operating figures to receive any loans at all, as anecdotal evidence shows. According to one of the few surviving, relevant sources, bank directors regularly turned up on Gerresheimer Strasse to obtain "all possible information" and to discourage excessive indebtedness.[15] The reserve the financial institutions displayed certainly contributed significantly to Fritz Henkel's lifelong aversion to debt and the influence of bankers. At any rate, during the empire's age of the founders, the "cash situation" was, as the authorized signatory Peter Schifferdecker later delicately put it, "as likely in every up-and-coming business, often tight."[16] This was reason enough for Henkel to "politely distance" the company from any possible control by banks for all time.[17] Even during the period in which Henkel had become a major company thanks to Persil, there were still years in which the company's creditworthiness provoked "some cause for concern."[18] Degussa, which was financially strong, even refused to grant Henkel the usual supplier credits. The strict conditions were a constant source of annoyance for Fritz Henkel. Although there was no way around having the banks be key financial partners, he continued to choose self-financing even for more expensive acquisitions.

The universal detergent Fritz Henkel developed in 1876 reduced labor in washing procedures, with an innovative mixture of soap, soda and water glass,

Unser Universal-Waschmittel

bietet vollständigen Ersatz für Seife bei bedeutender Ersparniß an Zeit und Kosten und bei gänzlicher Unschädlichkeit für die Wäsche, erspart die Bleiche und findet seiner vorzüglichen Eigenschaften wegen allseitig die beste Aufnahme. 1 Kilo Universal-Waschmittel ersetzt 5 Kilo Seife.

Herrn Jos. Engels, Markt Nr. 31, haben wir für Aachen, Burtscheid und Umgegend den Alleinverkauf übertragen und werden von demselben weitere Niederlagen errichtet.

Henkel & Cie.,

3453 Aachen.

One of the first advertisements for the universal detergent (1876). Why some advertisements referred to "Henkel & Co." instead of "Henkel & Cie" occupied Henkel archivists throughout the 20th century, yet they were unable to find a satisfactory answer in the files.

containing no chlorine. Produced in the small factory on Rudolfstrasse, it was touted as an alternative to conventional soaps. The "excellent and inexpensive detergent" promised to revolutionize previous washing methods. It was described as a "complete replacement for soap – significant savings of time and money – makes the laundry dazzlingly white and completely odorless without bleach."[19] However, the effect on the laundry was not entirely convincing. In 1876, a report from the Aachen Chamber of Commerce expressed skepticism: "There is still no substitute for soap, and even if newspaper advertisements lure one occasionally into trying out new detergents, one soon comes to the conclusion that a substitute for soda rather than for soap is being offered, and, moreover, that one is paying far too much for it."[20]

Initially a very small company, Henkel had little in common with the sedate environments of the many hundreds of other small and medium-sized soap manufacturers that dominated the scene on the continent.[21] The change Fritz Henkel initiated "was rooted in Germany's emerging chemical industries, not in its older craft manufacturing traditions"[22] and was, therefore, more comparable to the rise of Lever in Great Britain and Procter & Gamble in the United States. Fritz Henkel

Henkel's Bleich-Soda (bleaching soda) was the second detergent developed by Fritz Henkel himself, but it was cheaper to produce and had a brand name. Launched in 1878 in distinctive paper packaging, it immediately became a bestseller.

combined his inventiveness with business acumen – and he did so with great self-confidence while his two partners Scheffen and Dicker played little more than supporting roles in his stories, although they did provide the start-up capital for the company. Hugo Henkel later stated that, as far as he knew, "there was never really a 'partner'" – his father's real partners were "work" and "confidence."[23] As appealing as this bon mot may be, one should not forget that it is a rather uncritical remark by Fritz's son highlighting his father's role model status.

Hugo Henkel reported, probably based on stories his father had told, that business in Aachen had not always been easy. There is no record to indicate that the two partners were more than pure financiers. On July 15, 1877, Otto Dicker was the first to leave the company.[24] Fritz Henkel and Otto Scheffen sold the company premises to Scheffen & Dicker on July 20, 1877, for 67,000 Goldmarks.[25] On the same day, this company rented the building complex on Rudolfstrasse to the firm "Henkel et Compagnie" for 2,400 Goldmarks a month. However, the laundry room and a ground floor room in the side building remained reserved for Scheffen & Dicker, who also had the right to store "up to a hundred empty petroleum barrels" in the factory yard.[26] On February 28, 1879, Otto Scheffen also left

the company. The partners probably felt that the products' success was in question, the costs were unmanageable, and the risk was simply too great. This left Fritz Henkel as the sole owner in the commercial register.[27]

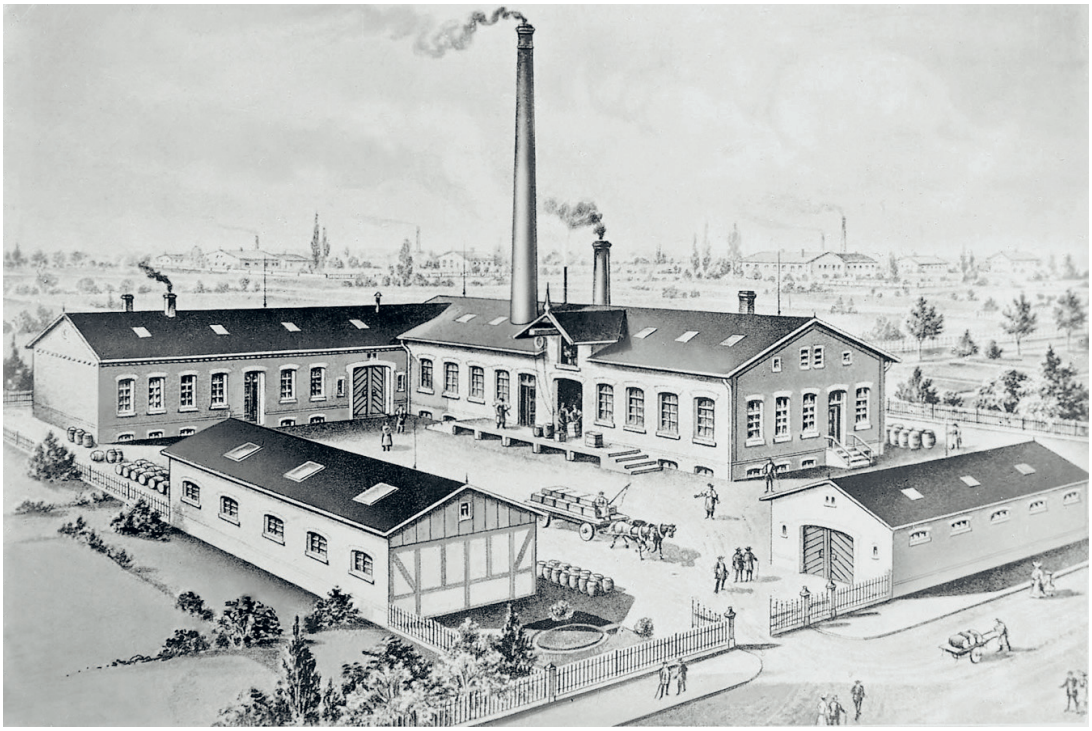
The laundry detergent produced in the small factory on Rudolfstrasse was only sold for a short time. The high production costs soon led Fritz Henkel to conclude that "this product was not viable."[28] The brand name Universal-Waschmittel (universal detergent) was not attractive to him, either. The young entrepreneur found it "not very appealing," and noted that it "never really seemed promising to him personally." It soon disappeared from the scene.[29] In the spring of 1878, Fritz Henkel launched a new product he had formulated, a mixture of soda and water glass. This was the first time that the brand name Henkel's Bleich-Soda (bleaching soda) appeared on the cream-colored paper packaging, draped with the symbol of a resting lion with a halo. The previous product Universal-Waschmittel had required spirits for washing out the water glass to make it solid, which was labor-intensive and expensive. Further experiments could be carried out by mixing about two parts calcined soda and one part water glass. Fritz Henkel had already experimented with soda while working with Honigmann. The syrupy water glass solution was evaporated and – unlike other manufacturers, who sold their products loose – the resulting powder was attractively packaged in paper bags. The new laundry detergent made yellowed laundry look whiter than if it had been washed with traditional crystal soda, as Fritz Henkel noted with satisfaction, "The experiments I had carried out turned out extremely well. […] At that time there was still extraordinarily little detergent on the market, actually only English washing crystal, small packages of around 40 g, which, if it was a good product, consisted of calcined soda with a little borax mixed in. I myself sold my bleaching soda in 10-pfennig packages that weighed 200 g. Crystal soda also cost 10 pfennigs at the time. So I came up with a detergent for the same price as crystal soda, and because of its excellent properties my product was in great demand after a short time."[30] Another advantage was that water glass did not necessarily have to be produced in-house but could be purchased cheaply from the nearby Rheinische Wasserglasfabrik Herzogenrath-Herkenrath.

From a small manufactory in Aachen to large-scale industrial production in Holthausen

The rented factory premises on Rudolfstrasse in Aachen wound up being only temporary. In view of the cramped premises and the logistical difficulties, Fritz Henkel sought a new location and moved to Düsseldorf in 1878. Because Henkel's Bleich-Soda, according to Fritz Henkel, was a "cheap" product, the freight costs played a "major role." In view of Aachen's geographically unfavorable location in Germany, he moved his factory to the banks of the Rhine.[1] Fritz Henkel later explained the move in more detail: "Germany is big; I chose the Rhineland and […] with foresight chose Düsseldorf. And that was a necessity. Not hundreds but thousands of shining examples where one could learn, which gave one courage, where one could see a way forward."[2] The company was removed from the Aachen commercial register on September 6, 1878,[3] and registered in the Düsseldorf commercial register on the same day.[4]

Düsseldorf, the former fortress and residential city, had become a city of industries and associations, largely shaped by a conservative National-Liberal industrial elite.[5] Business families like Poensgen and Haniel had turned the city into a production location, and it had now become a "transport hub." As the "desk of the Ruhr region," Düsseldorf was an up-and-coming financial and trading center, constantly attracting new companies with its infrastructure. Düsseldorf was a remarkably dynamic and attractive municipality that, thanks to a large influx of young men seeking advancement, was on its way to becoming a "major city and industrial metropolis with a world reputation."[6]

Fritz Henkel found what he was looking for at Schützenstrasse 27–33 in Düsseldorf-Flingern, not far from the main train station. Located there was an empty soap factory, founded in 1865 by Carl W. Beckershoff, that the material goods dealer August Fichtel had finally purchased after several changes of ownership. The site was not far from the Rhine, making it convenient for shipping. The prop-



The company premises were located on Schützenstrasse in 1878. The move from Aachen to Düsseldorf was an important step on its path to large-scale production. Logistically, the decision was also a perfect fit.

erty covered 968 square meters and the factory building measured 15 by 20 meters; two sheds stood on the site as well. Altogether, the property and factory were somewhat larger than those in Aachen. Henkel & Cie leased the site from Fichtel on July 19, 1878. Fritz Henkel and his wife moved with their two children, August and Fritz, into an apartment at Leopoldstrasse 52, just a stone's throw from the factory.

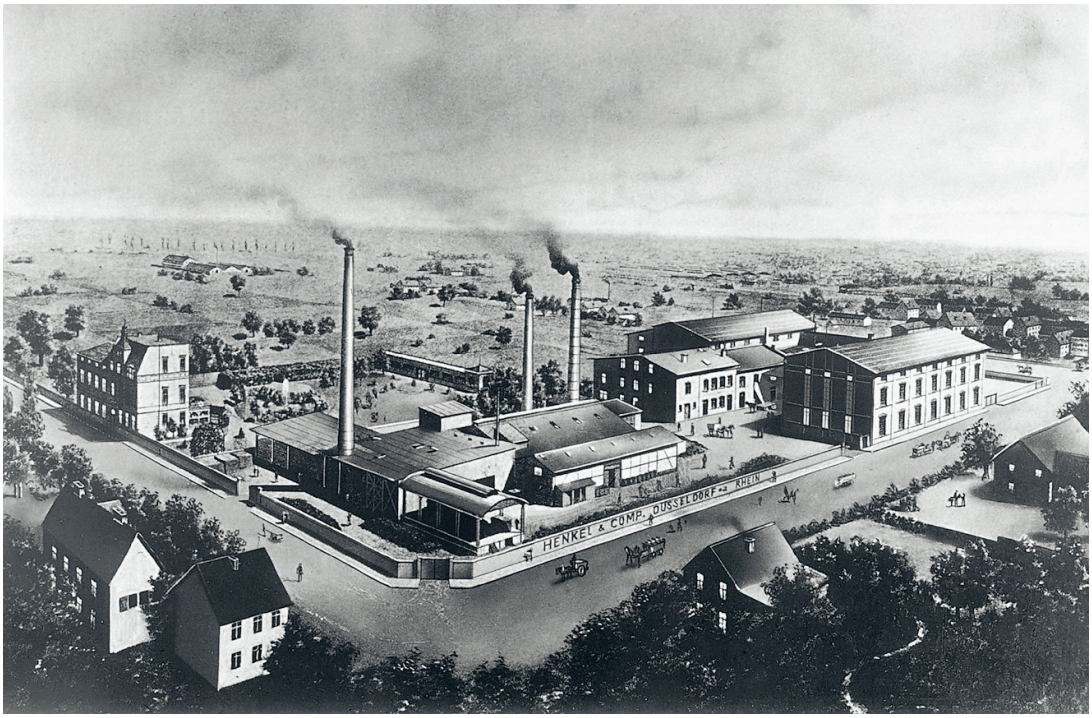
On September 19, 1878, Fritz Henkel applied to Mayor Wilhelm von Becker to obtain an operating license to turn the site into a bleaching soda factory. This area was less industrial, shaped rather by mid-sized skilled craft businesses and civil servants' apartments. The people of Düsseldorf had been accustomed to dealing with smoke, soot, smells, and noise for several years and had repeatedly protested these nuisances by filing petitions[7] – and this time it was no different. The protests and their consequences are described in detail in the chapter on environmental protection at Henkel. Although Fritz Henkel tried to counteract concerns about the production of bleaching soda in the inner city, he had to fend off several "objections" and an "opposition procedure." In April 1879, the Prussian Ministry of Trade and Industry granted Henkel & Cie the final manufacturing license for Henkel's Bleich-Soda. The long-awaited approval from the Royal Prus-

sian District Government also finally arrived on May 16, 1879.[8] Decades later, Fritz Henkel still remembered that he also had to use "his elbows […] to overcome all the adversities standing in his and his company's way."[9]

It is not clear why the official documents and some letterheads from 1878 and after read "Henkel & Co." or "Henkel & Comp." instead of "Henkel & Cie." Legally, it certainly made no difference. The company logo "Henkel & Co." was repeatedly used on the product packaging up until 1912.[10] In February 1914, it was pointed out that this name did not correspond to the commercial court registration and that the correct name was "Henkel & Cie." Stamps and letterheads with the incorrect name were gathered up,[11] but the other spellings were difficult to replace. Henkel & Comp., Henkel & Co., and Henkel & Cie were used "quite arbitrarily" and "sometimes even […] alongside each other."[12] As late as 1922, the advertising department complained that the risk of confusion was high and that "false information can lead to doubts and misunderstandings, which may seriously damage our interests. […] In connection with the above, we would like to consider removing the brass sign at the entrance to the factory with the outdated inscription 'Henkel & Co.' and replacing it with a new one with the correct inscription."[13]

The exact number of staff at the factory in Schützenstrasse cannot be determined. The office at that time consisted only of the manager Carl Pathe and an apprentice, who together were responsible for a total of probably 10–30 workers and white-collar employees.[14] The Schützenstrasse location remained a temporary solution. Sales of Henkel's Bleich-Soda developed so well that "the rooms became too small within a year."[15] The water glass expert Klingenberger became even more closely associated with Henkel on October 11, 1878. Klingenberger began setting up the Herkenrath water glass production facility for Henkel. He was also supposed to oversee any products that might be produced later and to devote "his entire activity" to them. With his modified contract, Klingenberger received an annual salary of 3,600 marks from 1884, a share of the sales of 10 pfennigs for 100 kilograms of goods, and a six- to seven-room apartment in Düsseldorf, which provided a secure income for him and his wife, seven daughters, and three sons.[16]

At the end of September 1880, Fritz Henkel bought a plot of land at Gerresheimer Strasse 171 in Düsseldorf-Oberbilk from a master carpenter and building contractor for 13,200 Goldmarks.[17] The plot in what was then still a suburban-rural area known as Flenger Geest was 3,500 square meters, almost four times as large as the one in Flingern, marking the transition from a skilled craft production to a large-scale operation. Starting in October 1880, a two-story factory building was built in just a few weeks. The lower floor housed both the office and one part of the laundry detergent production: the mixing machine for soda with



A depiction of the factory site on Gerresheimer Strasse from 1880. For almost twenty years, this plant in Düsseldorf-Oberbilk was Henkel's headquarters.

a funnel, the crushing plant known as the "crusher," the grinding plant, and a storage area for bleaching soda,[18] which was spread out in "batches" on open areas to dry for later crushing. Another warehouse housed the crate nailing area and the spaces for unground soda.

The move to Gerresheimer Strasse only temporarily restricted production. An advertising circular distributed to customers and suppliers dated January 1, 1881, stated: "Now that the move to our newly built establishment is complete, we would like to take this opportunity to apologize to those of our valued customers whom we have not been able to serve with the usual punctuality in recent times, and at the same time to add the assurance that, through appropriate expansion and improvements to our factory facilities, we will in the future be able to carry out all incoming orders quickly and with excellent quality."[19] In the first few years, construction activity on Gerresheimer Strasse remained manageable. In 1883, the warehouse building was extended, and two more sheds were built; the following year a new steam boiler was installed. The claim that the factory had already become "a quite respectable factory"[20] by this time is debatable. But the Gerresheimer Strasse facility already had phone lines: Fritz Henkel could be reached at number 74 in his private apartment in Düsseldorf, and at the company at number 75.

An advertisement for the successful product Henkel's Bleich-Soda from 1885. Compared to the Persil advertisement from about twenty years later, everything still looks quite old-fashioned.

In some production units, Henkel was and remained dependent on raw material suppliers because its own capacities were not sufficient. The Duisburg-based chemical company E. Matthes & Weber set up its own production facility in Düsseldorf in 1880 because of Henkel's large orders. In 1881 alone, Henkel received 1,302 sacks of soda – around 130 metric tons. By 1886, deliveries had already multiplied to 765 metric tons.[21] By 1899, they had already reached 5,000 metric tons. The breathtaking increase in production was also reflected in Matthes & Weber's sales to Henkel, which rose from 360,000 marks in 1886 to 440,000 Goldmarks in 1888.

In addition to the production of Henkel's Bleich-Soda, Henkel began producing its own water glass in 1884. Henkel had previously purchased this raw material from the Rheinische Wasserglasfabrik in Herzogenrath-Herkenrath. However, "little by little," Fritz Henkel was convinced that he could only ensure the "quality and uniformity of the product" if he produced the water glass himself. With the purchase of the Rheinische Wasserglasfabrik, he could also produce the

raw material more cost-effectively. Fritz Henkel claimed that Scheffen & Dicker were immediately ready to sell.[22] They may have received a "golden handshake." The Scheffen & Dicker company was dissolved by mutual agreement on December 5, 1884.[23] The production facilities of the Rheinische Wasserglasfabrik were rebuilt in Düsseldorf on the factory premises on Gerresheimer Strasse, and the Herkenrath property was given to Otto Dicker and his partner Bernhard Kallen.[24]

Was the purchase a far-sighted decision, or did it correspond to the widespread business practice of "moving from temporary solution to temporary solution"?[25] In any case, the takeover paid off, because Fritz Henkel became "the only manufacturer" for the Rhineland and Westphalia.[26] He himself had always attached importance to being the head of a "chemical products company" and not a "chemical company" because he aimed to produce profitable chemical products. In the founder's view, a "chemical factory," by contrast, was an organic structure that manufactured its own end products from the intermediate products.[27]

On March 24, 1884, Henkel applied to the Düsseldorf city council to build a water glass factory and asked for the "matter to be accelerated as much as possible" for its bleaching soda production. The reasons were explained two months later, on May 21, in a "request for rapid approval of the concession matter." The company was no longer receiving enough raw materials from its previous suppliers and could not obtain them "in the required quality from anywhere else." If the approval process dragged on, Henkel would suffer "incalculable damage."[28]

Immediately after the *Öffentlicher Anzeiger*, the official gazette of the city of Düsseldorf, published the announcement on April 19, 1884, around a dozen residents protested, just as others had in Schützenstrasse. They had looked at the building plan, which provided for a "smoke channel" and discharge through a chimney.[29] If one considers the water glass production process, these concerns were not unfounded. Workers fed a mixture of coal dust, sand, and sulphate through a funnel into the smelting furnaces made of fireproof bricks. In the coal-fired furnaces, water glass was produced by melting the quartz sand and sodium carbonate in a large cylinder. The light, liquid, glowing glass flowed into small iron transport carts. Workers then hammered the cooled glass into fist-sized pieces. In addition to the heat and the smell of the exhaust fumes, production was associated with considerable noise; residents were also bothered by the height of the chimney in a residential area. The construction sketch from March 1884 referred to a "French oven" with a recessed hearth, which, in the company's opinion, represented a "significant technical improvement" over older models.[30] However, residents feared that "the inevitable precipitation of poisonous substances during production" would damage the densely populated district: "We cannot imagine that the authorities would allow the construction of a chimney with a

height of over 100 feet in the immediate vicinity of highly populated houses."[31] On May 21, the documents were examined at a hearing in Düsseldorf's City Hall. Fritz Henkel personally defended his plans. The construction of the chimney and the location of the factory in a residential area pertained to "building regulations" and did not really need to be discussed. "In addition, he could say with the greatest certainty that no harmful gases or precipitation would be emitted at all and that the smoke to be removed would be minimal."[32] Because no agreement could be reached, the matter was handed over to the Prussian Ministry of the Interior in Berlin on May 29. This authority granted Henkel the concession on July 14, 1884, albeit subject to conditions that went far beyond the industrialist's wishes and were hardly satisfactory to the local residents. The furnaces were to be constructed in such a way that "smoke and soot formation were prevented as far as possible" and the smoke was to be discharged through a 35-meter-high chimney.[33] A number of skilled workers from Herzogenrath-Herkenrath were taken on to produce water glass, including master craftsman Klingenberger, who was already well known to Henkel and now took on the position of technical production manager.[34]

The first reliable list of employees dates from June 1882 and includes 19 males who were required to be insured with the Allgemeine Fabrikarbeiter-Unterstützungskasse (General Factory Workers' Support Fund) in Düsseldorf. In the small company, relations were still quite personal. On Sundays, the authorized signatory Schifferdecker went with the "officials," as the office employees were still called at the time, to one of the pubs "Frankenheim" or "Aders" that served the traditional "Altbier", where the usual specialties such as Dutch and Mainz cheese, along with blood sausage and liverwurst, were served.[35] The number of employees increased continuously. In 1893, the water glass factory employed one master craftsman and ten workers; the bleaching soda factory had one master craftsman and 33 workers. In addition, there were twelve office and travel staff, so that the total workforce comprised around 60 people.[36]

Fritz Henkel developed a particularly close relationship with Peter Schifferdecker, who joined Henkel in April 1880 at the age of 28. Schifferdecker had gained his first experience as a merchant in the pharmacy and paint trade and, after five years in the field, became the head of the office.[37]

In the 1890s, the factory was further expanded, and in 1893, it was connected to the city's sewer system.[38] Conditions in the offices were still adventurous since they bordered on the soda factory, as the accountant Anton Lang (1875–1949) recalled: Three rooms were "cut off with a wall of boards and covered with wallpaper. The work carried out in the soda room, such as stamping, beating, and grinding, often caused the wallpaper to tear, so that soda dust passed through the

Fritz Henkel in a portrait from 1895: The start-up from the Bismarck era has already become a successful brand manufacturer with a factory bursting at the seams.

fine cracks in the wood and dusted the office equipment and coat rack. Since there were no closets, the clothes were hung on a clothes rack with sliding curtains attached to the wall."[39]

During these years, Fritz Henkel's sales of laundry detergent rose much more than sales of water glass. For the years 1888 to 1891, Henkel's Bleich-Soda was the top product, comprising 60 percent of the total sales of 400,000 to 500,000 Goldmarks, pure water glass made up another 30 percent of sales,[40] and the rest was made up of commercial products such as gloss starch. Sales of the main products were good, as Fritz Henkel wrote to one of his sales representatives in 1889: "Business is going very well, by the way, both water glass bleaching soda and tea."[41] The total value of the Henkel site was estimated at 235,000 Goldmarks in 1892.[42]

This all sounds like an unbroken success story, but that is probably not entirely true. After his retirement, Schifferdecker, upon looking at the old business books, reported that Henkel & Cie had also had to "go through difficult times" and that business had "not always been so brilliant": Mr. Henkel and he would sometimes sit across from each other, sweating, and not knowing where the wages would come from.[43] According to a later report, Fritz Henkel himself noted during a visit to the corporate archives in the 1920s that the material collected there illus-

The Henkel & Cie fleet in 1911. Horse-drawn carts and motor-driven vehicles stand harmoniously alongside each other, ready to transport Henkel products to retailers.

trated "that the wheels here in the plants did not always whir, but that there were also hard and difficult times for us."[44]

Düsseldorf customers received deliveries by handcart. All other goods were transported several times a day by horse-drawn carts to Düsseldorf harbor or to the increasingly important Derendorf freight station. Around 500 crates of Henkel's Bleich-Soda left the factory every day. The three double teams of horse-drawn carts passed through the streets as a convoy to attract as much attention as possible. The practice continued even when the "travelers," that is, the traveling salesmen, had long since used cars for their deliveries.

Even in the 1930s, when Henkel's fleet had already grown to 200 motor vehicles, it still used horse-drawn carts for small deliveries and, as late as in 1936, also for "express goods" from the factory to the Reisholz freight station.[45]

By 1896, the factory on Gerresheimer Strasse, which had grown to 6,730 square meters, was bursting at the seams. Conditions were not ideal: the buildings were in the middle of the expanding city, there were no opportunities for expansion, and one constantly had to expect further protests about environmental pollution. But most problematic of all was the lack of a rail connection: To be sure, the Bergisch-Märkische, Köln-Mindener, and Rheinische Railways were all being nationalized at the time, with the promise of better coordination of the expansion of the rail network for Düsseldorf's industrial companies. Nevertheless,

the Gerresheimer Strasse's connection to the rail network was slow to materialize, so another relocation of the company was unavoidable.[46]

Land where industrial companies could build was scarce in Düsseldorf. In July 1898, Fritz Henkel bought land in the Lierenfeld district, a little further out of town, as a precautionary measure because that location offered the possibility of building a branch line to the railway line between Cologne and Düsseldorf.[47] The plan was shelved, though, when a good opportunity arose to build a new factory outside the city gates, on the "green meadow," so to speak: Fritz Henkel made the fundamental decision to put an end to energy- and resource-sapping moves once and for all and to purchase a site that would also enable future expansion.

He found what he was looking for south of the city, in Holthausen, in the municipality of Benrath. The industrialization of this "economically insignificant but scenically attractive" rural municipality was a symbol of urbanization and the decline of agriculture then occurring across all of Germany.[48] The Heye family of industrialists, who inherited the Elbroich House near Holthausen in 1852, recognized the favorable location of the surrounding area for industrial settlements and purchased contiguous arable land in the area of the cadastral municipality of Itter-Holthausen in 1895. Although not very productive for agriculture, it was suitable for industrial areas as it was not prone to flooding.[49] In June 1898, Industrieterrains Düsseldorf-Reisholz AG was founded. The sole member of the company's management board was the former mayor of Uerdingen, Peter Krahe; the supervisory board consisted of Hermann Heye and his brother-in-law, the Düsseldorf banker Max Trinkaus.[50] The company leased these properties, around 1,800 acres (about 4.5 million square meters), to industrial companies and built a railway station, connecting tracks, shipyards on the Rhine and storage areas on the site in 1898–99.[51] From then on, Düsseldorf's main train station could be reached from the site in just ten minutes with the Bergische Kleinbahn. A rail connection existed via the ultra-modern new port on the Rhine, the first construction phase of which was completed in 1901. The Rhine shipyard was equipped with cranes, stages, and electric lighting. The electricity for the new industrial area was supplied by the Rheinisch-Westfälische Elektrizitätswerke.[52] The idea behind the Industrieterrains Düsseldorf-Reisholz AG proved successful thanks to further development measures. By 1907, almost three dozen companies from the iron, chemical, paper, leather, food and construction industries had settled on the newly developed site, including the large companies Preß- und Walzwerk AG and the Papierfabrik Carl Jagenberg.[53]

One of the first buyers was Fritz Henkel, who knew from his own experience after several relocations how important it was to have a building plot large enough for further growth. His son Fritz reported that his father was "delighted."[54] The

later story that he found a four-leaf clover by the side of the road while touring the site by carriage is one of the many legends that grew up around the new location.[55]

In collaboration with the founder of the wooden pulley factory A. Friedrich Flender & Co., Henkel secured a large site in Holthausen and took over some 55,000 square meters. For the price of 98,808 Goldmarks, he received a prime piece of land in the center of the new industrial site. Since April 1, 1899, he had already been in "possession and enjoyment" of this area, and in May 1899 he submitted a "concession request" for the bleaching soda and water glass factory. Fritz Henkel laid the foundation stone by placing a brick into the foundation of the water glass furnace on July 22, 1899, in the presence of Peter Schifferdecker, the masters Klingenberger, Hermann Engels, and Wilhelm Krüll, and the architect Carl Stock. Three days later, on July 25, 1899, Krahe and Fritz Henkel also had their deal notarized.[56]

In the following months, the factory facilities grew, largely based on the designs of the Düsseldorf architects Richard Genschmer and Carl Stock.[57] Fritz Henkel Sr. and his son Fritz were passionate about the project: for several months, both spent their lunch breaks not in their house in Düsseldorf but at the home of the peasant Josef Hoffmann on the high road from Cologne to Düsseldorf in order to inspect the construction site on the new factory premises afterward.[58]

Access to the factory site from Reisholz, in the middle of forests and fields, remained a bit of an adventure for a while. The connecting road branching off from the aforementioned high road was little more than a dirt track five meters wide that was graveled over in 1908 and not paved until 1928. Most of the employees continued to live in Düsseldorf; they commuted to the new factory on the Bergische Kleinbahn, a narrow-gauge railway established in 1898 between Düsseldorf-Oberbilk and Benrath that ran with rickety wagons every half hour, according to the timetable. The alternative was to utilize the state railway to Reisholz station and then walk for 20 minutes through the forest. Lucky commuters occasionally saw deer venturing up to the fence of the factory site.[59] On December 5, 1899, Fritz Henkel signed a contract with the Königliche Eisenbahndirektion (Royal Railway Directorate) of Elberfeld for a rail connection from the factory to Reisholz station, which had only been opened for passenger and freight traffic six months earlier.[60]

The operating license for the plant was granted in September 1899,[61] and production began on March 9, 1900. Production on Gerresheimer Strasse was gradually discontinued; in April 1901, only one guard was still on duty there.[62] One of the first buildings in Holthausen to be ready for occupancy was the villa-like two-story comptoir building on Heyestrasse (today Henkelstrasse/Löwenallee). Most

of the employees worked there, including the first "office lady."[63] In addition to the offices on the ground floor, the reception room, and the office for Fritz Henkel, there was a "living room" with a bay window and a separate exit to a rear garden accessible from the "boss's room."[64] There were also enough workshops for metalworkers, carpenters, plumbers, and coopers. The tea warehouse and the shipping department were housed in the office building.[65]

The single-story, hall-like water glass factory with a boiler and machine house for ventilation was particularly prominent. As on Gerresheimer Strasse, two water glass furnaces were in operation, built along the lines of the Siemens-Martin process and equipped with gas generators. The "feed openings" were on one of the long sides of the smelting furnaces, with the outlet for the molten glass on the opposite side. The raw material, which had already been weighed and mixed in the warehouse, was pushed into the furnaces in tubs. The glowing hot glass then flowed slowly toward the tap opening, from where it was collected in cast-iron mold carts. The yellow, green, and blue "block glass," once it had finally solidified, was taken to the glass warehouse, collected in iron containers, and filled into 200-liter shipping barrels. These containers were made from beech in the company's own cooperage. Only later were barrels made from longer-lasting oak or iron. Cranes and grippers then loaded the material directly into railway wagons.[66]

The bleaching soda factory was the last to go into operation. In October 1899, the press reported that a "large soda factory" was being built "whose enormous work halls and large, brick-lined vats suggested a high-performance operation."[67] The striking four-story building with its thick walls had only small window openings.[68] The soda was poured into sheet-metal tubs here. After crystallization, when the material had cooled, it was pulverized in a strenuous process: the bleaching soda, which became rock-hard over time, was piled up in heaps about one meter high. Whole columns of workers were needed to break the product with hammers and pickaxes and to take it by cart to the "pre-crusher" and other crushing machines. The bleaching soda was then transported to the packing plant.[69] The site in Holthausen has been continuously expanded since the beginning of the 20th century. These developments can be easily traced using drawings and factory plans.