

Foreign Trade Strategies of I.G. Farben after World War I

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In 1924 Carl Duisberg, Director of the German Bayer Farbenfabrik Leverkusen Company and leading figure in I.G. Farben, wrote to a business friend in the United States with a lot of hindsight. When the war broke out, according to Duisberg, he had immediately realized that it could only bring disadvantages for the chemical industry. That prediction, continued the German industrial leader, had proven correct [10]. World War I resulted in enormous losses for the German chemical industry in general and I.G. Farben in particular. As a result of the Allied blockade, foreign trade virtually came to a standstill. Direct investments in allied countries came under foreign government control and were subsequently sold. In 1919 I.G. Farben faced the formidable task of reestablishing itself in foreign markets. Its prospects appeared unclear. Owing to Farben's strong prewar bargaining position and its prominent place in the German war economy a conglomeration of forces ranging from Allied political leaders, industrial competitors, to shapers of public opinion now all sought to hamper its exports. The wartime efforts of England, France, and the United States to build up their own explosives and fertilizer production rendered a future protectionist front against I.G. Farben all too predictable. Nevertheless, Farben still maintained a competitive advantage in all of its major production fields. Despite the perpetuation of official anti-German propaganda, its dyestuffs and other products remained in high demand. In this paper I will examine the company's strategy to regain its American foreign trade position during the 1920s.

By the end of the war I.G. Farben had transformed itself from a loosely-knit community of Germany's chief chemical enterprises into a profit-sharing alliance with a common governing board comprising Germany's three largest chemical enterprises: Badische Anilin & Sodafabriken (BASF), Farbenfabriken Bayer in Leverkusen, Farbwerke Hoechst as well as Agfa Company in the photographic sector and three additional smaller chemical works [12, pp. 7-32]. Chemical production in Germany had developed into an export-oriented industry, and among industrial export branches in 1913 the German chemical industry ranked second behind machine construction. Among foreign markets of I.G. in 1913, the United States ranked first with a return of 84 million

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marks, followed in order by Russia, China, Great Britain, and France. After the losses in the Russian revolution, confiscation everywhere, and the perpetuation of a hostile public climate for German imports in Great Britain and France, the reestablishment of I.G. in the American market became a prominent, even an essential strategic goal [8, pp. 572-73; 23; 26; 33].² I.G. desire to regain its market share in the United States resulted not solely from the necessity to increase American sales, but also to forestall future American domination of the Indian and Far Eastern market [32 (1923), pp. 128-29].

I.G. Farben's new alliances in the U.S., 1921-1924

Before the war the German Bayer Company had acquired an American factory in Albany in order to produce dyes and pharmaceuticals and to circumvent the American tariff [34, pp. 389-95]. In 1919 the Grasselli Chemical Company, one of the chief chemical producers in the United States, acquired those dye production facilities with all pertinent patents and trademarks and immediately offered to negotiate with the Bayer Company. Bayer initially reacted coolly to Grasselli's initiative, because it wanted to avoid official recognition of American confiscation of its former property [23, 124-30; 26]. A mixture of fear and contempt seems to have dictated I.G.'s attitude toward its new American competitors: I.G. rightfully viewed itself as powerless in face of the loss of its patents and trade-marks, yet knew that its superior know-how and technology would allow it, at least for some years, to retain a strong position in foreign markets. Superior know-how, however, could work both ways: In the winter of 1920-21, I.G. lost four high ranking technicians, who took vital production information with them, to Dupont Nemours. Still, in the short run, the Treaty of Versailles offered Bayer and the I.G. companies a chance to export to the United States under certain conditions. Allied and American options on reparations in kind in 1920 opened up a legitimate and potentially lucrative dye trade with France, England, and the United States. In addition, German inflation until mid-1922 guaranteed German industries an exchange-rate advantage. Yet the still prevalent anti-German political climate forbade penetration of the American market by I.G. for the time being. Only after the Ruhr occupation and the resulting coal shortage, which substantially affected I.G.'s current production, did the Germans show themselves responsive to Grasselli's offer [5; 7; 9; 15].

With the collapse of the German resistance in the Ruhr, negotiations between Bayer and Grasselli began in late 1923. In June 1924 an agreement between the two companies provided that Bayer and the Grasselli Chemical Company should form a joint venture, the Grasselli Dyestuffs Corporation, with each company holding 50% of the new company's shares. The new company vowed to limit its production to organic dyes and intermediate products and would sell only in the United States and Canada, foregoing all exports. Both partners would exchange information while the new company received Bayer's

²Plumpe [23] provides the fullest, yet apologetic account of I.G. Farben's history; Hayes [12] offers an in depth view that focuses on I.G.'s activities in the 1930s; Chandler [8] offers a useful sketch of I.G.'s strategy; Schröter presents a microeconomic view of I.G.'s American ventures [25], while my account seeks to outline I.G.'s foreign strategy in the 1920s.

present and future American and Canadian patents and trademarks [18]. The Grasselli agreement constituted a momentous success for Bayer, since it eliminated a potentially dangerous competitor and offered the German company new access to the American market. The Emergency Tariff of 1921 and the Fordney McCumber Tariff of the following year had laid prohibitive duties as well as anti-dumping fines on many German chemical products that competed with American production lines [13, pp. 265-76]. The alliance with Grasselli enabled Bayer to open direct production in the United States and thus to circumvent protectionist tariff provisions. Moreover, the working agreement would prevent American chemical producers from entering into those protected domestic production lines, while Bayer's know-how would confer an additional advantage. Owing to the export prohibition for Grasselli Dyestuffs Corporation, the agreement left the rich Latin-American market to Bayer.

Already in 1920 the German company had entered into a similar agreement to reestablish itself in the American pharmaceutical sector. Before the war Bayer had owned two American subsidiaries, the Bayer Company and the Synthetic Patents Company in Albany. Both of these companies were confiscated and later sold to Sterling Products in New York. In addition, Sterling acquired Bayer's English trademarks from the English Board of Trade. Since the American Bayer Company had taken charge of German Bayer's Latin American trademarks during the war, the loss of the American subsidiary also endangered I.G.'s future exports to the Southern hemisphere. When Leverkusen tried to ship Aspirin to Cuba and several Latin American countries, Sterling sued for trademark infringement. As a result, Leverkusen accepted eagerly when Sterling proposed negotiations in 1920. The ensuing agreement of October 1920 gave the Germans a 75% share in Sterling's Latin American profits from Aspirin sales, while it allowed Sterling to market Aspirin under the Bayer Label in Latin America. As a quid pro quo the German company regained its other Latin American trademarks. Two years later, a supplementary agreement between the German Bayer Company and Winthrop, the new holding company founded by Sterling, gave Leverkusen a 50% profit share in Winthrop. The American Bayer Company remained a separate unit and retained the right to produce Aspirin for the American market. Bayer Leverkusen thus immediately lost control of the American Aspirin market, yet profited from Winthrop's remaining American production. The two agreements seemed to constitute a defeat for Leverkusen. Nevertheless during a critical phase the agreements helped stabilize Bayer's Latin American position and furnished Leverkusen with a convenient dollar income during the German hyperinflation [19, pp. 59-70; 20; 30, p. 33].

I. G. Farben's European strategy

Bayer Leverkusen thus pursued a double strategy of retrenchment and silent partnership, bowing to the inevitable conclusion that it had lost its American property and trademarks. At the same time through its offer of technical assistance and arrangement to share in American profits it kept the door open for future expansion. This approach had already been successfully tried in France, where the Compagnie Nationale in 1920 gave Bayer 16.6 million francs and a future profit share of 50% against the promise to provide technical

assistance and leave the French dye market to the Compagnie Nationale. After the CN had become a part of the Kuhlmann concern, however, Kuhlmann terminated the agreement prematurely in order to regain control of the export market [23, pp. 121-22]. During the early twenties I.G. Farben arrived at a similar tentative understanding with British Dyestuffs Corporation, which however never came to a formal conclusion. In later years however, I.G. acquired shares in I.G. Dyestuff Ltd. and British Breda Silk, two British companies [11, pp. 273-74; 17]. Indeed with protectionist tariff laws or safeguarding duties in all major industrial countries, expansion of the chemical industries after the war could only take place in third markets, of which China was the largest.

I.G. Farben's expansion in the United States, 1924-1930

Establishing production subsidiaries to counteract high tariffs therefore seemed the appropriate strategy for America. Thus after its final formation in 1925 into a profit pooling and commonly managed alliance, I.G. Farben found itself ready for a more aggressive stand in the United States. Even before the fusion of I.G. had formally taken place, it decided to consolidate the different American subsidiaries of the three German companies. Thus in the summer of 1925 the former Grasselli Dyestuffs, now renamed General Dyestuffs Company, became the sole subsidiary of I.G. Farben's dye business in the United States [15; 22, 22 September 1925].

Table 1. German dye production and exports, and American dyestuff imports, 1913-1926

German coal tar dye production=1, German coal tar dyes exports=2, German coal tar dye exports to the United States=3, total American coal tar dye imports=4, (values 1 to 4 represent a million pounds (lbs.), percentage share of 4 of 3=5

| Year | 1 | 2 | 3 | 4 | 5 |
|------|-------|-------|-------|-------|-------|
| 1913 | 280.0 | 239.6 | 44.03 | 45.95 | 95.82 |
| 1921 | 116.4 | 48.3 | - * | 4.25 | - |
| 1924 | 159.4 | 61.03 | 0.652 | 3.0 | 21.73 |
| 1925 | 165.0 | 75.9 | 2.146 | 5.2 | 41.26 |
| 1926 | 165.0 | 81.8 | 2.25 | 4.67 | 48.17 |

Source: Census of Dyes [32], 1921, p. 91; 1923, pp. 125-28; 1924, pp. 154-56; 1926, pp. 146-49.

*No German export figures for 1921 can be given, since German export statistics for 1921 are not reliable. The same applies to German chemical goods exported via the Netherlands. Furthermore, Italy reexported German reparation dyes to the United States. See subsequent correspondence in [7].

This step foreshadowed the complete reorganization of I.G. Farben's American business. I.G.'s main aim was to increase sales volume, if necessary through American production and through strategic alliances with other American producers. Through the post 1920 strategic alliances with American producers I.G. succeeded and regained a leading position in the American market [26]. The growth of the American chemical industry, as well as rapid technological change and continued problems regarding pre-war patent rights, however, rendered it necessary for I.G. Farben to continue its aggressive strategy in order to preserve its position.

A new accord with Winthrop Chemical Company, I.G.'s pharmaceutical subsidiary, transformed I.G.'s holdings from a 50% profit guarantee into a 50% capital share. I.G. converted its share in Winthrop and a few smaller pharmaceutical companies into a reshaped pharmaceutical holding company, the Winthrop Chemical Company in Delaware. Winthrop became I.G.'s most profitable alliance in the United States, as Aspirin sales in the U.S. and in the Americas continued to increase: In 1930 I.G. Farben drew 39% of its national and foreign sales earnings from Winthrop's sales. Medicinals represented a sector in the American chemical industry in which sales from 1928 to 1930 rose by 21%, contrary to the widespread trend of shrinking activities. [26; 32 (1928), p. 73, (1930), pp. 60-61].

From 1926 on, I.G. also entered into contacts and agreements with Standard Oil of New Jersey to cooperate in catalytic hydrogenation research for future synthetic fuel production [29, pp. 87-88]. In 1929, at the occasion of I.G.'s reorganization of its American business, I.G. concluded two further agreements with SONJ and acquired outstanding stock of SONJ at the value of \$35 million [34 b]. Likewise I.G. maintained friendly contacts with Dupont, yet it did not arrive at anything like an alliance with the latter. For the time being, I.G. Farben's and Dupont's interests seemed sufficiently compatible for friendly relations but too divergent for a longterm alliance. Dupont, owing to its close links to General Motors, expanded its automobile lacquer production, while I.G.'s American business focused on dyes. Meanwhile, another American producer, National Aniline & Chemical Company (NACCO), emerged as the most serious competitor for I.G. Farben's dye imports into the US [11, pp. 310-18; 21, 22 November 1929].

In 1926 I.G. Farben sent Fritz Ter Meer, a member of its board of directors, to the United States in order to expand and restructure the former Grasselli, now General Dyestuffs Corporation [30]. Ter Meer quickly realized that increased production in the U.S. constituted the only viable option, if I.G. Farben wanted to regain its old position in the American market. Consequently, from 1926 on, I.G. began to invest heavily in the modernization of its American holdings: From that date until 1932 it sank 12 million dollars into the refurbishing of its American business [26]. While I.G. Farben had traditionally dominated the world market because of its leading position in specialty dyes as well as mass market dyes, I.G.'s technological advantage would not last forever in the face of increased research by its competitors: From 1926 on, companies like NACCO launched and marketed aggressively new types of light resistant azo dyes for the mass market at very low prices [6]. Meanwhile Dupont had started production of synthetic methanol, thereby taking advantage of a recent tariff

increase for methanol that had abruptly cut off I.G.'s imports. In light of Dupont's leverage with the administration in Washington, there existed no hope of successful competition against the American synthetic fertilizer production [1, p. 133; 23, p. 186].

Thus I.G. Farben's more aggressive stand regarding foreign competition seems to have been derived from anxiety about its future economic prospects. True, the United States offered good opportunities for future dye sales, but in I.G.'s other fields increased conflict seemed likely. A high tariff and aggressive competition by Kodak had already forced I.G. Farben in 1927 to form a working alliance with Ansco Company in Binghamton, N.Y., in order to maintain sales of its Agfa photographic supplies in the United States and thus to counter future Kodak fabrication and aggressive sales in Germany. This move led to the foundation of Agfa-Ansco as the new American subsidiary for I.G.'s photographic business in the U.S. in 1928 and subsequently to the construction of a new production site [18].

I.G. also ranked as the largest worldwide producer of synthetic nitrogen. The formation of Imperial Chemical Industries in the fall of 1926, a holding company of Britain's largest chemical producers, enabled the British nitrogen industry to increase production and thus threatened I.G.'s foreign markets. Similar developments at Dupont and Allied Chemical in the U.S. rendered the situation even more serious, and in the following year I.G. even tried to limit nitrogen production in Britain and the United States through parallel negotiations with ICI and Dupont [24, vol. 2, pp. 46-54]. Despite the amiable atmosphere surrounding those talks, I.G.'s competitors declined to be wooed. Both ICI and Dupont refused to accede to I.G.'s demands for export quotas and instead concluded a bilateral patents and market sharing agreement among themselves in 1929 [16; 23, pp. 187-95, 223-43, 260-61]. Meanwhile, Dupont successfully increased its production lines relating to the automobile industry. I.G. correspondingly from 1928 on sought a working alliance with Ford in order to develop a nitrocellulose lacquer production [21, 13 January 1928]. By contrast, in regard to future international markets for synthetic gasoline, I.G. opted for restraint by selling all rights for foreign sales to Standard Oil of New Jersey in 1929 [29, pp. 87-88].

I.G.'s rationale for foreign market expansion in only selected fields where it held a competitive advantage derived from a sober assessment of Germany's domestic economy. The Reich's ongoing stabilization crisis in 1926, coupled with union demands for wage increases exceeding production gains and a growing fiscal deficit in the Weimar government, rendered prospects for future economic growth at home uncertain. As Carl Bosch told the Board of Directors of I.G. in early 1926, this situation virtually required stepping up I.G.'s American operations [21, 13 January 1926]. Increased American domestic dyes sales underlined this strategic step.

Rapid technological change had taken place in all of I.G. Farben's production fields. The development of vat dyes as a gradual replacement of indigo, the oldest vat dye, illustrates the challenge the American market presented to I.G.. Vat dyes possessed the important quality of being colorfast to washing and light. They were developed by the Badische Anilin Co. in Ludwigshafen in 1905. Owing to their complexity and high production costs,

prior to World War I they were manufactured exclusively in Germany and Switzerland. During the war, the United States and Great Britain started to produce vat dyes, and from 1921 on, the United States became a leading producer of anthraquinone and other vat dyes. By the middle of the 1920s, domestic manufacturers started to be the main suppliers in the highly competitive American market, thus presenting another challenge for I.G. Farben [32 (1928), pp. 52-54].

Table 2. U.S. production of dyes, imports, and domestic sales, 1926-1928 (million lbs.)

| Year | Domestic sales | Production | Imports |
|------|----------------|------------|---------|
| 1926 | 86.25 | 87.97 | 4.67 |
| 1927 | 98.34 | 95.16 | 4.23 |
| 1928 | 93.30 | 96.25 | 5.31 |

Source: Census of Dyes [32], 1928, pp. 46-47.

Table 3. Vat dyes (without indigo), U.S. domestic sales=1, U.S. imports=2, 1914, 1923-28 (figures in million lbs.)

| Year | 1 | 2 |
|------|-------|-------|
| 1914 | - | 1.945 |
| 1923 | 1.608 | 1.207 |
| 1924 | 1.558 | 1.493 |
| 1925 | 2.252 | 2.418 |
| 1926 | 2.815 | 1.845 |
| 1927 | 4.925 | 1.724 |
| 1928 | 5.753 | 2.301 |

Source: Census of Dyes [32], 1928, 54.

As a response to these challenges, I.G. prepared to streamline its American operations. After 1925 I.G. sought to gain sole ownership and control of General Dyestuffs Company [21, 14 July 1926]. After Hoechst's and BASF's subsidiaries had entered into General Dystuf Company, I.G. Farben in 1926 increased the proportion of its shares and subsequently acquired the voting rights of the Grasselli Chemical Company in I.G.'s American production company. In 1928, the dye-producing unit was now renamed General Aniline Works, while the newly established General Dyestuffs Company in New York functioned as the sole sales agency for I.G. Farben in the United States [25]. But since open

chemical competition by identifiable German firms still met a lot of ill-will and residual anxieties from wartime-propaganda, I.G. had to move slowly in replacing the old American auxiliaries with a new organization. Likewise I.G. decided to finance the American reorganization entirely from the proceeds of American sales and production [18]. As a result of those considerations, the revamping took two years, and only from 1933 onwards did I.G. sell a larger share of its American production in the United States than from its imports [26].

The international reorganization of I.G. Farben's American business

Even before completion of the process, I.G. Farben had taken a crucial organizational decision: In June 1928 it formed a Swiss holding company for its American subsidiaries, called the International Society for Chemical Research I.G., Chemie, Switzerland, in Basle. The Swiss Company's capital base derived from the German I.G.'s foreign corporations. In early 1929 the German I.G. sold its shares of the American subsidiaries to I.G. Switzerland. As a next step, the Ludwigshafen headquarter in April 1929 established a new American holding company, the American I.G. Chemical Corporation, which then exchanged its shares against the Swiss I.G.'s shares of the old American subsidiaries, General Aniline Works and Winthrop. Subsequently the American I.G. issued \$30 million of bonds in the American market [18; 26].

Several motives shaped I.G. Farben's course during this maneuver: The most visible incentive consisted in gaining access to the American capital market to cover the costs of restructuring. I.G. somewhat belatedly thereby emulated similar financial transactions of other large German corporations that had taken place in the years since 1924.³ In May 1929 the German and Swiss I.G.s concluded a working agreement that guaranteed a dividend to the stockholders of the Swiss company, but maintained the German I.G. as a nominally independent unit. The Swiss company had to maintain any profit in excess of the guaranteed dividend requirements in a separate account to which the German I.G. had unlimited access: Thus I.G. Farben in effect secured for itself 20 million dollars of the loan's proceeds that remained after I.G. Switzerland's purchase of the American subsidiaries' shares had been paid for. As Dr. August von Knierim of I.G. Farben later pointed out, this move made a Swiss company the official owner of I.G.'s American holdings and considerably reduced the likelihood of confiscation as an American countermove for a German default in reparations [18; 23, pp. 173-74; 26, pp. 181].

I.G. Farben likewise wished to use the profit from Winthrop, I.G.'s most remunerative American subsidiary, in order to acquire a larger share in Agfa-Ansco [36]. One of the motives for this scheme was that I.G. considered Ansco a possible production site for cellulose lacquers for Ford [21, 13 January 1928]. Hermann Schmitz, I.G. Farben's financial expert and spokesman had elaborated this scheme in view of the promising prospects for the photographic industry. Nitrocellulose represented an important basic constituent for the production of film. Later I.G. sought to acquire a Ford laquer factory, but finally

³For similar moves by other German companies see 28.

decided against this option in view of possible patent infringements [21, 22 November 1929].

Finally, I.G. Farben also aimed to employ the new venture as a feeler toward Dupont. The German company wanted to induce Dupont to take over the Grasselli Chemical Company's shares of the American dyestuffs subsidiary. Dupont, however, acquired only Grasselli's chemical business that had remained under the sole control of the the Grasselli Chemical Company [14, pp. 36-37]. Thus, apart from a single agreement among Dupont, other American companies, and ICI, to regulate dyes sales in China, nothing concrete resulted from I.G.'s initiative [23, p. 187].

Conclusion

With the reorganization of 1929, I.G. Farben had completed its reestablishment in the American market. Before the start of the depression in 1930, I.G.'s American group had thus modernized and expanded its production. Although General Aniline and Agfa Ansco, the two flagships of I.G. Farben's American investment, did not fully cover their variable costs in 1930, owing to the costs of modernizing their respective plants, I.G. Farben's dyes had maintained their position among the big four producers that controlled 90% of the American dyestuffs market. In 1932 I.G.'s American subsidiaries' earnings had declined by 30% compared with 1929. The losses resulted not only from shrinking sales during the depression, but also from the sharp competition with American producers that drove dye prices down.⁴ This trend becomes evident by observing the average price of anthraquinone, the chief group among the vat dyes:

Table 4. Average prices for anthraquinone dyes, per lb., 1928-1933(current U.S. \$)

| Year: | 1928 | 1930 | 1933 |
|--------|------|------|------|
| Price: | 1.37 | 1.29 | 1.09 |

Source: Census of Dyes [32], (1928), pp. 68-69; (1930), pp. 57-58, (1933), 22-23.

Still, the financial reorganization of 1929 helped to cover those losses and consolidated I.G. Farben's new position in its leading market [2; 26, pp. 179-80]. Even more important, I.G. Farben's modern production and sales facilities in the United States constituted a symbol of the company's recovery as the leading chemical producer in an ever more competitive world market. Although the scarce available data do not allow a precise judgment on the profitability of the American subsidiaries as the world depression deepened, it seems clear that they maintained their market share—and this, under the adverse circumstances, was at least a psychological victory.

⁴Schröter [26] suggests too positive a picture of I. G. Farben's American business during the crisis.

References

1. Fred Aftalion, *A History of the International Chemical Industry* (Philadelphia, 1991).
2. Amerika-Spätherbst 1930, TEA-Büro I.G., Technischer Ausschuss-Akten (hereafter TEA), *TEA 2514*, Microfiche copy, Bayer Archiv, Leverkusen (hereafter BAL).
3. Amerika - Frühjahr 1932, *TEA 2514*.
4. Theo Balderston, *The Origins and Course of the German Economic Crisis, November 1923 to May 1932* (Berlin, 1993).
5. Letter from Bayer office, Berlin, 9 Sept. 1921, *BAL 62/9.4.1*.
6. Exchange between Karl Bosch and Fritz Ter Meer at a meeting of the Arbeitsausschuss, 12 August 1926, *BAL 13/12*.
7. Roland Boyden to R. Norris, 2 August 1920, RG 43, *Reparations Commission, Dyestuffs*, National Archives.
8. Alfred D. Chandler, *Scale and Scope: The Dynamics of Industrial Capitalism* (Cambridge, MA, 1994).
9. Dieckhoff to German Foreign Office, 14 March 1923, *R 43681*, Politisches Archiv des Auswärtigen Amtes, Bonn, Germany.
10. Carl Duisberg to C.A. Grasselli, 15 Sept. 1924, *Carl Duisberg Papers*, BAL. Bayer Archiv, Leverkusen (hereafter BAL).
11. L.F. Haber, *The Chemical Industry 1900-1930: International Growth and Technological Change* (Oxford, 1971).
12. Peter Hayes, *Industry and Ideology: I.G. Farben in the Nazi Era* (Cambridge/New York, 1987).
13. Williams Haynes, *American Chemical Industry: The World War I Period: 1912-1922* (New York, 1945)
14. Williams Haynes, *American Chemical Industry: The Merger Era* (New York, 1948).
15. Report of Herrenbrück, *BAL 1/666 Verkauf Farben*.
16. David A. Hounshell, John K. Smith, Jr., *Science and Corporate Strategy: Du Pont R&D, 1902-1980* (Cambridge/New York, 1988).
17. I.G. Farben A.G., Unterlagen zur Bilanz am 31.12.1930: Beteiligungen, *BAL 15/B 53.3*.
18. Memorandum by August von Knierim, 9 May 1939, *BAL 9/A 1*, Amerika-Geschäft, Allgemeines.
19. Charles C. Mann, Mark Plummer, *The Aspirin Wars: Money, Medicine, and 100 Years of Rampant Competition* (New York, 1991).
20. Rudolf Mann an Carl Duisberg, 29 April 1924, *Duisberg Papers*.
21. Minutes of meetings of the Arbeitsausschuß, *BAL 13/12*.
22. Minutes of meetings of the Kaufmännische Ausschuß, *BAL 13/7*.
23. Gottfried Plumpe, *Die I.G. Farbenindustrie AG: Wirtschaft, Technik, Politik, 1904-1945* (Berlin, 1990).
24. W. J. Reader, *Imperial Chemical Industries: A History* (London: Oxford UP, 1988).
25. Rückblick über die historische Entwicklung unseres Geschäftes in den USA, undated [ca. spring 1927], *BAL 19/A.177.17*.
26. Verena Schröter, "Participation in Market Control through Foreign Investment: I.G. Farbenindustrie A.G. in the United States 1920-1931," in Alice Teichova et al. eds., *Multinational Enterprise in Historical Perspective* (Cambridge/Paris, 1986).
27. _____, *Die deutsche Industrie auf dem Weltmarkt 1929-1933: Außenwirtschaftliche Strategien unter dem Druck der Wirtschaftskrise* (Frankfurt/New York, 1984).
28. Stephen A. Schuker, *American "Reparations to Germany", 1919-33: Implications for the Third-World Debt Crisis* (Princeton, 1988).

29. George W. Stocking, Myron W. Watkins, *Cartels or Competition?* (New York, 1948).
30. c.v. of Fritz Ter Meer, *BAL* 27/2.
31. Henry Turner, *German Big Business and the Rise of Hitler* (New York/Oxford, 1985).
32. U.S. Tariff Commission, *Census of Dyes and Other Synthetic Organic Chemicals* (Washington D.C., Government Printing Office, 1922-1934).
33. H. Tammen, *Die I.G. Farbenindustrie AG 1925-1933: Ein Chemiekonzern in der Weimarer Republik* (Berlin, 1978).
34. Mira Wilkins, *The History of Foreign Investments in the United States to 1914* (Cambridge, MA, 1989).
35. Wirtschaftsstatistische Zahlen, 1913, 1925-27, vom Standpunkt des I.G. Interesses, *BAL* 61/2.22.
36. I2W. Greif, 12 February 1929, *TEA* 2564.