Immigrant Entrepreneurship

Jacob Hasslacher (1852-1921)

Jacob Hasslacher has been counted among the American chemical industry's "founding fathers." The manufacture and sale of specialty chemicals was more advanced in his native country than his adopted one, and his firm, the Roessler & Hasslacher Chemical Company, benefited from its German connections during most of the period in which it was led by Hasslacher.

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Published: June 08, 2011
Updated: May 08, 2013

Introduction

Jacob Hasslacher (born July 5, 1852 in Bad Ems, Duchy of Nassau; died Mach 15, 1921 in New York, NY) has rightly been counted among the American chemical industry's "founding fathers."[1] It is no coincidence that this honor was granted to an immigrant from Germany, for around the time of Hasslacher's move to the United States, the manufacture and selling of fine and specialty chemicals – the field in which Hasslacher's career was primarily anchored – was more advanced in his native country than his adopted one. Hence, it is hardly surprising that Hasslacher's firm, the Roessler & Hasslacher Chemical Company, benefited from its German connections during most of the period in which it was led by Hasslacher, from 1885 until 1919. Among other advantages, these ties allowed the company to introduce chemical processes co-developed by its German parent firm, the Deutsche Gold- und Silber-Scheideanstalt vormals Roessler AG (Degussa), onto a less competitive American market. On the face of it, at least, Roessler & Hasslacher's German origins were likewise reflected in its business culture and practices. For example, it advertised some of its products in the German-American journal *Pharmaceutische Rundschau* and preferred to hire employees with a command of the German language.[2] Moreover, Hasslacher's outreach to the New York chemical community – an important aspect of his entrepreneurship – could reasonably be viewed through the lens of his German background as well. However, one should be careful in attributing these activities solely to Roessler & Hasslacher's German roots and connections. As a matter of fact, in the late-nineteenth and early-twentieth centuries, "purely American" companies also attempted to associate themselves with academia, and German, the leading language of chemistry, was frequently spoken by American chemists and pharmacologists of non-German descent, among others.[3] Whatever the case, Hasslacher's links to German *Wissenschaft* surely served him well in American chemical circles, for in the U.S. a diverse group of academic and

industrial chemists, many of whom had pursued advanced studies in Germany, sought to improve their country's track record in chemical science and technology by imitating German models of education and innovation, however they may have been perceived or defined. During the First World War, however, Roessler & Hasslacher's ties to Germany became an embarrassment. American shareholders were able to acquire a controlling financial interest in the company prior to America's declaration of war on Hasslacher's native land in April 1917, but the transaction's honesty was disputed and R & H was forced to emphasize its Americanness. Still, well into the 1920s, R & H adhered to a few practices that industry insiders perceived as "un-American." According to associates who outlived Hasslacher and his partner, Franz Roessler, the personal influence of R & H's founders was still being felt in this period.

Family and Social Background

Jacob Hasslacher, the third of Agnes Schäffner (1824-95) and Georg Hasslacher's (1813-64) ten children, was born in 1852 in Bad Ems, a health resort near Koblenz. At the time, Bad Ems belonged to the Duchy of Nassau, which is now part of the state of Rhineland-Palatinate. A branch of the Hasslacher family had been living in the area since the 1720s. Of those ancestors, Jacob's father Georg is certainly one of the better remembered, for his name was connected to a relatively powerful brand – Georg Hasslacher is credited with co-inventing the so-called Emser Pastillen, a popular, salty remedy for sore throats, hoarseness, and the like. Of course, this is not to say that the professional achievements of Jacob's father, who held the position of public administrator in charge of Bad Ems's thermal springs, made him stand out among the other members of his accomplished family. For example, the career of Georg Hasslacher's older brother Peter clearly appealed more to Anton Hasslacher, whose chronicle of the family history was published in 1905. Peter Hasslacher's life had been packed with drama: after being incarcerated for seven years on the charge of high treason, he joined the Jesuits in 1840 and participated in the ambitious missionary campaign launched to revive Catholicism in the German territories in the aftermath of the failed liberal revolution of 1848. Nor had Georg Hasslacher possessed his family's most well-educated mind. Georg's academic credentials, for instance, are unlikely to have matched those of his father, whose law degree from the University of Bonn probably helped him secure a position at the Prussian District Court [*Preussischen Landgericht*] in Koblenz. Anton Hasslacher, the family historian, had also studied at the University of Bonn, as well as at Humboldt University and the Mining Academy in Berlin. His later career as a civil servant would culminate in Berlin, where Anton was appointed *Oberbergrat*, a senior inspector of mines, in 1886. This probably was the most prestigious position held by a Hasslacher of the Koblenz branch around that period.[4]

Unlike his grandfather and his relative Anton Hasslacher, Jacob Hasslacher appears not to have studied at a university. Instead, in addition to his primary schooling in Bad Ems and his secondary education at the *Gymnasium* in nearby Hadamar, Hasslacher trained as a technical salesman at the Deutsche Gold- und Silber-Scheideanstalt vormals Roessler AG in Frankfurt am Main, the metallurgical and chemical firm better known as Degussa.

As with, for instance, Siemens & Halske, family ties greatly facilitated the expansion of Degussa, which had been incorporated in 1873, two years after the founding of the German Empire. In particular, six Roessler brothers played a leading part in the firm's early history. While the two oldest, Heinrich and Hector Roessler, led the parent company in Frankfurt am Main, two of the younger brothers established affiliates in Berlin and Vienna during the 1870s. A fifth brother, Julius, joined the Berlin firm in 1887. Finally, the sixth brother, Franz Roessler, moved to New York in 1882, after having become acquainted with a closely guarded process for manufacturing "liquid bright gold." By letting Franz Roessler take up the production of this branded gold paint in America, where a steady demand from porcelain decorators seemed assured, Degussa purposefully circumvented protectionist tariffs levied on its exports.[5]

According to William Haynes, a historian of the American chemical industry, Jacob Hasslacher was "above all else … a quick thinking merchant" known for "his accurate commercial insight into all chemical affairs."[6] Apparently, his business acumen did not go unnoticed among Degussa's executives, for they realized that Hasslacher was the right man to explore the prospects for increasing their firm's presence on the American market at a time when other German chemical corporations typically preferred exports

to America above direct investments.[7] In fulfilling his mission in the U.S., Hasslacher may have benefited from his family connections, for Anton Hasslacher's study indicates that, starting in the first half of the nineteenth century, several of his relatives had established themselves as merchants in New York.[8] The presence of these family members may have swayed Hasslacher's decision to settle down in America – a decision made at the latest in 1885, when Degussa, Hasslacher, and Franz Roessler agreed to form Roessler & Hasslacher, a partnership, and acquired production facilities in Perth Amboy, New Jersey.

Business Development

Soon after the formation of the partnership, a major challenge to its future emerged. Around early 1886, another German-American, Gustavus Michaelis, and his business associates accused R & H of having violated their intellectual property rights when it came to the process for manufacturing chloroform, the second article of commerce that R & H had started producing itself. The ensuing patent infringement suit will be discussed in some detail for the following three reasons. First, it shows how Hasslacher and his colleagues mobilized resources from both sides of the Atlantic and, more generally, how a legal dispute between two U.S.-based firms was waged in a "transnational technological space." These facts are worth emphasizing, as patent litigation has mostly been studied within nation-state frameworks.[9] Second, the lawsuit points to a significant feature of Hasslacher's entrepreneurship, one that will be discussed in greater detail below – his outreach to the New York chemical community and his "ornamental" uses of science. Finally, the lawsuit, which is unusually well documented, provides some clues as to the strategic importance of patents in a period in which American chemical and pharmaceutical enterprises began to rely more frequently on these intellectual property rights for appropriating returns on innovation.[10]

At the same time, the objective is not to analyze *Michaelis and Mayer v. Roessler and Hasslacher* (hereafter *Michaelis v. Roessler*) in its entirety or to delve too deeply into the intricacies of American and international intellectual property right regimes. Instead, the following paragraphs serve to draw attention to the strategies pursued by Hasslacher and his associates in the area of transnational intellectual property rights, innovation, and technology transfer. Then, the remainder of this section will sketch R & H's development from 1889 – the year that saw the end of the lawsuit and the incorporation of the Roessler & Hasslacher Chemical Company – until the beginning of the First World War.

The Chloroform Suit

The possibility of producing chloroform ($CHCl_3$) from acetone ($(CH_3)_2CO$) and bleaching powder had been suggested as early as 1832 by the renowned German chemist Justus Liebig, one of the three discoverers of chloroform. However, manufacturers had disregarded the process during the following half century. Instead, the so-called alcohol process, in which bleaching powder was made to react with alcohol in place of acetone, had been the most popular method for manufacturing chloroform. Up to the 1880s, indeed, it may have been the only process that had been adopted on an industrial scale. At the same time, market demand for chloroform had clearly been expanding since the late 1840s. Tellingly, new outlets included chloroform's use as an anesthetic, despite the potentially lethal health risks involved.[11]

Considering that science- and technology-driven innovation is widely seen as a pivotal engine of economic growth, it is worth mentioning that a chemical error had contributed to the neglect of the process first mentioned by Liebig. In particular, the process' practicality had been questioned in Henry Watts' authoritative *Dictionary of Chemistry*, based on an 1848 article by chemist V. Siemerling. According to Watts, acetone's low chloroform yield and its comparatively high cost spoke against its being used to manufacture chloroform. Research experiments conducted during *Michaelis v. Roessler*, though, clearly demonstrated that the yield indicated by Siemerling and in the *Dictionary of Chemistry* had been erroneous. In fact, the number written in Watts' *Dictionary* was so off-the-mark that inventor Dr. Gustav Rumpf, who advised R & H during the chloroform lawsuit, attributed it to a misprint.[12]

Transatlantic Patent Skirmishes

The now ubiquitous patentability requirements of non-obviousness and absolute novelty had already been incorporated into the German and American patent examination systems before the 1880s. Accordingly, patent applicants had to make clear that their inventions significantly differed from prior published research and were not self-evident to persons "skilled in the art." When interest in the chloroform-from-acetone process reemerged in the 1880s, inventors in this field who desired to acquire intellectual property rights were in a precarious position: as the process' basic principle had already been publicly disclosed in and after the 1830s, patent applications claiming it most likely would not have been accepted. Probably for this reason, the scientist-entrepreneur Gustavus Michaelis and his legal advisors downplayed the centrality of acetone to their chloroform process when applying for patent protection in and after November 1884. Instead, they alleged that, while acetone was generated from their starting material – so-called crude acetate of lime, whose chemistry was poorly understood at the time – it was largely immaterial to their subsequent production of chloroform. In this manner, they were able to obtain intellectual property rights covering a chloroform process that involved acetone.[13]

While it is impossible to verify whether Michaelis' Albany Chemical Co. and its licensee, Charles Pfizer & Co., actually followed the methods described in Michaelis' patents, the fact remains that they could significantly reduce production costs – to about half the level of the cost of the alcohol process, according to one of their court witnesses. In theory, this might have allowed them to undersell competitors while retaining an attractive profit margin. However, because of price decreases implemented by two competitors, R & H and the Mallinkrodt Chemical Works, Albany and Pfizer felt forced to lower theirs to the point where the trade became hardly profitable anymore. This "price war" apparently encouraged Michaelis and his allies to take legal action. In the lawsuit against R & H, they claimed that a chloroform sales price of below sixty dollar cents per pound could only be arrived at by means of the methods set forth in their patents, thus implying that R & H had illegally adopted them.[14]*Michaelis v. Roessler* dragged on for three years. According to a *New York Times* report, the case "affected nearly every druggist in the United States" and its financial stakes ran up to $250,000 (about $6.1 million in 2010).[15] The list of scientific experts consulted by R & H in connection with the suit looks impressive and shows that Jacob Hasslacher and Franz Roessler, who clearly benefited from their association with Degussa, were able to marshal considerable human and financial resources in advance of the dissolution of their partnership in 1889 and the subsequent formation of the Roessler & Hasslacher Chemical Company, a New York State corporation. For instance, R & H was able to engage Prof. Charles F. Chandler of Columbia College, a much sought-after expert witness, even though Chandler had first been approached by the Michaelis interests. As suggested by the scientist Henry Morton, another popular court witness, Michaelis and his associates at the Albany Chemical Co. wrestled with a "lack of ready money."[16] For R & H, on the other hand, Chandler's financial demands were apparently not much of an issue.[17] Chandler came to study the firm's chloroform installation at Perth Amboy as early as April 23, 1886, only one week after being introduced to Hasslacher by a mutual acquaintance, patent attorney Edwin Brown. At Chandler's suggestion, R & H also secured the services of another star witness in September 1886:Ira Remsen, professor of chemistry at Johns Hopkins University. Both Chandler and Remsen conducted laboratory experiments to verify the claims made in Michaelis' U.S. patent and to determine whether R & H's process constituted an infringement. The most thorough analyses, however, probably were made in Germany.

In 1884, the Verein für chemische Industrie in Mainz, a city near Frankfurt am Main, had instructed Franz Roessler, R & H's technical brain, in the production of acetone and chloroform. Additionally, the Verein's chemist, Gustav Rumpf, advised R & H about the differences between their methods and the ones claimed in Michaelis' patent and the strategy to pursue in the American lawsuit. Rumpf even crossed the Atlantic to testify in the suit, among other plans. Furthermore, experimental investigations were carried out in the analytical chemical laboratory of Carl R. Fresenius, a scientist of international fame. Fresenius's research results, described in three brief reports, confirmed that the chloroform yield of the chemical bodies listed in Michaelis' patent did not match the yield of R & H's acetone. As a matter of fact, one compound mentioned by Michaelis did not even exist.[18]

Why did R & H mobilize so many experts? As for Chandler and Remsen, this probably had more to do with their scientific authority and, coincidentally, their professor titles than with their expertise. For instance, even before it engaged the two academics, R & H had possessed analytical chemical data on the basis of which "every chemist will see that we do not make chloroform from Michaelis's bodies."[19] At that time, though, R & H obviously could not yet quote from Chandler's testimony or forward Chandler's judgment, as expressed in a letter to R & H's attorney Edwin Brown, to its customers. Neither could it emphasize that its case for non-infringement was supported by "such high authorities" as Chandler and Remsen, "who have both seen and studied our process in our works in Perth Amboy, N.J."[20]

In an earlier notification to the trade, R & H had claimed that Chandler had "exhaustively examined our process."[21] From this, it should not be inferred that he had devoted a great deal of time to this assignment. In fact, Chandler and Remsen had been able to ascertain relatively rapidly that R & H's process differed from the one described in Michaelis' patent. For instance, Chandler's inspection of R & H's chloroform installation in Perth Amboy had taken place on a single day. Remsen, for his part, decided to stay there for two consecutive days, despite his concern that he might be "taking unnecessary trouble" by doing so. As he indicated to Chandler, he did this partly "to justify myself for the cross-examination" by Michaelis' counsel William Arnoux.[22] This certainly was no overly precautious attitude. As it turned out, Arnoux hammered on the (alleged) superficiality of the inquiries made by R & H's expert witnesses, particularly Chandler, in the written argumentation that he submitted in 1888. For example, Arnoux concluded his summary of Chandler's testimony by asserting that it "from beginning to end is based entirely upon hearsay, theory and speculation, and is furthermore thoroughly partisan, or, better said, one-sided, and it is obvious that it is wholly and totally unreliable, and not worthy of consideration."[23]

In support of his allegations, Arnoux pointed out that Michaelis' German patent had been granted after a thorough examination by experts at the *Kaiserliches Patentamt* in Berlin. This scrutiny had partly resulted from a protestation by Wirth & Co., a law firm based in Frankfurt am Main. Wirth had argued that Michaelis' patent claims should be revised so as to more clearly exclude the already known production of chloroform from acetone; that is, the process that the Verein für chemische Industrie in Mainz and R & H claimed to follow. Initially, the Michaelis interests may well have wondered why a minor law firm opposed the granting of its patent, whereas all the German chloroform manufacturers had kept quiet. However, they soon found out that their American rivals had had their say: as it turned out, Wirth employed Franz Hasslacher, a patent lawyer, who had doubtlessly been instructed by his younger brother Jacob and the Verein für chemische Industrie in Mainz.[24]

Years of Expansion

Even during the patent infringement suit, R & H could gradually increase its chloroform production. By 1892, three years after its incorporation, R & H had become by far the largest American producer, almost single-handedly supplying its domestic market. The business' earnings more than justified the initial investments; from 1890 to 1892, profits more than tripled, from almost $9,000 to $31,722 (about $784,000 in 2010).[25]

In the early 1890s, when Degussa's Heinrich Roessler and Alexander Schneider visited their company's American affiliate, the chloroform installation occupied the lion's share of R & H's production facilities. R & H not only manufactured products of its own, however. It also served as a sales agency for Degussa and other German companies, as well as for American firms that had not similarly invested in marketing and distribution, in case their products did not compete with those that R & H was already selling. Furthermore, aware that the chloroform market was practically saturated, R & H had begun to diversify its manufacturing portfolio.

Of R & H's new product lines, cyanides clearly became the most lucrative. Here again, Hasslacher's firm introduced a process developed in Europe to the United States: it adopted Degussa's methods for manufacturing potassium cyanide. Interestingly, though, as Degussa's Alexander Schneider commented, in its first year of production, R & H's profits on cyanide were already higher "than ever during the 30 year

existence of our Frankfurt concern."[26] To be sure, a good bit of luck was involved here. In the late 1880s, for instance, it had been discovered that cyanide could be used for extracting gold. Thus, driven by demand from the mining industry, the cyanide industry experienced rapid expansion in the 1890s, shortly after R & H had entered it. Additionally, R & H undoubtedly benefited from the expertise accumulated by its German parent and, at least from 1897 until World War I, from reduced competition on the American market as the result of a powerful international cartel controlled by Degussa and the Glasgow-based Cassel Cyanide Company.[27]

This is not to downplay the merits of Hasslacher and his associates in America, who managed to establish an enviable business reputation in their firm's first years of existence and who succeeded in maintaining it afterwards. They also refined a cyanide process based on metallic sodium, which they first imported from Europe. In 1895, however, they co-founded a new firm, the Niagara Electro Chemical Co. (hereafter NECC), to start manufacturing metallic sodium in the United States. Although the majority of this company's stock was in European hands, R & H could *de facto* run NECC as a subsidiary of its own. Besides sodium, NECC would also manufacture sodium peroxides, among other products. In the early twentieth century, it went on to realize astounding profits.[28]

Other entrepreneurial initiatives paid off as well. They included the establishment of another subsidiary – the Perth Amboy Chemical Works, the first American manufacturer of formaldehyde, an organic chemical compound – and investments in the General Bakelite Co., the firm that would bring the first entirely synthetic plastic to market. There were also notable failures, however. Perhaps most interestingly, R & H's attempts to introduce the detergent "Persil" proved fruitless. In Germany, Persil had created a sensation, and Degussa had hastily built a new plant to supply Henkel & Co. with perborate, the intermediate on which Persil was based. Its success was infectious. Instructed by Hugo Henkel, R & H launched an expensive advertising campaign to promote the detergent in America. In the first half of 1912, for instance, the firm spent $149,000 – about 75 times the annual salary of an experienced industrial research chemist in that period – on Persil advertisements, in addition to the promotional work done by its traveling salesmen. Still, by the middle of that year it had become clear that Persil was unlikely to become a hit in the U.S. As a result, by the summer of 1914, R & H had practically abandoned the product. Looking back on the failure, an internal Degussa report concluded that the American market for detergents had already been comparatively saturated at the time of Persil's appearance. Additionally, then as now, outside laundries had taken in a larger share of the American market, and they had not shown nearly as much enthusiasm for Persil as German households.[29]

R & H was able to cope with this setback relatively easily. For one thing, it could fall back on the income earned by importing and selling chemicals, pharmaceuticals, and dyestuffs produced by other companies. For another, its own product portfolio had become sufficiently diversified so as to reduce the impact of single failures. By 1910, R & H also increasingly invested in in-house research & development work, conducted under the direction of Franz Roessler and Hans Foersterling, another immigrant from Germany. Visitors from Degussa took a great interest in these technical experiments, as in other developments at their American affiliate. For instance, in 1912, George DuBois exclaimed that "[n]ot only in our [Degussa's] interest, but in the interest of all parties concerned I strongly advocate an even more active exchange of commercial and technical improvements! We could and should benefit even more than now from the different pioneering endeavors! How much effort, time, labor and capital already could have been saved?!" [30]

They were also interested in organizational reforms implemented at R & H. A major aim of these reforms was to relieve Hasslacher of some of his responsibilities. Hasslacher, a leader who seems to have naturally commanded the respect of those working with him, had been presiding over R & H in a "dominating rather than domineering" manner.[31] By 1908 at the latest, he was the only person with a more or less accurate overview of the various activities in which R & H and its subsidiaries were engaged. Consequently, Hasslacher was constantly consulted and, as Schneider complained, "because of the current office installation and the old habit, Hasslacher has no minute for himself, and it is out of the question to deliberate with Hasslacher during office hours." [32] Hence, between 1908 and 1914, R & H's office spaces at Perth Amboy were expanded and its administrative procedures rationalized.

Social Standing, Networks, Family, and Public Life

In both his public and his private life, Hasslacher sought to strike a balance between maintaining ties with his birth country and integrating himself into his country of arrival. As for the former, for instance, he married another German-American: Paderborn native Elizabeth Fleck (b. 1873), with whom he had six children, born between 1894 – the year of the couple's marriage – and 1902. Hasslacher was also active in German-American associations. For example, he helped organize a trip of the German Liederkranz Society of New York to a residential enclave on the local countryside. Likewise, in November 1902, he helped organize a "German Day" in New York City's Madison Square Garden. The event commemorated the arrival of German settlers in seventeenth-century America. On the other hand, Hasslacher also joined "purely American" organizations (e.g., the American Ceramic Society) and became an American citizen in 1895. Furthermore, at German-American organizations and events Hasslacher also networked with non-Germans, including chemists like Chandler, Remsen, or Baekeland, all of whom admired Germany's dedication to *Wissenschaft* in academia and/or industry and had personally studied in the country of Liebig and Fresenius.[33] Hence, for the purpose of establishing friendly relations within the American chemical community, Hasslacher's German connections were surely an advantage. Likewise, American scientists – at least those in search for funding – doubtlessly appreciated the size of Hasslacher's fortune, another topic that will be addressed in the following paragraphs.

Supporting Science

There are several indications that Hasslacher, perhaps inspired by practices at Degussa AG,[34] sought to cultivate relations with scientists from the surrounding community. For instance, he was a founding member of the Chemists' Club in New York City (founded in 1898); he actively participated in the New York Section of the Society of Chemical Industry (founded in1894); he took the trouble of arranging commemorative and celebratory events in honor of the industrial chemists Hamilton Young Castner and Hugo Schweitzer; and he offered financial support to various scientific institutions and causes, including Columbia College, the Chemists' Club, and the golden jubilee of the invention of mauve, a synthetic dyestuff, in 1856. It would be naïve to assume that these investments of time and money merely reflected a commitment to science. As we have seen in the context of *Michaelis v. Roessler*, Hasslacher's firm emphasized that its chloroform process had been examined by "such high authorities" as professors Chandler and Remsen and forwarded a letter by Chandler to its customers. Similarly, on September 24, 1910, Hasslacher argued that the Belgian-American chemist Leo Baekeland, a rising star in techno-scientific circles, should become president of the General Bakelite Company, the firm that was about to start manufacturing the synthetic plastic resin "Bakelite" on an industrial scale. In this manner, Hasslacher expected to increase the prestige of the company that he himself would actually help lead as its first vice president and treasurer.[35]

On Baekeland, Hasslacher made the impression of being a "cheerful sociable man, who certainly stands well [;] is President of his company."[36] Baekeland was a repeat guest at lunches and dinners sponsored by Hasslacher at German clubs and associations in New York City. At one of those, in November 1909, he had shown Hasslacher samples of Bakelite, the plastic resin that was already patent-protected but for whose U.S. manufacture longer-term arrangements still had to be made. Hasslacher's interest in Bakelite supports Haynes's statement that Hasslacher was "always ready to risk money on either a new product or a new process."[37] In the case of Bakelite, it can be demonstrated that he did this despite protestations on the part of Degussa's Schneider, who favored a more conservative financial policy. Schneider and a few other European associates personally participated in the negotiations with Baekeland, which largely took place in informal settings. On June 13, 1910, for example, Baekeland:

> went to fetch Hasslacher, Foersterling, Schneider and two more of his european [*sic*] directors whose name [*sic*] I have forgotten and our little car with these five stout Germans beside Lewis [Baekeland's chauffeur] and myself had to perform hard work. Arrived at Snug Rock [Baekeland's residence in Yonkers, NY] showed them my laboratory and all samples of my work gave them glass of port wine. Then with Dubois in car – 8 in all drove up north as

> far as Tarrytown, then supper then after that talked business. I grew eloquent read them my prospectus [for the foundation of an American Bakelite company] and then drove them all home to New York stayed a while at German Club then Lewis drove us back.[38]

By the time the negotiations entered their final stage, Degussa's delegation had returned to Europe. In any case, the available sources leave the impression that the decision would ultimately be Hasslacher's.

Earnings

Hasslacher's investment in Bakelite provides an indication of the wealth that he had amassed during a quarter century of business in the United States. On May 10, 1910, Schneider reported that R & H's president intended to invest $20,000 (approximately $474,000 in 2010) of his personal capital in Bakelite. On June 16, 1910, in contrast, Hasslacher indicated to Baekeland that he would be willing to subscribe for $100,000 or even $200,000 worth of stock in the planned company. When Baekeland thought about looking for additional investors at the end of August, Hasslacher ensured him that he and his associates, according to Baekeland's journal, "need no financial help have more money disposable among their own stockholders than they can use."[39] The next month, Hasslacher clarified that he was prepared to sign up for $300,000 (or about $7.1 million in 2010).

It seems fair to suggest that Hasslacher had derived the lion's share of his income from R & H's profits, about one third of which, by statute, belonged to himself and Franz Roessler. In 1892-93, for example, Hasslacher's and Roessler's share of the net earnings, their so-called Tantième, amounted to $16,539. There is no reason to believe that these bonuses would have shrunk afterwards. Rather, there is reason to believe the contrary, for by the second decade of the twentieth century R & H's executives feared that their company might attract the scrutiny of the antitrust authorities on account of its high profit margins. As Schneider put it, "from whichever point of view we consider the matter, the general public here in America says, '40% dividends can only be earned by relying on trusts.'"[40]

Concluding Remarks

Prior to the First World War, as we have seen, R & H benefited in many ways from its ties to Germany. Unsurprisingly, however, they became a liability during the war. At that time, R & H faced, in the words of historian Regina Lee Blaszczyk, "100 percent Americanism – a wartime campaign against hyphenated Americans, specifically German-Americans."[41] At the beginning of 1917, about 75 percent of R & H's stock still was in German hands; and the majority of the stock of the Niagara Electro Chemical Co. and the Perth Amboy Chemical Works was also foreign-held. It was probably in anticipation of difficulties that Hasslacher's counsel, Oscar Seitz, was sent to Germany to acquire controlling financial interests in the three firms on behalf of Franz Roessler and R & H. Although Seitz accomplished his mission, trouble could not be forestalled: U.S. Alien Property Custodian (APC) Francis Garvan questioned the sincerity of the arrangement, seized the formerly German-held stock and appointed directors of his own choosing to R & H's board of directors. The APC's case against R & H and its subsidiaries partly rested on the firms' success during the preceding years. In view of their large profits and dividends, Garvan argued, the German-owned stock had clearly been undervalued, thus suggesting that there had been a silent agreement according to which the transaction would have been undone as soon as the political-military circumstances would have allowed this.[42]

In contrast, Degussa's Louis Fade claimed that, due to the uncertainty caused by the First World War, the terms of the transaction had been no less attractive to his firm than to R & H. According to Hasslacher and his associates, furthermore, the stock purchase merely reflected a further step toward autonomy from Degussa, which had already been planned prior to the outbreak of the war. They challenged the APC's interpretation in court and, in 1923, were given back the stock that had been confiscated. Hasslacher, however, did not live to see the end of the lawsuit. A journal entry by Baekeland describes the day in March 1914 that sapped his physical strength once and for all:

> On arriving at office for Directors meeting [of General Bakelite Co.] heard Mr. Hasslacher had gone to steamer to wish good bye to Mr. Schneider. He came back to his office shortly before meeting and had scarcely sat down that [*sic*] he complained of funny sensation in leg, and before we could realize it, it was found that he was suddenly stricken with paralysis of the right side and sat there helpless to make any motion with hand or legs and had considerable trouble in speaking. We were full of consternation altho' [*sic*] he seemed to take the matter lightly and smiled about his ailment. Later he was transported in ambulance to his house.[43]

While Hasslacher's health condition did improve afterwards, he never fully recovered. On January 1, 1920, he entered into a definitive retirement from R & H. About fifteen months later, on March 15, 1921, he died.

His legacy, however, remained very much alive. For instance, Dr. Hector Carveth, who had taught chemistry at Cornell University before joining R & H in 1905, claimed in the late 1920s that "no other company today shows more clearly the influence of its founders [Franz Roessler and Jacob Hasslacher] in defining and establishing human relations within its own household and with its public."[44] True, the statement was part of a celebratory account of the history of Carveth's own firm. However, archival records of E. I. du Pont de Nemours and Company, which took over R & H in 1930, point to a few long-standing practices that may have set R & H apart from its competitors in the American chemical industry. First, from the establishment of the partnership in 1885 until 1929, about one-third of R & H's net profits were typically paid out as bonuses to the firm's executives. However, by the late 1920s, when these bonuses peaked (e.g., the astronomical sum of $595,050 [approximately $7.57 million in 2010] was divided among fourteen officials in 1928), R & H's stock was not as closely held as it was during Hasslacher's lifetime, and outside shareholders probably began to regard these amounts as rather exorbitant. Tellingly, the committee that had been appointed to study this matter reported that "in no instance have we been able to find a bonus policy as liberal as the one pursued for a number of years by our Company."[45] In line with the committee's recommendations, the share of R & H's earning put aside for bonuses was reduced to 10 percent in 1929. Nonetheless, Carveth, R & H's president since 1928, received a personal bonus of $60,000 for his performance during 1930, the year of the merger (approximately $783,000 in 2010).

Second, the consolidation with Du Pont made clear that R & H had attempted to secure the loyalty of its leading technical employees by offering them a "foreign" (that is, un-American) type of labor contract. In particular, R & H's contracts for this class of employees guaranteed a minimum duration of employment and salary, aspects that were omitted from the Du Pont variant. When informed about the difference, Du Pont's vice president Jasper Crane argued that "the feeling of a Du Pont salaried man that he is an integral part of the whole show is infinitely better than to attempt to tie him up with a contract."[46] But the committee that compared Du Pont's approach to the R & H model, which may well have been traceable to Germany,[47] advocated the latter.

Third, at R & H scientists and engineers could climb the corporate ladder to the top. To contemporaries like Baekeland and Chandler, as well as to some historians, intra-firm mobility of this kind was a salient feature of the German chemical industry. For instance, in 1909 Baekeland wrote that the "tremendous success" of German chemical and engineering corporations largely followed from their being led by "the most thoroughly technically and scientifically developed staff," instead of "having merely bankers or so called business men at the head of their enterprises." Coincidentally, in 1929, when urging the editors of *Who's Who in America* to include a profile of Carveth in their biographical dictionary, Baekeland complained that "unfortunately it does not happen often enough in the United States that large business enterprises here should have able scientists as their executive head."[48]

While Baekeland's views on this issue largely remained the same, his rhetoric clearly shifted after the beginning of the First World War; from that point on, his earlier praise for Germany and its knowledge-intensive industries was replaced by criticism more often than not. In this regard, as historian Kathryn Steen has pointed out, the American chemical industry became more German in many ways – notably through its reliance on government support – at a time when Germanophobia in the U.S. rose to

unprecedented levels. Any judgment as to whether R & H should primarily be seen as a German or an American company should take this into account. For instance, with the exception of Foersterling, who apparently was not prepared to dissociate himself from his native country, R & H's leadership clearly pledged allegiance to the U.S. during the war and its aftermath; it even gained recognition for its "patriotic" support of the U.S. war efforts.[49] But, on the other hand, R & H would continue its collaboration with Degussa during the 1920s.

However, this case-study of Hasslacher and R & H would appear to suggest that the question of national identity might not be the most pertinent one. As we have seen, R & H kept a constant eye on technical and commercial developments on both sides of the Atlantic. To an important degree, its success seems to have resulted from the fact that it – much like its cofounder and longtime president – was not bound to any single nation state.

Notes

[1] William Haynes, *Chemical Pioneers. The Founders of the American Chemical Industry* (New York, NY: D. Van Nostrand Company, Inc., 1939), 209-25.

[2] D.O. Notman, "Elchem – Past, Present, and Future" (ca. 1944), Records of E.I. du Pont de Nemours & Co., accession 1676, box 6 (Du Pont Chemicals), Hagley Museum and Library, Wilmington, DE; and Alexander Schneider, "Allgemeine Bemerkungen zu Bericht über amerikanische Reise vom 2. März – 7. April 1908," DL 3. Schneider/1, Evonik Industries AG, Corporate Archives, Hanau, Germany (holdings of Degussa AG). On the *Pharmaceutische Rundschau*, see Sabine Knoll Schütze, *Friedrich Hoffmann (1832-1904) and the Pharmaceutische Rundschau*. *A Contribution to the History of American Pharmacy* (Frankfurt am Main and New York, NY: Peter Lang, 2003).

[3] For example, Jonathan Liebenau, *Medical Science and Medical Industry. The Formation of the American Pharmaceutical Industry* (Baltimore, MD: Johns Hopkins University Press, 1987); and D.H. Killeffer, *Six Decades of the Chemists' Club* (New York, NY: The Chemists' Club, 1957), 43-44.

[4] Anton Hasslacher, *Zur Geschichte der Familien Hasslacher, Oswald und Leyenthal. Den Familienangehörigen gewidmet* (Bonn, 1905).

[5] Mechthild Wolf, *Im Zeichen von Sonne und Mond. Von der Frankfurter Münzschneiderei zum Weltunternehmen Degussa AG* (Frankfurt am Main: Degussa AG, 1993), 59.

[6] Haynes, *Chemical Pioneers*, 214.

[7] For example, Lilian Gohm, *Technologietransfer deutscher Unternehmen in die USA, 1870-1939* (St. Katharinen: Scripta Mercaturae Verlag, 2000), 152 and 161-62. Hasslacher migrated to the U.S. around the beginning of February 1884.

[8] Hasslacher, *Zur Geschichte*, 26 and 39.

[9] Notable exceptions are Christopher Beauchamp, "The Telephone Patents: Intellectual Property, Business and the Law in the United States and Britain, 1876–1900," Ph.D. diss. (University of Cambridge, 2007); and Anthony Travis, "From Manchester to Massachusetts via Mulhouse – the Transatlantic Voyage of Aniline Black," *Technology and Culture* 35 (1994): 70-99. The "transnational technological space" expression was used by an anonymous reviewer of my article "Leo Baekeland's Transatlantic Struggle for Bakelite. Patenting Inside and Outside of America," published in *Technology and Culture* in April 2012.

[10] See, for example, Petra Moser, "Why Don't Inventors Patent?," NBER Working Paper no. 13294, National Bureau of Economic Research, Cambridge, MA, 2007; and Kara W. Swanson, "Food and Drug Law as Intellectual Property Law: Historical Reflections," *2011 Wisconsin Law Review* 331 (2011): 331-97

[11] On the histories and technicalities of these chloroform processes, see Charles Baskerville and W.A. Hamor, "The Chemistry of Anaesthetics, IV: Chloroform," *Journal of Industrial and Engineering Chemistry* 4 (1912): 212-16; Samuel Sadtler, "On Recent Improvements in the Methods for the Manufacture of Chloroform," *The American Journal of Pharmacy* 61 (1889): 321-26; Charles Simmonds, *Alcohol, its Production, Properties, Chemistry, and Industrial Applications* (London: Macmillan, 1919), 338-40; Edward R. Squibb, "The Manufacture of Acetone and of Acetone-Chloroform from Acetic Acid," *Journal of the American Chemical Society* (1896): 231-47; and Anon., "The History of Anaesthetic Discovery. III. Third Chemical Stage: Discovery of Chloroform as an Anaesthetic," *The Lancet* 2 (1870): 16-17.

[12] Letter from Gustav Rumpf to R & H, March 19, 1886, Charles F. Chandler Papers (hereafter CFC), box 104, folder 2, Rare Book and Manuscript Library, Columbia University; V. Siemerling, "Beiträge zu den Darstellungsmethoden für das Chloroform," *Archiv der Pharmazie* 104 (1848): 23-32; and Henry Watts, *Dictionary of Chemistry* (London: Longman, Green, Roberts & Green, 1868), 918.

[13] Oppositions before the German Patent Office, in CFC, box 105, folder 1; U.S. Patent no. 322,194; and German Patent no. 36,514.

[14] Sadtler, "On Recent Improvements," 22; and sources in CFC, boxes 104 and 105: testimonies of Chandler and B.H. Huttmann; argument by Arnoux; and Carl Pieper, "Answer to Second Opposition."

[15] Anon., "A Big Case Decided," *New York Times,* March 29, 1889. Probably not coincidentally, Michaelis and his associates had claimed damages worth approximately $250,000; see Anon., "Manufacture of Chloroform," *American Journal of Pharmacy* 61 (1889): 224. Here as elsewhere in this entry, sums are converted to 2010 U.S. dollars via www.measuringworth.com, on the basis of the Consumer Price Index.

[16] Letter from Morton to Chandler, March 4, 1886, CFC, box 104, folder 2.

[17] R & H paid Chandler either $1,000 or $1,250 for his services up to May 1887; see letters from R & H to Chandler, April 17, 1886; and Hasslacher to Chandler, May 25, 1887, CFC, box 104, folder 2.

[18] Roessler's and Rumpf's testimonies, as well as Fresenius' reports, are included in CFC, boxes 104 and 105.

[19] Letter, R & H, March 4, 1886, CFC, box 104, folder 2.

[20] Statement to the trade, R & H, November 18, 1886, CFC, box 104, folder 2.

[21] Statement to the trade, R & H, July 26, 1886, CFC, box 105, folder 2.

[22] Letter, Remsen to Chandler, October 20, 1886, CFC, box 104, folder 2.

[23] Arnoux, argument in *Michaelis v. Roessler*, CFC, box 105, folder 2, p. 76.

[24] Rumpf, testimony, CFC, box 104, folder 3; and Pieper, "Answer to Second Opposition," CFC, box 105, folder 1.

[25] Schneider, report, June 1892, DL 3. Schneider/2, Evonik archives.

[26] Ibid.: „wie je in einem der 30 Jahre des Bestehens unseres Frankfurter Etablissements." See also Heinrich Roessler, report, September – Oktober 1891, DL 3. Roessler/3, Evonik archives.

[27] Louis Fade, testimony in *R & H v. Garvan*, Du Pont records, accession 500, box 1646 (Records of Absorbed Companies), p. 21; Alan Lougheed, "The Anatomy of an International Cartel: Cyanide, 1897-1927," *Prometheus* 19 (2001): 1-10; and Otto Müller, "Die Entwicklung des Cyangeschäfts der Scheideanstalt" (unpublished report, October 31, 1917), DL 3. Busemann/1, Evonik archives. Theoretically, the U.S. market was outside the geographic scope of the cartel agreement. Yet Degussa successfully exerted pressure to prevent other manufacturers from entering it.

[28] M.J. Henderson, “History of the Electrochemicals Departments” (ca. 1941), Du Pont records, accession 1676, box 6 (Du Pont Chemicals), p. 2; Roessler, report, 1891; and Schneider, report, 1892 (both in the Evonik archives); and Fin Sparre, “Roessler & Hasslacher Chemical Company” (report of development department to executive committee, February 24, 1930), Du Pont records, accession 1813, box 5, folder 15 (Records of Willis F. Harrington), p. 8.

[29] Thomas Reimer, “Bayer & Company in the United States: German Dyes, Drugs, and Cartels in the Progressive Era,” Ph.D. diss. (Syracuse University, 1996), 88; Wolf, *Im Zeichen von Sonne und Mond*, 101-07; and, in the Evonik archives: Riefstahl, “The Roessler & Hasslacher Chemical Co., New York,” DL 3. Busemann/1, p. 10; and G. DuBois, “Reise nach Amerika, 2. Sept. – 3. Okt. 1912,” AW 4.8/1, Evonik archives.

[30] DuBois, “Reise nach Amerika,” Evonik archives: “Nicht allein in unserem Interesse, sondern im Interesse aller Beteiligten möchte ich stark befürworten, dass der Austausch geschäftlicher und technischer Fortschritte ein noch regerer wird! Wir können und müssen noch mehr wie bisher von den verschiedenen Pioniersarbeiten profitieren! Wieviel Mühe, Zeit, Arbeit und Geld hätte man schon ersparen können!?”

[31] Haynes, *Chemical Pioneers*, 216. According to Hector Carveth, on the other hand, “Hasslacher was the farseeing merchant – honest, generous, jovial, and eminently fair, and with a widening circle of friends, *yet always dominant*” [emphasis JM]; see his article “Roessler & Hasslacher – Partners,” *Industrial and Engineering Chemistry* 21 (1929): 989-91, here 989.

[32] Schneider, “Allgemeine Bemerkungen”: “die jetzige Bureau-Einrichtung und die alte Gewohnheit bringt es mit sich, dass Herr Hasslacher sich keine Minute selbst überlassen [kann], [und] eine Rücksprache mit Herrn Hasslacher während der Geschäftszeit ausgeschlossen ist.” See also Roessler, “Reise nach Amerika Mai/Juni 1914,” DL 3. Roessler/3 (both in Evonik archives).

[33] E.g., Reimer, “Bayer & Company in the United States,” 85-6 and 229.

[34] Wolf, *Im Zeichen von Sonne und Mond*, 80-2. See also Jeffrey Sturchio and Louis Galambos, “The German Connection: Merck and the Flow of Knowledge from Germany to the United States, 1880-1930,” *Business and Economic History On-Line* 9 (2011): 1-14, here 7 and 11-2.

[35] Letters, Hasslacher to Chandler, January 21, 31, February 28, and May 31, 1900; and March 17, 1909, CFC, box 1, folder 7 and box 2, folder 3; “Subscription to Perkin Fund,” CFC, box 1, folder 15; Baekeland, journal 8, September 24, 1910, Leo H. Baekeland Papers (hereafter LBP), Archives Center, National Museum of American History, Smithsonian Institution, Washington, D.C., series 4, box 18, folder 6; Chemists’ Club, “Boards of Trustees Minutes, 1896 – 1908,” Chemists’ Club records, Chemical Heritage Foundation, Philadelphia, PA, series 1, box 2.

[36] Baekeland, journal 5, November 3, 1910, LBP.

[37] Haynes, *Chemical Pioneers*, 215.

[38] Baekeland, journal 7, June 13, 1910, LBP. See also entries of June 16, August 15, and September 8, 1910; as well as Schneider, report, May 14 and 17, 1910, DL 3. Schneider/2, Evonik archives.

[39] Baekeland, journal 7, August 31, 1910.

[40] Schneider, “Finanzen” (unpublished dictation, June 20, 1910), DL 3. Schneider/2: “Wir mogen [*sic*] die Sache ansehen von welchem Standpunkte man auch immer will, das grosse [*sic*] Publikum hier in Amerika sagt, ‘40 % Dividende konnen [*sic*] nur verdient werden sein wenn trusts bei dem Herausbringen der Gewinne mitgearbeitet haben. ’” On Hasslacher’s Tantième, see Schneider, report, 1892 (both in archives Evonik).

[41] Regina L. Blaszczyk, *Imagining Consumers. Design and Innovation from Wedgwood to Corning*

(Baltimore, MD and London: The Johns Hopkins University Press, 2000), 176.

[42] A file on the APC case is included in Du Pont records, accession 500, box 1646 (Records of Absorbed Companies). See also Haynes, *Chemical Pioneers*, 220-22.

[43] Baekeland, journal 14, March 4, 1914, LBP.

[44] Carveth, “Roessler & Hasslacher – Partners,” 989.

[45] L. Hayes, R. Paul, and G.E. Warren, “The Roessler & Hasslacher Chemical Company. Report of Committee on Bonus Distribution for the Year 1929,” Du Pont records, accession 1813, box 5, folder 13 (Records of Willis F. Harrington). See also Sparre, “Roessler & Hasslacher Chemical Company” (report of development department to executive committee, February 24, 1930), p. 3 (also in Du Pont, accession 1813, box 5); and Wolf, *Im Zeichen von Sonne und Mond*, 62.

[46] Letter, Crane to W. Harrington, November 1, 1930, Du Pont records, series II, part 2, box 1051, file 42 (1) (Jasper Crane Vice Presidential Papers). In the same letter, Crane commented that Carveth held a “‘foreign and to us ... incorrect view about [employment] contracts.” See also Carveth, letter to Harrington, July 30, 1930; and Committee on Contract Forms, report, July 28, 1930 (both in Crane Vice Presidential Papers); and M.D. Fisher, “Bonus Plan” (report of meeting on December 22, 1930), Du Pont records, accession 1813, box 5, folder 13 (Records of Willis F. Harrington).

[47] Chemist Berthold Rassow, for instance, mentioned employment insecurity as a challenge faced by young engineers and chemists in the U.S.; see his article “Was haben wir Chemiker in Amerika gelernt?” *Zeitschrift für angewandte Chemie* 26 (1913): 705-8, here 706.

[48] Letters, Baekeland to E.H. Hooker, June 30, 1909, Elmer Sperry Papers, accession 1897, box 17 (electrochemistry files), Hagley; and Baekeland to Messrs. A.N. Marquis Company, September 10, 1929, LBP, series 3, box 8, folder 14. See also, e.g., Walter Wetzel, *Naturwissenschaften und chemische Industrie in Deutschland: Voraussetzungen und Mechanismen ihres Aufstiegs im 19. Jahrhundert* (Stuttgart: F. Steiner, 1991), 216-21.

[49] Letter, Alien Property Custodian Thomas Miller to R & H, January 7, 1922, Du Pont records, accession 1676, box 6 (Du Pont Chemicals). See also Kathryn Steen, “Wartime Catalyst and Postwar Reaction. The Making of the United States Synthetic Organic Chemicals Industry, 1910-1930,” Ph.D. diss. (University of Delaware, 1995), 283; and, on Foersterling, Anon., “Got Stock from Germans. Officer Tells How Control of Chemical Companies Passed to Americans,” *New York Times*, July 31, 1918.

Cite this Entry

APA Style

"**Jacob Hasslacher**." (2013) In *Immigrant Entrepreneurship*, Retrieved December 13, 2013, from Immigrant Entrepreneurship: http://immigrantentrepreneurship.org/entry.php?rec=48

Chicago Style

Mercelis, Joris. "Jacob Hasslacher." In *Immigrant Entrepreneurship: German-American Business Biographies, 1720 to the Present*, vol. 3, edited by Giles R. Hoyt. German Historical Institute. Last modified May 08, 2013. http://immigrantentrepreneurship.org/entry.php?rec=48

MLA Style

"**Jacob Hasslacher**," *Immigrant Entrepreneurship*, 2013, Immigrant Entrepreneurship. 13 Dec 2013 <http://immigrantentrepreneurship.org/entry.php?rec=48>

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Jacob Hasslacher Portrait