Introduction

In his authoritative history on *The Chemical Industry 1900–1930*, the economic historian L. F. Haber summed up the role of the Solvay company: "Solvay's own enterprises were relatively small, but their interests and connections within Belgium as well as outside were extensive." He continued: "A comprehensive history of Solvay is badly needed and would fill a major gap in our knowledge of the development of the European chemical industry."[1] This book fills that gap.

Solvay and its history stand out for several reasons. During most of its 150 years of existence Solvay remained one of the leaders in its fields, but, more interesting, it also was one of the earliest multinational, or "polynational,"[2] groups, as well as being a family-controlled firm up to the present time. These two features taken together make the company unique in the chemical industry, and perhaps even among businesses more generally. Moreover, the influence of the Solvay family – as well as the company – extends far beyond the realm of business. Solvay has lent its name to a number of initiatives in the field of science and education, particularly to the famous international conferences on physics and chemistry that have been organized since 1911. In its home country Solvay is an icon, being one of the last independent crown jewels from when Belgium was the second most industrialized country in the world. The large number of institutes, schools, and streets named after Solvay in Belgium illustrates the enduring impact of Solvay's legacy to that small nation. Paradoxically, the resilient tradition of secrecy that lay at the core of the company's technological success has long hindered a better understanding of its multiple lives. The present book aims to end that obscurity.

Although Solvay is a Belgian-born enterprise, it has encompassed diverse national cultures and has mostly acted at the local level as an indigenous firm. Since the first year of its existence (1863), international expansion of its ammonia-soda business was at the core of Solvay's strategy. As the primary raw material for soda ash – salt – was absent from Belgium's subsoil, Solvay soon had to cross national borders. Furthermore, the industrial patents on which the enterprise was founded had to be implemented quickly in major industrialized countries, to avoid seeing them copied or circumvented by powerful

[1] Haber (1971), 307; see also Metzner (1955), 92–5.
[2] The expression is from Christian Jourquin, Solvay's CEO from 2006 to 2012; interview Christian Jourquin, 28 Sept. 2010.

competitors. Within a few decades, Solvay elaborated a unique model of international expansion, one based on a combination of wholly owned factories, subsidiaries, and partnerships with foreign entrepreneurs, rooted in their own markets: France and Britain in 1872; Germany, Russia, and the United States during the early 1880s; and followed by the Habsburg Empire and, later, Spain, Italy, and many other countries. This multinational network appeared to be an asset for the continuous improvement of the ammonia-soda process, which long remained the core of Solvay's technical expertise. Indeed, geographical diversification contrasted sharply with the single-product orientation that characterized the company during the first half of its history.

Operating as a multi- or "poly"national not only was an asset but also often a concern, especially when European geopolitics started to become instable after 1914. During World War I, Solvay's plants were on both sides of the front line. As a result of the war and the Russian Revolution, the group lost its Russian factories, and its control over its American business. During the interwar period the company tried to compensate for those losses by maneuvering itself into the heart of a complex network of international cartel agreements in the chemical industry, which then were politically allowed. World War II brought a new blow, though, to the powerful international position of the company. After the war, all assets in Central and Eastern Europe were nationalized by the new regimes.

The period after 1945 showed another aspect of Solvay's multinational character. As surprising as it may seem, the processes of European integration and globalization partially undermined the polynational strongholds of the group. For historical reasons, Solvay had many small and medium-sized production sites, well tuned to local demands and relying heavily on national networks. During the past twenty-five years the company has had to reevaluate fundamentally that strategy. Many plants were closed down and others scaled up. For a company that tended to prefer the word *evolution* to *revolution*, and for which traditions had great importance, this was a painful process.

Solvay's other major characteristic is that of being a family business. Whether the emphasis is on capital control, managerial leadership, or organizational style, the firm has deliberately kept this distinct character through the waves of history. That is not as obvious as it may seem. Although many family-owned or family-controlled companies have gained international status, only a few have stemmed from the creation of an inventor-entrepreneur and even fewer have been able to survive over six generations. In Solvay's case, the overwhelming influence and charisma of the patriarch could well have jeopardized the development of "his" brainchild after his death in 1922. But this threat did not materialize: a succession crisis was avoided, and the challenge of changing generations was largely overcome.

Ernest Solvay's heirs have carefully striven to cultivate the long-lasting family character of the enterprise. Effective succession planning was part of the strategy. It entailed reaching out to the most promising members among the groups of descendants, in-laws, as well as, albeit more scarcely, to outside partners. Also, a significant role was given to the upper management (e.g., technical general managers, plant managers, national general managers), most of whom

did not belong to the family. In practical terms, their activity went largely beyond the levels of merely assisting and informing decision makers. That said, the imprint of the Solvay family on Solvay & Cie, even when it became a listed public company in 1967, remained an undisputed and undisputable hallmark of the company throughout its history. Whether such family ingredients have undermined or enhanced the company's performance is an issue that is addressed in the present volume – for there is no doubt that the evolution of the firm is closely intertwined with the history of the Solvay family.

Solvay kept its initial form of a limited partnership for more than a century. The managing partners (*gérants*) were fully liable for their total private assets. Publication of annual results was not mandatory; profits were kept secret. In such a family business, the relationships among associates remained largely permeated by a family atmosphere and close personal contacts. Paternalistic values also prevailed in the relations of the *gérants* with the managers, employees, and workers, particularly with plants that were often at distant locations, isolated from the outside world. The governance of the group therefore diverged significantly from that of the archetypical Chandlerian multinational and multidivisional group, with salaried managers and relative openness to multiple stakeholders.[3] It was only during the last fifteen to twenty years that Solvay has gradually become more similar to other large public companies, without entirely losing its family character.

As mentioned already, Solvay's success initially rested completely on its innovative ammonia-soda process, "rediscovered" during the early 1860s by the twenty-three-year-old apprentice manager Ernest Solvay while working in his uncle's gas factory. Only around 1950, after more than eighty years as a producer of alkalis only, did the company embark on a diversification process. Chemicals, plastics, and pharmaceuticals became the firm's sectors of development in a globalizing economy. When we started to write this fascinating history in 2007, the company firmly stood on three legs of about equal size: chemicals (soda ash, caustic soda, peroxides, and fluorinated chemicals), plastics (PVC, special polymers, fuel tanks, pipes and fittings), and pharmaceuticals (cardiovascular, hormones, gastroenterology). Since then, the company has changed dramatically. Writing the last two chapters of this book was like shooting at a constantly moving target: in 2009 and 2010 the pharmaceutical activities were sold and the company divested its fuel tanks and piping businesses; in 2011 it took over the French multinational Rhodia. If some may doubt the dynamic character of family firms, Solvay's recent history completely falsifies this notion.

We conclude this introduction by making some remarks on our sources and by thanking those who were of great help to us. Although a few books and brochures about the history of the group already existed, they were not based on comprehensive research in the company archives. It was Daniel Janssen, honorary chairman of Solvay SA, who took the initiative to ask Solvay to commission a thorough history of the group at the occasion of its 150th anniversary, in line with the long scientific tradition of the company. He then asked

[3] See Chandler (2004).

Ginette Kurgan-van Hentenryk to set up an international team of historians. This book therefore presents the first scholarly study of Solvay, mainly based on company archives, private papers, interviews, and the general literature. We are very grateful to the members of the Industrial Committee, who from the start have taken a great interest in our work and have made possible our full access to relevant sources, and with whom we could discuss several issues in great openness. Of them, next to Daniel Janssen, Aloïs Michielsen and Jacques Lévy-Morelle have been most helpful in opening doors for us inside the company and in bringing us into contact with relevant interviewees. Jean-Marie Solvay, in his turn, has given us access to the precious private archives of his family at La Hulpe, which was of great importance to our work.

Most of the archives relating to the general strategy of the company are kept by the Corporate Secretariat at Brussels. These archives, which also contain several dozen meters of files on the national organizations, on the different subsidiaries and plants, and on legal issues, have been the cornerstone of our enterprise. Archives on the financial, social, commercial, and technical aspects were opened to us by the corresponding departments at the Solvay headquarters. We also made use of specific archives of sites and plants, kept locally by the company or in public depositories. In addition, more than thirty interviews have been held with present and past top managers and experts, from different departments and national organizations of Solvay, who worked for the company during the past five decades. We are very grateful for the invaluable information we received from them and for the great openness of our conversations. Without forgetting the contributions by the others, we would like to mention in particular – in addition to the members of the Industial Committee – Christiane Baleux, Michel Bande, Félix Bloyaert, Pierre Casimir-Lambert, Hervé Coppens d'Eeckenbrugge, Robert Friesewinkel, Auguste Gosselin, Cyril Van Lierde, Jacques Van Rijckevorsel, Paul Washer, and Pierre Weekers, each of whom also supplied valuable documentation in writing.[4]

We also received help from many other people, both inside and outside the company, too numerous to name them all. From Solvay Brussels, Belgium, we would like to mention in particular the central archivist Fabienne Delhalle, as well as several others from the Corporate Secretariat (Philippe Van Loey, Guy Fautré, Nathalie Gérard, Gaëlle De Vos, Françoise Frédéricq, Michel Defourny, Jenny Campion, Isabelle Cosaert, Nicole Van Pée, and Ariane Maurissen). Additional help at Brussels was received from the Communication Department (Marie-Jeanne Marchal, Erik De Leye, Isabelle Chaerels, Katrien Delanote, and others); from Corporate Development (Michel Washer); from the Financial Department (Michèle Laemont and Stéphane Collignon); from the Shareholders Department (Annunziata Menolascina and Anne Tilkens); from the Intellectual Assets Management Department (Thierry Depireux, Valérie Lecharlier, Patrick Marichal, and Stephanie Missoten); from the Human Resources Department (Véronique Depauw); from the Science and Technology Department at Neder-over-Heembeek (Francis Cauwbergh, François Carette, and Jean-Marie

[4] A full list of archives and interviews can be found at the end of the book.

Marchal); and from the team of the Maison Ernest Solvay (managed by Catherine Jouniaux).

In Germany (Bernburg, Hanover, and Rheinberg) we were assisted by Anja Rupprecht, Ingo Schierhorn, and Frank Schneider; at Torrelavega, Spain, by Eliza Solorzano, Luis Hervela, and Oscar Mariner; at Tavaux, France, by Jean-Pierre Schrayen, Christian Clerc-Girard, and Michel Grzelczyk; at Rosignano, Italy, by Silvano Benvenuti; and at Syracuse, New York, by Cara Burton and her team at the Solvay Public Library.

Special words of thanks are due to Suggie Casey (Solvay Houston), who put much effort in translating the chapters of Part 1 of the book; to Professor Philippe Mioche, who produced two valuable reports that were used for writing of several chapters; and to the two anonymous referees, who gave several useful suggestions. Last but not least we express our great gratitude to Professor Ginette Kurgan-van Hentenryk, from the Université Libre de Bruxelles, who coordinated the project and who was of invaluable help during all stages of our work.

Brussels and Maastricht, February 2012
Kenneth Bertrams, Nicolas Coupain, and Ernst Homburg

PART I

THE PIONEERING YEARS (1863–1914)

The Quest for Leadership and the First Stages of the Internationalization

Nicolas Coupain

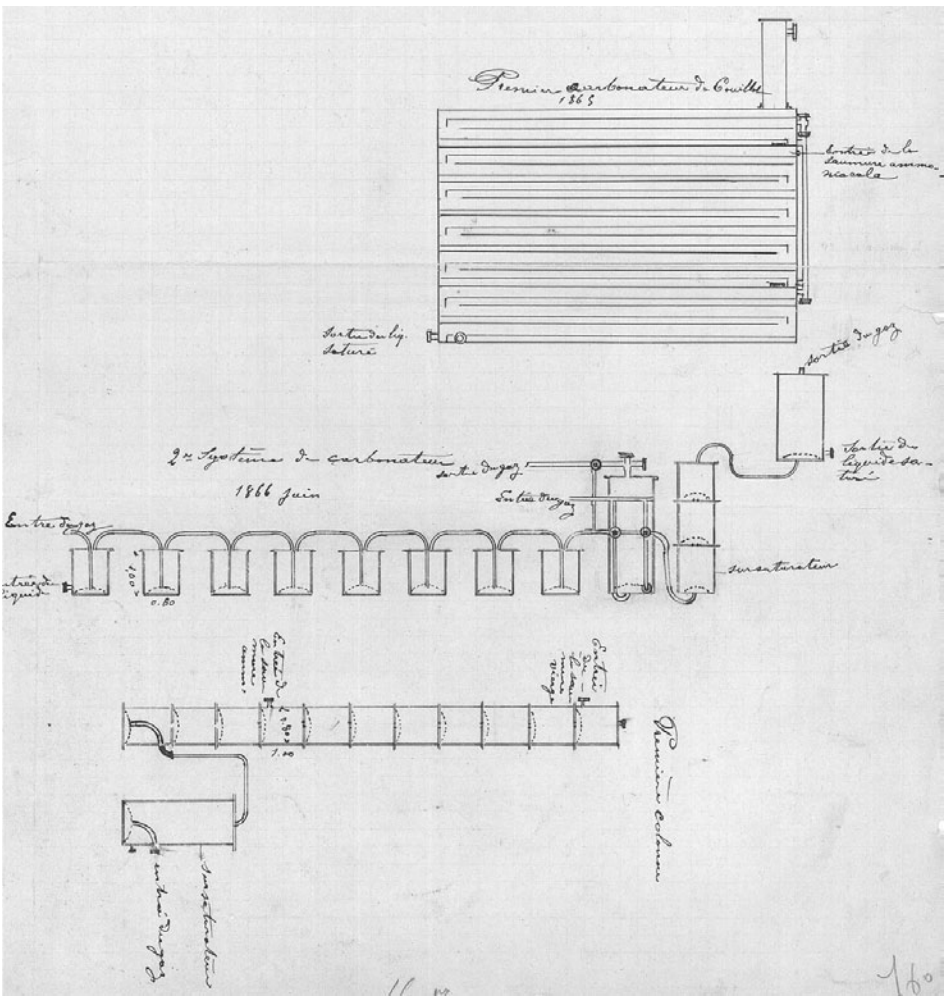

FIGURE 1.1. Successive carbonation apparatus tested at the Couillet plant from 1865 to 1869, drawn by Louis-Philippe Acheroy on the eve of the company's twenty-fifth anniversary. (Solvay Archives.)

1

First Steps

When Vision and Reality Meet

Solvay was launched as a limited partnership in 1863 to operate the ammonia-soda process. This groundbreaking method for producing soda ash had been tested earlier without success by several inventors, leaving the old Leblanc process to dominate the alkali industry. Solvay was the first company to succeed in industrializing the ammonia-soda process, after a handful of individuals joined forces to transform a simple idea into a lasting economic and technical success. Ernest Solvay and his brother Alfred, age twenty-five and twenty-three, respectively, from a middle-class family in a rural area, earned the trust of a few private investors to launch their risky venture. Many challenges lay ahead: gathering funds, receiving government authorization to erect works, and salt tax exemptions, registering a patent, and above all, scaling up the process to the industrial level and conquering the domestic market.

The central character in this story, Ernest Solvay, remains ingrained in the collective imagination as the archetype of the mid-nineteenth-century entrepreneur-innovator. The image of him that has been conveyed is of a brilliant handyman who, without advanced formal education and almost by chance, discovered a revolutionary chemical process. Owing to this accomplishment, he earned the right to join the pantheon of heroic inventors, even being described by his biographers as "a model for future generations."[1] However, a few nuances bring more depth to the analysis of this image. First, innovation is never born of nothing. In the mid-nineteenth century, scientific information became accessible to a wide public. The Belgian legislative, economic, ideological, and technological environments were such as to stimulate invention. Second, although one can fail alone, success often comes through teamwork. The human and social attributes of individuals are as crucial as their capacity to surround themselves with the right people. As a matter of fact, Ernest Solvay's life experience as a self-taught, self-made man often overshadowed his role as leader. Certainly, he developed his process autonomously. But in great part, the accomplishment resulted from his force of persuasion and his ability to adapt to (or even invent new) rules of the game, so that his enterprise was able to cross the boundary between failure and success.

[1] For the construction of the myth surrounding Ernest Solvay, see Devriese and Frederic (1997), 321–44.

1.1 INSPIRATION AND IMPLEMENTATION

Initial Human Capital

The Solvay family was among the local bourgeoisie at Rebecq-Rognon, a small village in the province of Walloon Brabant. Located halfway between the financial and commercial center of Brussels and the coal basins of Charleroi and Borinage, this rural region was not under the direct influence of either the former or the latter. The primary economic activities centered on small-scale agriculture (including the mill of the family of Louis-Philippe Acheroy, future head of production for Solvay), quarries, breweries, as well as chicory, tobacco, and thread factories.

During the period under French rule (1793–1814), Alexis Solvay, a man of republican leanings and grandfather of Ernest and Alfred, had opened a boarding school. Several Solvay family members worked there as teachers. Others managed the farm next to the school and the lands that the family had acquired over time. Nearby, the porphyry quarries of Quenast became the major economic activity. Alexandre Solvay (1799–1889), Ernest and Alfred's father, left his post of educator at the boarding school to operate one of these quarries from 1830 to 1850, a period of consolidation of the first industrial revolution in Belgium. There, he developed a commercial network that extended as far as Paris. In 1850 his local fame led him to sit in the Chamber of Commerce at Nivelles alongside Guillaume Nélis (1803–1896), doctor and paper manufacturer at Virginal-Samme and the future cornerstone of the supervisory board of Solvay. Guillaume Nélis represented one of the Solvays' few connections with the upper middle class in business and politics. After the sale of his quarry, Alexandre Solvay built a salt refinery on his property, before ending his professional career as a merchant of colonial commodities. As Ernest Solvay himself enjoys recalling in his memoirs, it is in his father's office that he came into contact with sodium chloride.[2]

Typical bourgeois values governed the relationships and behavior of the Solvay family members.[3] Discipline, merit, and respect of family were set forth as fundamental principles. Opinions were liberal. Ernest and Alfred's uncles Florimond Semet and Léon Hulin were Freemasons, although the Catholic religion was practiced and Christian morality was part of daily life. Charity was given to the poor, and women were expected to be good homemakers, educating their children and managing the household accounts. Matrimonial alliances with other local families ensured maintenance of the landed wealth and the perpetuation of values. Thus, the Solvays, the Semets, and the Hulins, all rich landowners, formed a small inner circle through several marriages, including Alexandre Solvay with Adèle Hulin and Florimond Semet with Elisa Hulin. As for Ernest Solvay, he took as his wife his cousin Adèle Winderickx, daughter

[2] Solvay (1904), 108.
[3] For an in-depth analysis of the human and social capital of the Solvay brothers, see Gubin and Piette (1997), 95–136.