ANNA BÁLINT

CLARIANT CLAREANT

THE BEGINNINGS OF A SPECIALTY CHEMICALS COMPANY

campus

Anna Bálint studied Business Administration, History and European Ethnology and earned her doctorate in Art History in 1997. As an author, consultant and art expert, she values interdisciplinary relationships. When working on a book project, she performs all the conceptual, content and creative steps by herself. Anna Bálint has gained particular renown in the field of critical examination of contemporary corporate history.

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The Beginnings of a Specialty Chemicals Company

Translated from the German by Myrna Lesniak

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Preface

Let businesses prosper, blaze, excel, succeed! That is what every businessman and every company wishes. To blaze, excel or become famous is called *clarere* in Latin. To express a wish that, it is thought, may possibly come true, one needs the present subjunctive: c*lareant*.

Since its very beginning Clariant has been in a continual process of transformation forcing it to travel a rocky road to define itself and achieve its own culture and persona. Its roots go back a long way and could fill books.

Level-headed deliberation, diligence driven by the will to succeed, but chance, too, as well as long periods of lean and difficult times have brought the group considerable wealth, huge burdens and great responsibility. The chapters on its own past, no matter how problematic they might be, should not be swept under the carpet but addressed openly because a firmly established awareness of one's origins fosters professional confidence and a certainty of action and sustainability. History, to quote Lessing freely, "should not burden memory but illuminate the intellect."[1]

Thus, for the very first time and in accordance with this guiding principle, this book presents the beginnings of Clariant, which has its historical foundations in two corporations: Sandoz and Hoechst.

1 Gotthold Ephraim Lessing in his preface to his translation of Voltaire, cf: Lessing, Gotthold Ephraim: *Werke und Briefe, Band 2 Werke 1751–1753*; edited by Jürgen Stenzel, Frankfurt a. M., 1998, p. 311.

The globalisation of dyeing: How the dyeing trade developed[2]

The art of dyeing can be traced back to the Stone Age. The red-brown paintings of animals in the caves of Lascaux in the south of France dating from between 17,000 and 15,000 BC and the similar motifs of the rock paintings in Altamira in Spain are living witnesses to the prehistoric use of dyes and pigments. Archaeologists found bandages dyed blue, red and yellow on mummies in their 5,000-year-old graves in the Egyptian pyramids, too. The Etruscans, Greeks, Romans and other Mediterranean peoples were also familiar with a large number of dyes and techniques. There was a wide range of colours and from time immemorial our forefathers made use of a variety of raw materials from nature—plants, various types of wood, minerals or animal extracts.[3]

Cave paintings in Lascaux, from around 17,000–15,000 BC

2 This chapter was written in cooperation with Dr. Alexander Engel, Akademischer Rat (Academic Councilor, comparable to Assistant Professor) at the Institute for Economic and Social History, Göttingen University. See Alexander Engel: *Farben der Globalisierung. Die Entstehung moderner Märkte und Farbstoffe 1500–1900* (Doctoral Thesis, Göttingen University, 2007), Frankfurt a. M./New York, 2009.

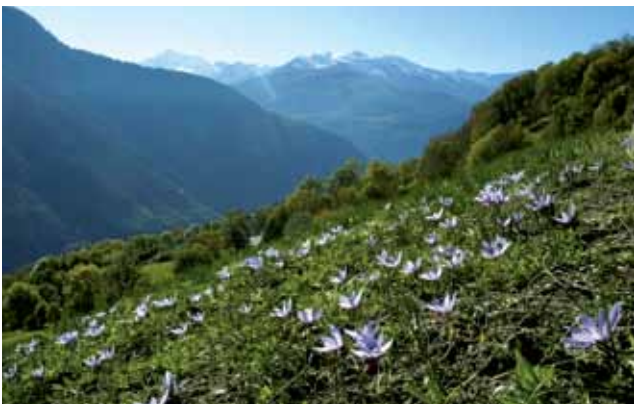
3 Emil Ernst Ploss: *Ein Buch von alten Farben*, 3rd unaltered edition, Munich, 1973.

Purple dye *murex* from the Indian Ocean

The lotus tree and the madder root were used for red dye. Purple tones were achieved with the aid of litmus, walnut shells and pomegranate blossoms; the 'royal colour' purple derived from the snails of the genus *murex* had a special significance. Indigo and dyer's woad were suitable as a blue dye. The unassuming mignonette plant, also known as dyer's rocket, grows on rubble heaps and at the wayside. Its seed vessels and the saffron crocus produced a strong yellow.

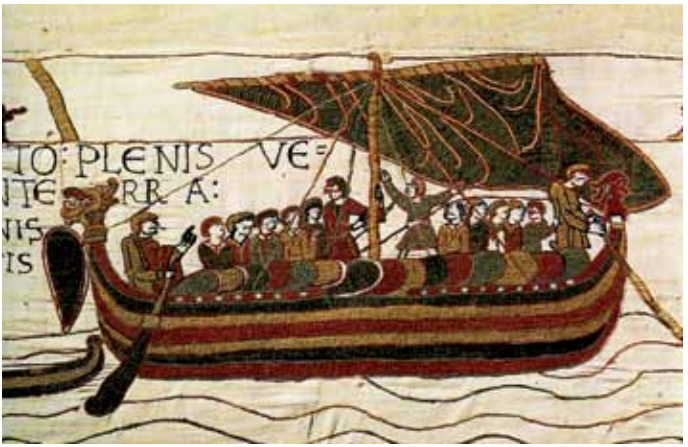
In the beginning, dyeing materials were collected in the countryside and used for dyeing at home but over time it became customary to grow the dye plants oneself. In the biography of Charlemagne, written after his death in 814, it was reported that he strongly advised growing madder: a Mediterranean plant used in dying, which had been brought over the Alps to Northern Europe by Benedictine monks.

A wall hanging from around 1070, known as the Bayeux Tapestry, owes its great value both as a historical document and a work of art to its colour fastness.[4] The hanging is an embroidered picture story depicting the Norman conquest of England. The embroidery is in coloured wool, which has hardly faded even to the present day. The professional dyeing of textiles such as wool, linen, cotton and silk was provided by cloth makers. It was the Flemish in particular who plied this early craft and who were well-known for the high quality of their trade. Their work was first mentioned in documents in Vienna in 1208. The increase in finery meant that the guild of tailors became



Crocuses on the saffron fields in Mund/Valais

4 David M.Wilson: *Der Teppich von Bayeux*, preface by Jean le Carpentier, 2nd ed., Cologne 2005, p. 9–12.



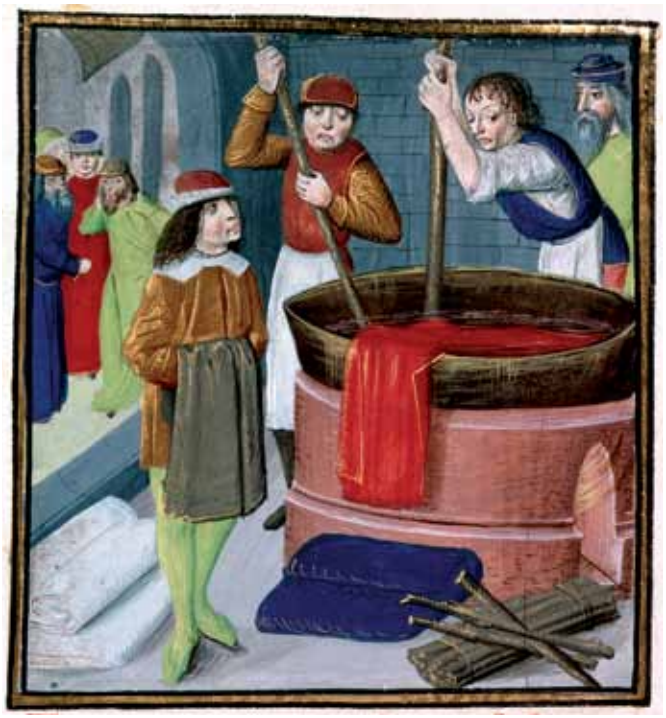
Bayeux Tapestry (detail), around 1070

more and more important and from a historical point of view the proverb 'Clothes make the man' is less likely to be a cliché but rather a confirmation of the trade's importance.

From 1400 the dyers began to form independent guilds. As the individual processes in dyeing, i. e. washing, bating, rinsing and dying depend on water, the trade settled near flowing water. 'Blauhandgasse,' a street in Frankfurt, is thought to be one such site.

On account of their botanical and animal origins, textiles contained residual substances from the manufacturing of the fibres which made the materials look grey and yellowish. This meant that they needed to be bleached before being dyed. The bleachers—a specialist branch of the dyeing trade—mostly spread the textiles on the municipal bleaching green. Bleaching was effected by the sun and, depending on the type of weave, various aids such as sour milk, potash and water were added in turn; however, it could take weeks of treatment for the textiles to reach the degree of whiteness desired. Smoothing, i. e. pressing the bleached or dyed linen, was also part of the dyeing trade. It was to be some centuries before the dyers were in a position to avoid the time-consuming bleaching on the green and the arduous smoothing and replace these with efficient finishes.

Hides which had been tanned to make leather and then dyed were very popular at royal courts in the Middle Ages. Horse tack, shoes, and robust clothing were fashioned from coloured or gilded leather. Books, too, were given prestigious bindings, especially in sumptuous red. The leather from the Moroccan town of Fez was particularly valued for its suppleness and its uniform colouring. Even today tanneries there still use the old, traditional,



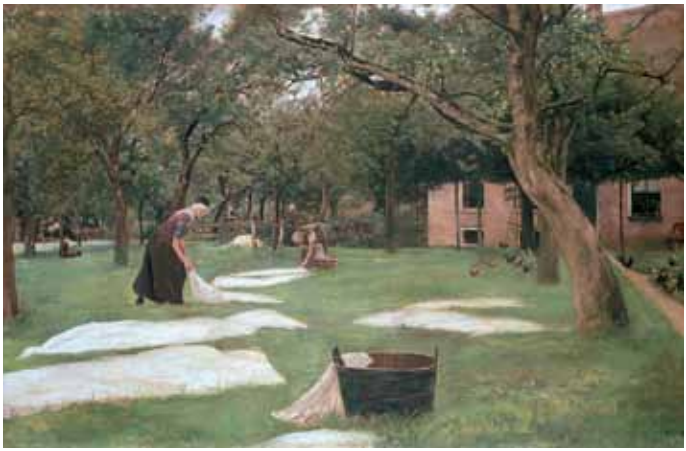
Dyers, 1482, illumination from a Flemish manuscript

energy-sapping methods: young men full the leather in large, brick vats filled with tanning agents, water and dyes.

In the Western World, mediaeval illuminations were based on brazilin, the dye from redwoods. Its origin was in East India and it was very much in demand. It reached Europe via the Silk Road before America was discovered. In the 16th century dye-producing woods were among the most coveted imports from the New World—the South American country of Brazil gets its name from the brazilwood.

A fall in the price of basic foods and an increase in real wages in Europe in the late Middle Ages encouraged the specialised growth of plants suitable for dyeing and trading. Consequently, supra-regional markets emerged for a limited number of popular, high-quality plants for the natural dyeing process. Needless to say, their transport, even over large distances, was worth the effort.

The comparatively high capital requirements could only be met with investments by merchants, who not only organised distribution but controlled the entire supply chain of the dye business. However, these agricultural pro-



Bleaching on the Green, 1890, painting by Max Liebermann

duction systems were unstable: When the price of a dye decreased, this could not be cushioned by innovations as there was no mechanism for developing new technologies. As a result, quality gradually deteriorated to reduce production costs, which, in turn, completely ruined any sales opportunities. By the end of the 17th century, the most important, marketable dyes of European origin—dyer's woad, dyer's rocket and safflower which is also known as false saffron, with the one exception of madder—had been ousted by non-European products: principally indigo, dye-woods and cochineal, the dried form of a scale insect which breeds on cacti.

In the medium term favourably priced Central American woods which could be easily felled became a key product on the European mass textile market. On the other hand, dyers not only made use of the European madder but also resorted to cochineal from Central America for high quality shades of red. Cochineal production was, unlike all the other major export articles from Latin America, in the hands of the indigenous population. The main reason for this was that hardly any economies of scales could be realized by producing cochineal on a large scale.

Due to the conquistadors, trade with the dried bodies of cochineal scale insects spread throughout Europe, too. At first, cochineal was used primarily in the dyeing of textiles, but soon it was used in cosmetics, too. In the Baroque period it was to be found on the colour palette of such artists as Jacopo Tintoretto, Jan Vermeer, Peter Paul Rubens or Diego Velázquez. In the region of origin, however, it was difficult to produce this natural dye stuff in large quantities and with consistent quality. Production on a larger scale caused problems in coordinating work, alternately high and low demand for labour,

and brought about recurrent infestations of the cacti, all of which prevented cochineal gaining access to the mass market.

The situation was quite different when it came to the blue dye indigo, a highly concentrated plant extract and the only dye produced in the plantation economy of the Caribbean. Unlike European agriculture, this business was not interested in sustainable cultivation but only in the short-term maximizing of the capital invested. This led to a highly specialized, intensive monoculture. The accompanying inordinate strain on the land, the excessive exploitation of the slaves, the cost benefits resulting from the mass production and the synergy of a monoculture with integrated processing meant that an exceptionally high level of productivity was achieved. However, it was primarily the merchants engaged in overseas trade who made a profit. In their role as providers of capital and by dint of their involvement in various lines of business they acquired sufficient dominance on the market to be able to beat down producer prices almost to the level of production costs.

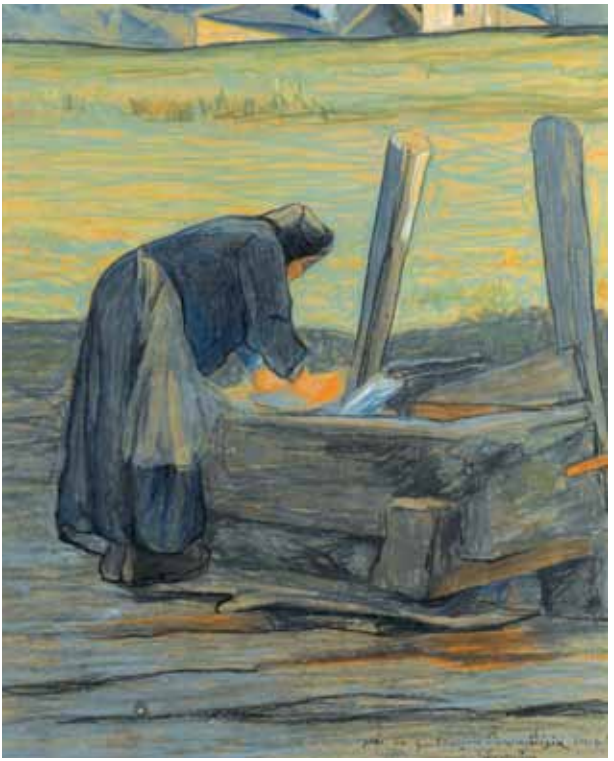
The planters were tied to the specific processing infrastructure required to produce the dye and to the frequently long growth cycles of the indigo plant. They were simply not able to switch over to growing a cash crop that would achieve a maximum profit either at short notice or just as the market required. Following the abolition of slavery and the political chaos in the Caribbean in the 19th century, indigo production for the European market shifted to British India.

Unlike the Caribbean, the areas in India over which the British gradually gained control in the mid-18th century were densely populated and, because of the caste system, property relations were sacrosanct. Accordingly, the Europeans restricted themselves to the processing of indigo leaves in factories built on rented land and run with the aid of paid labour. Plant materials were obtained by closing deals with peasant farmers who cultivated indigo at their own expense. However, the contractual relations, which were liberal in the beginning, were gradually replaced by procurement systems in which the peasants became dependent and were increasingly at the mercy of the European indigo producers. This caused social tensions and among other things boosted the protest movement around Mahatma Gandhi. In the end natural indigo lost its importance in the European dye industry: to begin with, it was gradually replaced by cheaper materials such as logwood and eventually other sources of tannin in the dyeing of black, which used to be achieved by combining deep blue with red. The botanical dye was finally supplanted by synthetic indigo around 1900. However, the crux of the change was not that industrial production was more cost-efficient, but that its marketing became way more effective.

The Cobbler (detail), 1755, illustration from the "Nürnberger Hausbücher"

Due to industrialisation, the market for dyes soared from the middle of the 18th century on. The dye manufacturers, who from the very start were suppliers to the weaving trade, the tanning and leather trade, paper makers and the building sector, and ritual and fashion makeup, developed their products and techniques with a view to meeting the requirements of their customers. At the same time, there were signs of a fundamental structural change in the market trend, which ultimately dated from a change in the perception of the nature of dyes. Dyes came to be regarded less and less as holistic natural products but rather as a combination of chemically defined substances. The scientific deconstruction of natural dyes had an immediate technological and economic impact as dye traders and dyers made use of analysis techniques on a commercial scale to obtain purer and more consistent dyes. Companies such as Geigy (1857) or what was later to be known as Ciba (1859) in Switzerland, Cassella (1798), Bayer (1863) and Hoechst (1863) in Germany were established either by traders specialising in natural dyes or by dyers themselves.

The early application of science to products and manufacturing methods was not restricted merely to dyes but also extended to bleaching and consequently to the manufacturing of substances such as soda and alum. The increase in methods for manufacturing pure chemical products was accompanied by a rise in the demand for chemicals, especially for basic commodities such as alkalis, acids, and, later, hydrocarbons distilled from tar such as phenol and aniline. Individual traders concentrated on such substances and



Washerwoman at the Well, about 1890, pastel by Giovanni Segantini

amalgamated with producers and finishers under one roof. Companies like the Badische Anilin- und Soda-Fabrik/BASF (1863) and the Aktiengesellschaft für Anilinfabrikation/AGFA (1867) can trace their origins back to this period.

The outcome of the change in the trade with dyestuffs and in the traditional chemical industry was the emergence of a new chemical industry which was characterized by large-scale enterprises with a perceptible focus on business with dyestuffs. The basis for this was provided by the increase in the range of products, diversification, and the consolidation of production and distribution. Moreover, the fact that the companies were interested in uniting, if possible, as many of or even all the parts of the supply chain within one company added another aspect: vertical integration.

In the pre-industrial era production and distribution systems were dominated by individuals who were connected to each other by means of market and network relations. The degree of specialisation tended to remain low and the complexity of economic activity as well as the demands regarding produc-

tion methods were not very exacting. As a result, the costly set-up of larger hierarchies or the organization of extremely well-funded companies was unnecessary. This changed with the shift to modern factory-produced dyestuffs. There was an increase in effort and expenditure in all sectors: in the development of new products, in their production and finally in their commercial exploitation.

The more complex the knowledge about dyes became, the more difficult the role of the aforementioned universal individuals proved to be. These were finally replaced by specialists whose work required co-ordinating. At the same time economies of scale and—in the supply of an entire range of dyestuffs—synergies could be obtained more effectively than in the traditional manufacture of natural dyes. All this led to the type of organization which consisted of a scalable, hierarchic corporation with multiple subdivisions, so that all the tasks of a manufacturing and distribution system could be carried out in one set-up. Modern companies evolved, just as they did in most other branches of the emerging industrial world.

The move towards modern companies with independent subsystems for marketing, research and development altered the market situation radically and created dynamic and competitive pressure to an extent that had previously been unknown. God-given, hardly processed natural dyestuffs gradually lost their importance on the markets and were replaced by the high-quality dyestuffs created and manufactured by chemists. At the same time, the transition from the traditional to the modern dye industry was a process lasting decades.

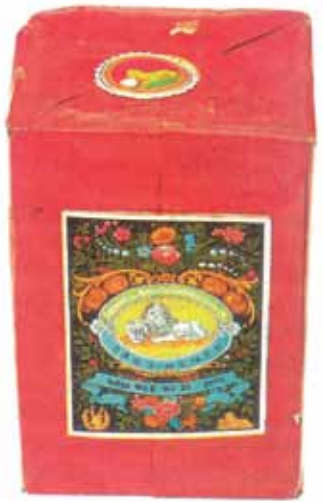
From the late 1840s and even more so from the late 1850s with the emergence of aniline dyes, entirely new artificial dyes were added to the early historical extracts and compounds obtained from natural dyestuffs. A pioneer in this field was August Wilhelm von Hofmann, who obtained his doctorate in Giessen under the aegis of Justus von Liebig in 1841. A few years later, at the behest of Queen Victoria and Prince Consort Albert, he accepted a chair at the Royal College of Chemistry in London. The German chemist developed an aniline synthesis based on benzene won from coal tar. In experiments in 1856 to produce quinine from the aniline bases of coal tar, Hofmann's assistant William Henry Perkin, who had just turned 18, accidentally discovered a process to manufacture 'mauveine'. After discovering how eminently suitable this first synthetic organic dye was for dyeing textiles on account of its intensity, Perkin took out a patent and soon afterwards he founded a small factory called Perkin and Sons in London. As violet was a very fashionable colour at that time, Perkin enjoyed huge success with his monopoly on the production

of mauveine. Soon competitors began systematically to exploit aniline and to create further dyes such as fuchsine or magenta.

The so-called coal tar dyes—as they were originally derived from coal tar—proved, in the long term, to be a key innovation. At first they came under the category of particularly elaborate dyes and like all innovative and expensive dyes found their way onto the market via the niche provided by exclusive silk fabrics. In the 1870s, French and British companies lost their early market leadership to German and Swiss companies, due, among other things, to the superior knowledge management the latter possessed. That was even before tar dyes also gained importance on the mass market from the 1880s on. The foundation of Sandoz in 1886 dates back to this boom. At the beginning of the 20th century, coal tar dyes had drawn level with natural dyes and by World War I achieved a market share of more than 80 percent in Germany and Switzerland, which at the time produced around 95 percent of the tar dyes in the world.

The key to the success of tar dyes lay less in the alleged price advantage than in their innovative commercial exploitation. In the pre-modern period dyes were regarded as commodities, i. e. goods defined according to their range of uses. When dyers purchased dyestuffs, they tried to identify suitable materials on the basis of origin, external characteristics and testing procedures. In the case of extracts, compounds and tar dyes, which all required

Samples of indigo in an open case, ca. 1750

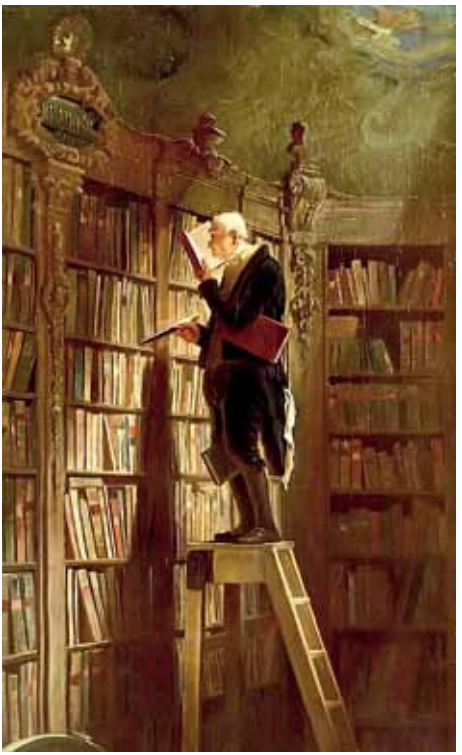


Tin with Indigo Brand from the Farbwerke vorm. Meister Lucius & Brüning, ca. 1900

greater processing, identification was even more difficult, especially as the range of products became more complex. At the same time, however, there was a fundamental change in production rights. Legislation protecting patents and brands strengthened the entitlement to individual rights to products; a liberal market approach predicated on clearly defined and protected rights (property rights) gained acceptance. Correspondingly, the visible and tangible characteristics of a substance which were important for the customer's decision faded into the background as information from the manufacturer was given priority in the marketing of dyes. Sealed tins with labels giving precise details of the contents replaced open showcases as a means of presenting the product—the vast number of long-established commodities defined by the demand side were supplanted by a flood of thousands upon thousands of new specialties with brand labels and defined by the supply side.

The transition from the comparatively static world of c*ommodities* to the dynamic world of *specialties* marked the beginning of an operating environment in which marketing became the permanent and principal task. Commodities were barely processed, produced in large quantities, and chosen by customers for their particular purpose on the basis of their visible and tangible qualities. Who produced them played a minor role at best. Specialties, on the other hand, were artificial dyestuffs: manufacturers set great store by their authorship being clearly recognizable. Usually it was impossible for the consumer to examine the contents beforehand, as the products were offered only in sealed packages. Instead, one relied on the labels attached by the manufacturer, by which the latter informed about and guaranteed the characteristics and the quality.

Woman Ironing, 1904, painting by Pablo Picasso



The Bookworm, around 1850, painting by Carl Spitzweg

Dyers had to be actively informed of the potential uses of new products and persuaded of their inherent advantages. Because of the speed at which the market was developing, manufacturers could not wait for consumers to explore the possibilities for themselves, as had been the case before industrialization. It was also important to gear innovation and research to customers' requirements. A prerequisite for success on the market was the successful linkage of the R&D department and the marketing department—a company fell behind if it did not grow and made no effort to develop the market further.

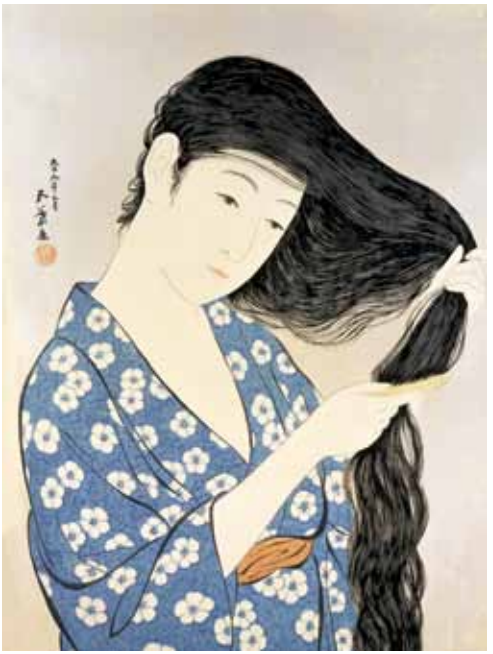
The transition from the traditional dye industry to a modern one was virtually complete just prior to the outbreak of the First World War. After that, the patterns of activity in the industry remained almost constant for decades. However, there were changes in market structures. The First World War meant that all connections between German dye factories and the global markets were severed. Switzerland's major manufacturers Ciba, Geigy, and Sandoz benefited from the situation while the USA, Great Britain, France, Italy and Japan built up or expanded their own production facilities substantially—partly by confiscating German-owned plants abroad. After the war, Japan and Italy covered most of and the other three states covered all of their own demand with their own factories. At the end of the 1920s Germany's share of the global market had shrunk by almost half to a good 40 percent compared with its share in 1913; Switzerland's share almost doubled rising to almost one seventh. At the same time, competitive pressure on the dye markets decreased both nationally and internationally due to mergers and the creation of cartels. The latter were particularly typical of the period. The three main Swiss companies entered into a syndicate; in France the dye syndicate CMC (Centrale Matières

Spray, 1962, painting by Roy Lichtenstein

Colorantes) was set up. In 1925 the members of the German cartel amalgamated as *I. G. Farbenindustrie AG* (demerged again in the early 1950s), while in Great Britain ICI (Imperial Chemical Industries), the gigantic chemical company, was formed. Together these four large-scale organisations entered into cartel agreements, thereby gaining control of approximately two-thirds of the world's dye market; the remaining third was dominated chiefly by U.S. companies.

Securing the traditional core business afforded the participating groups and companies the opportunity to develop, more intensively, other lines of business such as basic chemicals, fertilizers, pharmaceuticals, photo-chemicals etc. This diversification caused the share of the turnover generated by the dye business in Germany's chemicals companies to slump by almost half from nearly two-thirds in 1913 to just under one third around 1930. From the 1940s to about 1990 the share in turnover remained constant at just under one sixth of total business. That the share in turnover remained stable was partly due to a diversification of the actual business with dyes; not only textile dyes gained in significance but also veneer and gloss paint, textile auxiliary agents, paints and printing inks, and masterbatches, too, when synthetics triumphantly entered the market as from 1950s.

Meanwhile, U.S. chemical companies enjoyed considerable but temporary success in the 1950s and 60s; however, by about 1980 their market position had dwindled again and they were superseded by Ciba-Geigy, Bayer, Hoechst, BASF, Sandoz and Japanese manufacturers. In the wake of the increasing relocation of the world's textile manufacturing to Asia, new producers from Korea, Taiwan, Indonesia, Pakistan and above all India and China gained increasing significance, first of all on their home markets and soon on export markets. Making use of low wages and some state subsidies,

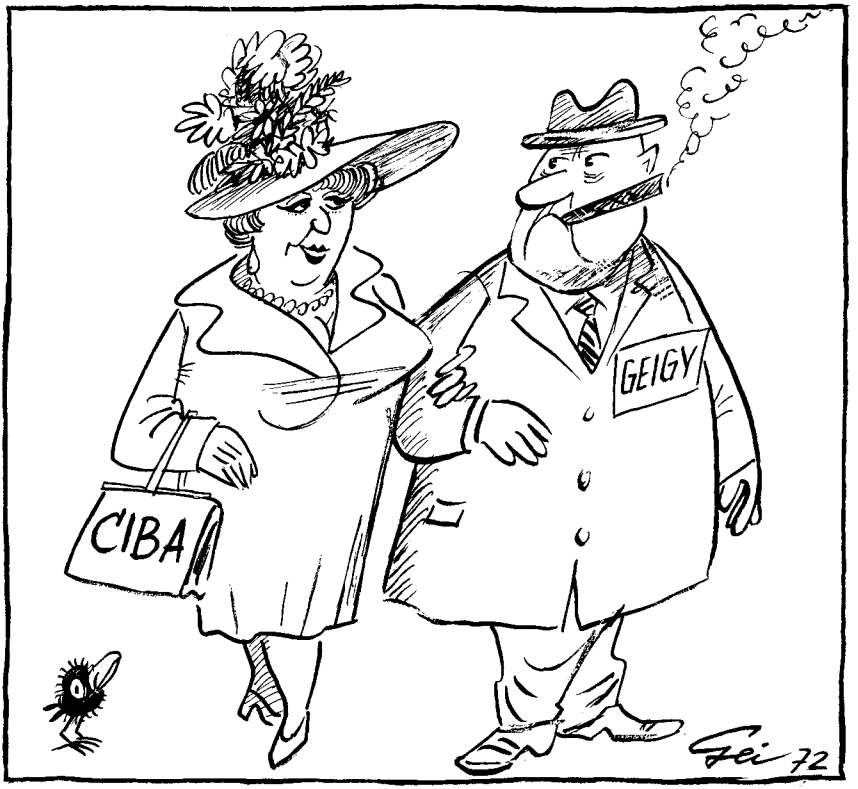


Kamisuki (*woman combing her hair)*, 1920, woodcut by Goyô Hashiguchi

Asian manufacturers—principally small and medium-sized businesses—conquered the mass market while Western producers, on account of their greater expertise, concentrated on more expensive specialties. In 1994 Asian dye manufacturers boasted a global market share of 41 percent—among these manufacturers China had 19 percent, Japan 7 percent and India 5 percent. In comparison, only 35 percent was shared more or less equally by Western Europe and North America. Producers in Latin America, Eastern Europe, Australasia and Africa accounted for the remaining 24 percent.

This transformation of the dye market coincided with a restructuring of the traditional Central European chemicals companies, which had been subject to considerable pressure in various business segments in the 1990s and consequently repositioned themselves as life-science companies after shedding traditional lines of business.

The prevailing doctrine of 'the more and the bigger, the better', got out of hand with the result that over time many a chemical company started to resemble a convenience store. The British entrepreneur Denys Henderson was the first to save a group listed on the stock exchange when he demerged the



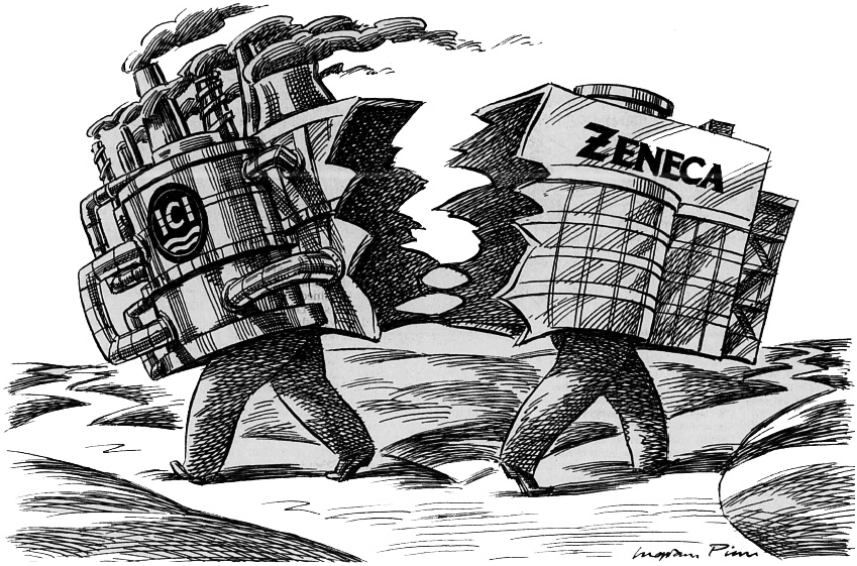
"You might be larger than me, honey, but I am bigger for sure." Basel Marriage, 1972, cartoon by Hans Geisen in the *Basler Zeitung*

company and yet contributed to increasing its shareholder value.[5] He divided ICI[6], which had been established in 1930, into two completely independently run and listed companies: Traditional chemicals remained with ICI whilst Zeneca, which had been spun off, stood for life science, with pharmaceuticals and pest control products as its main pillar.

With this in mind, Bayer and Hoechst spun off their textile dye divisions and combined them to form DyStar GmbH, at that time the second largest supplier in the world next to Ciba-Geigy; BASF's dye production, which ranked fourth in the world in 1995, was added in 2000. DyStar went bankrupt in 2009 and was bought by an Indian company, Kiri Dyes and Chemicals, at the beginning of 2010.

5 Wilfried Kratz: "Wundersame Spaltung," in *Die Zeit*, 5 Mar. 1993, no. 10.

6 See Geoffrey Owen/Trevor Harrison: "Why ICI Chose to Demerge," in *Harvard Business Review*, vol. 73, no. 2, Mar.-Apr. 1995, pp. 132–142.
See Geoffrey Owen: "Parting of the Corporate Ways," in *Financial Times*, 13 Mar. 1995.



ICI parts with Zeneca, cartoon by Ingram Pinn in the *Financial Times*, 13 Mar. 1995

The traditional Swiss companies Ciba-Geigy and Sandoz merged to become Novartis in 1996 and in the course of their orientation towards life sciences transferred Ciba-Geigy's specialty chemicals and their dye production to a separate company; Ciba AG has since become part of BASF. Before the merger Sandoz had already spun off its specialty chemicals business to form Clariant AG, which acquired Hoechst AG's specialty chemicals business in 1997 and Ciba AG's Masterbatches Division in 2006.

The focus on specialist dyes which has resulted from competition from Asia and the manifold restructuring of the industry in the last 15 years has changed the traditional face of the industry. Cultural and institutional friction losses from these various restructurings have left their mark on the companies that are heirs to the major dye companies. Nevertheless, it is still possible to draw on their accumulated knowledge and experience: The thread is still intact, the colour has not faded.

Grandmother

When the achievements in the economic history[7] of Switzerland are scrutinized closely, it is very obvious that many striking courses have been charted since the foundation of the Federal State of Switzerland in 1848. Among these outstanding events are the introduction of the Swiss franc in 1850; the opening of the 'Eidgenössische Technische Hochschule' (the Swiss College of Technology) in 1855; the foundation of the 'Schweizerische Kreditanstalt' (the Swiss Credit Institute) on the initiative of Alfred Escher in 1856; the breakthrough in alternating current technology which led to the founding of Brown, Boveri & Cie. in Baden in 1891; the merger between Nestlé and the Anglo-Swiss Condensed Milk Company in 1905; the concept with which Gottlieb Duttweiler revolutionized the food industry, his consumer-friendly Migros retail store chain in 1925; Arnold Isler's vision of consolidating all those engaged in aviation in Switzerland into one company, Swissair, which became reality in 1931; the 'Peace Treaty' in Swiss industry in 1937; the rescue of Switzerland's watch and clock industry by Nicolas Hayek, who put it back on its feet in 1983, and finally the merger between Ciba and Sandoz to form Novartis in 1996. This merger, the so-called 'Basel Marriage' on 6 March 1996, was at the time the largest merger the world had ever seen and marked the beginning of a new era at the 'Rhine's Knee' and the irreversible farewell to the traditional chemical industry.

However, before the strict, legendary patriarch Marc Moret could pull off the biggest coup of his career, a solution had to be found to the 'grandmother' problem. The problem was the former core business—the extraction of dyes from tar, which had been the reason for starting the company in 1886. The

7 "Historie: Zehn Meilensteine. Vom Start des Frankens bis zur Pharma-Fusion: die wichtigsten Weichenstellungen aus 150 Jahren Schweizer Wirtschaft," in *Bilanz* 04/2006, 28 Feb. 2006.

dyes were renamed chemicals a century later, in 1985, and in the course of diversification as of 1990, it became evident that they were less viable as a division in the set-up at that time and were therefore no longer sustainable.

'Grandmother' refers to Kollektivgesellschaft Chemische Fabrik Kern & Sandoz, the company established in the 19th century, whereas 'mother' is used to refer to the modern company of Sandoz with its many divisions- pharmaceuticals, food, seeds, chemicals, agriculture, construction and environment. Finally, the term 'daughter' refers to the young company of Clariant.

The location in Basel

Basel's early economic development was determined by politics and goes back to the time of the Salians when Henry IV elevated the Burgundian nobleman and cleric Burkhard von Fenis to the office of Bishop of Basel in 1072.[8] They were not only friends but were also declared enemies of Pope Gregory VII. When Henry became Emperor, Burkhard, who supported him in the Investiture Controversy, accompanied him on his journey to meet the Pope at Canossa in the winter of 1077. In addition to his secular commitment, Burkhard always had a sympathetic ear for the interests of the church in Basel. In reply to the wishes of the population, he consequently called Benedictine monks from the reform monastery Cluny to his diocesan town in the north of Switzerland. It was thus that the first monastery in Basel, which was built in Sankt-Alban-Tal (St. Alban's Valley), came into existence. Thanks to the monks, the power of the River Birs could be harnessed, and they built a canal which from the 12th century served to operate several mills and attracted all kinds of craftsmen. That laid the foundation for the settlement there of a local paper manufacturing industry somewhat later.[9]

The Council of Basel which convened in 1431 employed around one hundred secretaries, who had to record every meeting. The considerable demand for paper that was involved drew the attention of Heinrich Halbysen, a Basel merchant, to a niche in the market with the result that he bought the 'Allenwinden' mill at the Riehenteich, a mill which he then proceeded to convert into a paper mill. Later he moved the flourishing business to the St. Alban's Valley and used the 'waterworks' built by the former Cluniacs. Halbysen faced

8 René Teuteberg: *The History of Basel*, 2nd ed., Basel 1988, p. 100 ff., 135 ff.

9 See Peter Tschudin: *Basler Papiermühle*, Schweizerisches Museum für Papier, Schrift und Druck (the Swiss Museum for Paper, Writing and Print), Basel 2002.

local competition from the Galliziani brothers, two paper manufacturers who had immigrated from Italy and who likewise rose to great wealth through their trade. Another contributing factor was very likely the paper consumption at the university, which was founded in 1460. Because of its high quality, paper from Basel was held in great esteem throughout Europe from the 15th/16th centuries on.

Significant impulses for the economic development of Basel also came from the Huguenots who, after the repeal of the Edict of Nantes in 1685, found a new home in what was considered to be a religiously tolerant town. They also brought weaving and the dyeing of silk ribbons to the region. For a long time the manufacture of the ribbons was a cottage industry: i. e. the ribbons were woven on hand-operated weaving looms in the homes of so-called 'ribbon-weaving' families, but gradually in the 1830s the fabrics were manufactured in factories on weaving looms driven by water and steam. This economic sector was highly influential in helping to establish the manufacture of dyes in Basel.

Salt

However, before it was possible to even think of such an important industry as chemicals in the north of Switzerland, one basic prerequisite was essential: salt. In Switzerland this raw material was known merely as an expensive import. Actually the mineral had been hidden in the ground for more than 250 million years but it had never been brought to the surface. In 1837 the discovery of salt deposits at a depth of 107 metres on the Rothaus estate in Muttenz by Carl Christian Friedrich Glenck,[10] a German saline expert, freed Switzerland of the necessity of importing salt and heralded in the industrialization of the region. Glenck, who was inspired by the example of Schwäbisch Hall, his home town, quite simply called the place of his first Swiss discovery Schweizer Hall. The name is verifiably not the historical name of any district.

Further decisive conditions for a site[11] where a dye industry could develop were sales and consumer orientation, the various patent regulations, the border location, the number of inhabitants, skilled staff and expertise, the River

10 *Hessische Biografie*, Data Set No. 5499; see Bernhard Ruetz/Armin Roos: *Carl Christian Friedrich Glenck 1779–1845: Salzpionier und Gründer der Saline Schweizerhalle*, Zurich 2009.

11 Christian Zeller: *Globalisierungsstrategien. Der Weg von Novartis* (Thesis, Hamburg University, 2001), Berlin/Heidelberg 2001, pp. 102–108.

Rhine as a convenient waste dump, communication and transport facilities, the capital market and the attitude of the authorities.

One of the pioneers of dye manufacturing in Basel is considered to be the silk dyer Alexander Clavel, who, in 1859—three years after William Henry Perkin in London accidentally discovered how to manufacture mauveine—began to produce fuchsine and opened his own factory for the production of aniline dyes in 1864. However, in 1873 he sold this manufacturing facility to Bindschedler & Busch, later known as Ciba, so that he could again devote himself to dyeing silk.

Another tar factory on the Rhine ...

In 1885 the paths of Alfred Kern, a chemist, and Edouard Sandoz,[12] a businessman, crossed. This fortunate meeting laid the foundations for starting up a company, which was later to be referred to as 'mother' and was called Sandoz AG. It was from this company that Clariant was spun off.

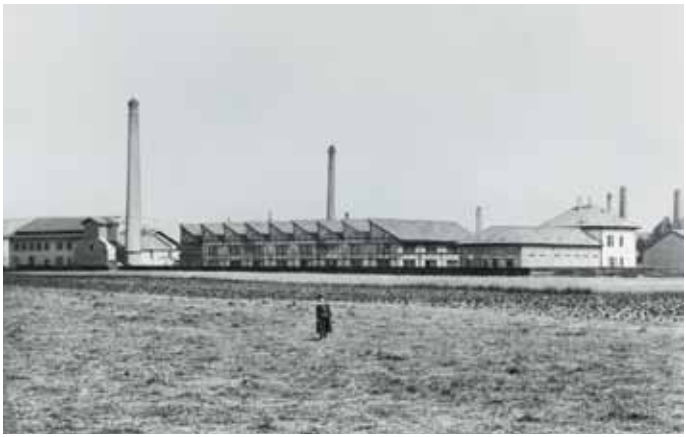
Kern,[13] who was born in Bülach in 1850, had studied chemistry at the Swiss Polytechnic, now the ETH (Swiss College of Technology) in Zurich.

After completing his studies he went abroad to work in a chemical plant which distilled dye from the raw material, tar. The plant, 'Chemische Fabrik Karl Oehler,' was established in Offenbach in 1842 and was the first independent plant in Germany to manufacture asphalt. In 1905 it was acquired by 'Griesheim-Elektron,' which belonged to the founder members of I. G. Farben in 1925 but was assigned to Farbwerke Hoechst after its demerger. When 'Hoechst Specialty Chemicals' was spun off in 1997, it became the property of Clariant until it was sold by Rolf W. Schweizer to Karl-Gerhard Seifert in 2001. Since then it has been a division of AllessaChemie.

Thus it was that Alfred Kern began his career in the chemical industry in Offenbach in 1872, became a member of the Frankfurt Chemische Gesellschaft (Frankfurt Chemical Society), gained his doctorate at the university in Giessen—because the Polytechnic in Zurich was not entitled to award doctor-

12 "Festschrift Sandoz (Sandoz's Commemorative Publication): 100 Jahre für ein Leben mit Zukunft," in *Sandoz Bulletin*, vol. 22, 1986; Renate Riedl-Ehrenberg: "Alfred Kern (1850–1893). Edouard Sandoz (1853–1928). Gründer der Sandoz AG, Basel," in *Schweizer Pioniere der Wirtschaft und Technik*, no. 44, ed. by the Verein für wirtschaftshistorische Studien Zürich (Society for Economic Historical Studies), Zurich 1986; "110 Jahre Sandoz: Ein historischer Rückblick," in *Sandoz Bulletin*, no. 112 (last number)/1996, pp. 6–31.

13 *Neue Deutsche Biographie*, vol. 11, Berlin 1977, pp. 517–518.



Sandoz's factory site around 1900

ates at the time—and after six years returned to Switzerland with a wealth of experience at his disposal. Scarcely had he taken up his post at the dye factory of Bindschedler & Busch in 1879 than he succeeded in coming up with a number of major inventions. Among other things, Kern had developed the field of ketone dyes and in the process discovered crystal violet, which caused quite a sensation. It is, therefore, all the more inexplicable why his employer, well known as the predecessor of the future Ciba, terminated his contract in 1884. It is quite likely that there were differences of opinion with regards to the use of Kern's patents. Kern seems to have recognized the hard game being played, because when he was dismissed, he took various company documents including valuable laboratory journals with him and began negotiations with Durand & Huguenin, a dye factory in Basel, with a view to setting up a new dye factory together.

Edouard Sandoz, who acted as an intermediary at the talks, was born in Basel in 1853. He was the son of a cloth merchant and had served a commercial apprenticeship in a raw silk business in Basel. After that he had found employment with Poirier & Dalsace, an aniline dye factory near Paris. After extensive business trips which had taken him as far as North America, he had returned to Basel in 1880 and had taken up a post with Durand & Huguenin. When the negotiations between Kern and the dye factory broke down, Sandoz and Kern decided to go it alone: they established the Kollektivgesellschaft Chemische Fabrik Kern & Sandoz, which commenced work with three chemists, a bookkeeper, a foreman and 10 tradesmen in a plant in the St.-Johann-Viertel (St. John's Quarter) in Basel on 1st July 1886. This date marks the birth of the later Sandoz and the beginning of the manufacture of textile dyes.

Thanks to the manufacture of the well-known basic dyes alizarine blue and auramine using Kern's new technique, the company quickly enjoyed their first major successes. At the same time, Edouard Sandoz set off on numerous business trips to establish contacts throughout the world. In order to win through in the face of foreign competition, especially from Germany, the company very soon began to engage in extensive research and to manufacture new products. Their first development was the violet dye 'prune pure' which was patented in 1888. In the meantime the young company was already producing 6 different dyes, two of which- the Victoria Blue brands- proved to be very successful in the years that followed. In 1889 Edouard Sandoz was able to report record earnings to his co-partner who was on holiday at the time: "ledger showed CHF 112'000 today!!! Colossal, unprecedented, fabulous, monumental …" he wrote. In 1892 the range of products comprised 28 different products for dyeing wool, silk, cotton and linen at a total weight of 380 tonnes.

In 1893 the up-and-coming company was shaken by a great calamity when Alfred succumbed to a heart condition. As a result, Edouard Sandoz decided to continue running the company as a limited partnership called Sandoz & Cie. Basel. However, it was only two years later that Sandoz, too, was forced by ill health to withdraw from active participation in the management. Consequently the company was converted into a public company and traded as Chemische Fabrik vormals Sandoz. Sandoz was elected President of the Board of Directors at the constitutive Annual General Meeting on 9th July 1895, handed over this post to Robert Gnehm after three months but continued to exert influence on the fortunes of the company as a majority shareholder.

In the same year, the company created a second pillar in addition to the dye department and began to manufacture antipyrine, the first antipyretic pharmaceutical substance of its kind. Meister Lucius & Brüning, Hoechst's predecessor, had already included a medication called Antipyrin in its product range[14] since 1884

In 1897 Chemische Fabrik vormals Sandoz applied for a patent for a violet and blue dye which enabled the company to gain a foothold in the emerging group of direct dyes for cotton and paper. In 1911 the first foreign subsidiary, Sandoz Chemical Company Ltd., was established in Bradford, Great Britain. The sales company situated in Yorkshire, the centre of the wool industry at the time, principally sold dyes, but sales also included some pharmaceuticals. The outbreak of the First World War meant that further plans to expand had to be

14 Anna Elisabeth Schreiner/Manuela Wex: "Chronik der Hoechst Aktiengesellschaft 1863–1988," Special edition from *Dokumente aus Hoechst-Archiv*en, Ed. Klaus Trouet, Frankfurt a. M. 1990, p. 33.