



Dominique Barjot et Patrick Fridenson (dir.)

France-Japon, regards croisés France and Japan, a cross-analysis

Mélanges en l'honneur de Terushi Hara
In memoriam Terushi Hara



Grand ami de la France, l'historien japonais Terushi Hara a ouvert d'importants chantiers scientifiques. Spécialiste de l'étude des ententes, des cartels et des politiques industrielles durant le xx^e siècle, une grande partie de son œuvre a été consacrée à l'histoire des chemins de fer, d'abord celle des chemins de fer algériens, mais aussi celles, comparées, du Shinkansen japonais et du TGV français. Partant des progrès de l'organisation scientifique du travail, intégrant les problématiques de l'américanisation, Terushi Hara s'est intéressé à la question des transferts de technologie et organisationnels. Son expertise de l'économie française, qu'il a fait connaître aux étudiants japonais, l'a imposé comme un grand historien des entreprises et des processus d'intégration internationaux, notamment de la stratégie des entreprises japonaises en France et en Europe.

Des historiens japonais et français, un historien suisse, un historien canadien et une économiste française offrent dans ce livre leurs contributions sur les thèmes qui ont été les siens, rendant possibles des regards croisés entre France et Japon à l'heure de la mondialisation.

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Terushi Hara (1943-2011) a fait ses études universitaires à Waseda, université privée la plus prestigieuse du Japon, puis en France avant de soutenir au Japon une thèse de doctorat remarquée. Proche de François Caron,

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PREMIÈRE PARTIE

**Terushi Hara, historien des cartels
et des politiques industrielles**

INTERNATIONAL CARTELS AND BUSINESS INTERACTIONS: THE EXPERIENCE OF THE INTERWAR PERIOD

Dominique Barjot

International cartels have always been considered a pioneering area for research in business history.¹ It was for instance the subject of two important conferences: *International Cartels in Business History* (18th Fuji conference, January 1991), then *International Cartels Revisited 1880-1980* (preconference of Caen, September 1993, preparatory to the 11th International Economic History Congress of Milan, September 1994).² Recently, they were the object of an important synthesis containing a bibliographical survey.³ One of the fundamental difficulties in this subject lies in the all-too-frequently ill-defined character of the concepts adduced.⁴ The notion of “cartel” must be kept distinct from that of “entente.” An “entente” exists where “two or more firms enter into an association, contractually or otherwise, for a defined purpose in a particular operation, while preserving their legally independent status.” On the other hand, the “cartel” is “an elaborate form of entente, in which members set up a common organisation, charged with implementing the desired objective.” In this context, a number of firms will join forces and pool resources on particular points – the diversification of production, the rationalisation of sales networks, research, information –, in order to swiftly achieve substantial economies of scale. The firm entering into the agreement will be able to specialise more easily; that is to say, it

- 1 Margaret C. Levenstein and Valerie Y. Suslow, “What Determines Cartel Success?,” *Journal of Economic Literature*, no. 44, 2006, p. 43-95; Margaret C. Levenstein & Stephen W. Salant (eds), *Cartels*, Cheltenham/Northampton, Edward Elgar, 2000; Peter A. Hall & David Soskice, *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford, Oxford University Press, 2001. See also: Dominique Barjot, “Un nouveau champ pionnier pour la recherche historique : les cartels internationaux (1880-1970),” *Revue d’Allemagne*, vol. 30, no. 1, January-March 1998, p. 31-54.
- 2 Kudo Akira and Hara Terushi (eds.), *International Cartels in Business History*, Tokyo, University of Tokyo Press, 1992; Dominique Barjot (ed.), *International Cartels Revisited / Vues nouvelles sur les cartels internationaux (1880-1980)*, Caen, Éditions du Lys, 1994.
- 3 Dominique Barjot and Harm G. Schröter (eds.), “Economic Cooperation Reconsidered,” vol. 64, no. 6 of *Revue économique*, November 2013, p. 957-971.
- 4 Akira Kudo and Terushi Hara, “International Cartels in Business History,” in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 1-29.

may achieve greater output at the lowest costs, and be in a position to more rapidly reach a broader customer base.⁵ On the other hand, the cartel often seeks to secure downright domination of a given market for a group of companies having common interests, at the expense of consumers and possible competitors. Members of the cartel may then arbitrarily fix prices, restrict their range of products without incurring losses, and offer favourable terms – or otherwise – to specific customers.⁶ There is thus some ambiguity about the cartel, and its effects may prove negative and positive at the same time.

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One should also take into account the existence of various types of cartels. Horizontal cartels, bringing together firms from one branch of the industry, are to be contrasted with vertical cartels, uniting firms together with their suppliers, producers with traders. One may further distinguish between cartels established on the basis of explicit, written agreements, and tacit or concerted cartels, operating through informal contacts between the parties involved, and the adoption by some firms of patterns of behaviour initiated by others. Cartels may be partial (pricing agreements) or total, i.e., impinging on the totality of the decisions firms can take. The most commonly adopted criterion for classification purposes, however, is the aim pursued by the parties of the agreement. There are thus rationalisation cartels and associations of firms to achieve more effective organisation of production, supply and distribution: these tend to emerge, most notably, in times of recession, the aim being to slough off the least efficient units of excess capacity. A second family of cartels includes collective practices in restraint of competition, be it at the expense of consumers (pricing agreements, for instance), or through modifications to the way the branch is organised (barriers to entry, to exclude new competitors; delays in the introduction of new technologies, should they threaten to make existing facilities obsolete). Such cartels may be amenable both to an endogenous, internalist approach – do cartels constitute a feature specific to the basic industries? – And to an exogenous, externalist approach – what of their environment, institutional and technological? –, serving to analyse the French construction and raw materials for construction, which constituted (and still constitute today) a strong economic sector. Consequently, it is interesting to study the strategies of the French firms of this sector relating to cartels.

5 Edward S. Mason, *Controlling World Trade: Cartels and Commodity Agreements*, New York, McGraw-Hill, 1946.

6 Fritz Machlup, *The Economics of Seller's Competition*, Baltimore, Johns Hopkins University Press, 1952.

THE INTERNALISTIC APPROACH: DO CARTELS CONSTITUTE A FEATURE SPECIFIC TO BASIC SECTORS?

On the basis of the various examples, it will be apparent that international cartels do constitute, to a large extent, a feature that is specific to the basic sectors. Indeed, they are found both in capital goods industries and in intermediate goods (extractive and producer goods) industries, such as the chemical industry.⁷

Intermediate goods industries: the chemical industry

The area of chemicals presents uniquely favourable conditions for cartels (Harm Schröter, Jonathan Liebenau, Oshio Takeshi, John K. Smith, and Emmanuel Chadeau).⁸ One of the most powerful and longest-lived cartels was undoubtedly that of the International Potash Syndicate, studied by Harm Schröter.⁹ Potash is a product which is essential not only to industry (soap, glass making), but also, more importantly, to agriculture, for its fertiliser requirements. Prior to the First World War, the position that prevailed was of a German monopoly of potash production. The sector, moreover, was highly cartelised: the Deutsche Kali Syndikat (DKS), under the auspices of the German State, gathered in both private and public-sector firms. However, the Great War was to bring to a close the German monopoly. With the restoration of Alsace to France, that country became in turn a major producer and exporter, through the agency of a joint sales syndicate, Société commerciale des potasses d'Alsace (SCPA). After four years' fierce competition, SCPA and DKS entered into a cartel agreement, in 1924. The cartel had an immediate positive impact on prices, which induced the merger, in 1926, of both sales organisations, to form the International Potash Syndicate (IPS), with administrative headquarters located in the Netherlands. Owing to this cartel,

7 Ludwig Fritz Haber, *The Chemical Industry During the Nineteenth Century*, Oxford, Clarendon Press, 1958; *The Chemical Industry 1900-1930*, Oxford, Clarendon Press, 1971.

8 Harm G. Schröter, "The International Dyestuffs Cartels, 1927-39, with Special Reference to the Developing Areas of Europe and Japan," in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 33-56; "Cartels as a Form of Concentration in Industry: The Example of the International Dyestuffs Cartel from 1927 to 1939," *German Yearbook on Business History*, 1990, p. 113-144; Jonathan Liebenau, "The Management of High Technology: The Use of Information in the German Chemical Industry, 1890-1930," in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 57-75; Oshio Takeshi, "Conflict and Cooperation between the International Nitrogen Cartel and Japan's Ammonium Sulphate Industry," in *ibid.*, p. 76-94; John Kenly Smith, Jr., "National Goals, Industry Structure and Corporate Strategies: Chemical Cartels between the Wars," in *ibid.*, p. 139-161; Emmanuel Chadeau, "International Cartels in the Interwar Period: Some Aspects of the French Case," in *ibid.*, p. 98-116.

9 Harm Schröter, "The International Potash Syndicate," in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 75-92.

the depression of the 1930s had only a limited impact on the price of potash, even as production underwent severe contraction.

58 By the late 1920s, new competitors had appeared: the Polish firm TESP, for instance, which was established in 1930 and admitted into the IPS the following year; the Soviet concern Kalitrust, which joined IPS in 1934. Paradoxically, the Spanish firms were to prove the most troublesome, as a result of the thrusting marketing policies of at least two of their number. They too, however, were reduced to seek admittance into the cartel, after the onset of the Great Depression in 1935. The tiny Palestine Potash Company was to do likewise the following year. Most importantly, as early as 1935, the three major American firms, operating through a joint sales organisation, conducted a gentlemen's agreement with IPS: from 1936 on, the cartel controlled the entire worldwide production of potash. In sum, IPS was to constitute one of the few instances of the ideal cartel: not only did it keep prices artificially high, but it further acted as a model for the other cartels with legal backing (nitrogen, coal). All producer states agreed to join, reaping in the process what they had anticipated: substantial revenues, security with regard to supply levels, and prices that remained relatively bearable for their agriculturalists.

Intermediate goods industries: the metallurgical industries

International ententes and agreements were by no means restricted to the chemical industry. They loomed equally large in the iron and steel industry.

The steel cartel

As was shown by Philippe Mioche, ententes in the iron and steel industry were at their most active in the inter-war years, only to be given a new lease of life with the recession that took hold in the late 1960s.¹⁰ The propensity to form such ententes proved highly developed among the French iron and steel men, who had combined under the guise of the Comité des forges. While these agreements could constitute a prelude to concentration, they were, first and foremost, effective means to counter a downturn in prices. Thus it was that the French came to play a leading role in the inception of the Entente internationale de l'acier (EIA), set up in 1926, and later on in the International Steel Cartel (ISC – the “new model” EIA) of 1933.

This is in marked contrast to the American industry, which, since the Sherman Act of 1890, had responded specifically to an anti-trust tradition, and explicitly

¹⁰ Philippe Mioche, “La vitalité des ententes sidérurgiques en France et en Europe de l'entre-deux-guerres à nos jours,” in Dominique Barjot (ed.), *International Cartels Revisited*, op. cit., p. 119-128.

stood out against cartelisation.¹¹ Nonetheless, as John Gillingham makes clear, this did not prevent the rise of giant corporations – US Steel, Bethlehem Steel – or of informal practices of non-competition.¹² However, the depression of the 1930s incited American firms to seek closer links with the ISC. This move was facilitated by the US producers' previous participation in three product-specific cartels: the agreements covering tin plate (International Tinplate Association) and tubes, both ratified in 1924; and the European Rail Makers' Association, re-established in 1926, and more commonly known thereafter as the London Committee. Most importantly, as early as 1929, the Steel Exports Association (SEA) was set up, with the primary purpose of ensuring the dominance of US Steel and Bethlehem Steel over American iron and steel exports. Indeed, in the USA, the depression of the 1930s was to prove auspicious for the emergence of outsiders in the industry. Hence, there was a growing threat that such firms might destabilise the workings of the SEA and, yet more ominously, the pricing system established on the home market.

As early as June 1936, the first meetings were held with the ISC, which at that time included all major European producers, with the exception of the USSR. The International Steel Cartel also had a stake in the outcome, lest the Americans should suddenly attempt to go for exports, thus destabilising world markets. Initially limited to sheets, the scope of the agreement was broadened in February 1937, to cover all iron and steel products. However, it could not be made effective before May 1939, when all American iron and steel makers had joined in the agreement. The outbreak of the Second World War was to put it in abeyance. In the post-war era, no new agreement intervened between American and European producers, even though the latter had well and truly re-established an entente. Since exports were of little concern, the US iron and steel industry lost ground to its European competitors, notably with regard to the oxygen-furnace steel process.

In terms of cartelisation, however, iron and steel were far from a pioneering sector. By contrast, the zinc industry, surveyed by Greta Devos, did give rise very early on to international ententes.¹³ As early as the late 1840s, a joint-venture syndicate ("*entente de participation*") was formed, with Société des mines et fonderies de zinc de la Vieille Montagne in Belgium as its prime mover, to bring together Belgian and German producers, and Paris metal traders. Its purpose

11 Wyatt Wells, *Antitrust and the Formation of the Postwar World*, New York, Columbia University Press, 2002.

12 John Gillingham, "An ill-fitting jacket: The United States and the International Steel Cartel," in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 129-142.

13 Greta Devos, "International Cartels in Belgium and the Netherlands during the Interwar Period: the Nitrogen Case," in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 57-75.

was to constitute a common reserve stockpile of raw products.¹⁴ Nevertheless, progression to a true cartel was to be protracted. From 1860 on, market-sharing agreements were ratified, now extending to include all Belgian and German producers. After a period of heady expansion, the economically straitened conditions of the 1880s brought about establishment of a stronger, more strictly organised cartel, concerned with developing trade contacts, reducing costs, expanding consumer demand, fixing stable prices, and restricting production. As it stood as the prototype for raw materials cartels, the zinc cartel was to be put in limbo from 1894 to 1908. It again suffered serious setbacks in the inter-war years, as a result of new producers crowding in – from Europe (Spain, Norway, the Netherlands, Poland, Sweden) as well as from outside Europe (Australia, Canada, the United States, Mexico, Rhodesia) – and as a result of the dissemination of new technologies from Northern America.

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Exhibiting all the features of a youthful and highly monopolistic sector, the aluminium industry was equally quick off the mark in setting up an international entente. The international aluminium cartel, explored by Florence Hachez and Marco Bartilorenzi, was the means through which to respond to discrepancies in demand and production trends from country to country. At the same time, it was an effective instrument with which to monitor and control production world-wide, since its founding members were also monopoly holders of the relevant technological knowledge, in an area where know-how and experience are crucial.¹⁵ Aluminium producers were thus able to combine, to form powerful organisations: the Aluminium Association, from 1901 to 1908, then from 1912 to 1914, and again from 1927 to 1930. Three participants were present throughout: Aluminium Français (France), Aluminium Industrie A.G. (Switzerland) and the British Aluminium Company (UK) – i.e.: one sales consortium federating all French firms in the industry; and two companies, one Swiss but with a majority of its equity in German hands, and the other a British one. Whereas the various European producers gradually ended up joining the cartel, the Americans, in the guise of Alcoa, withdrew early on, because of the US anti-trust legislation. Cartel members nevertheless continued to consult with them and to take their position into account, even more so after 1931, when Alcoa's Canadian subsidiary joined the cartel.

¹⁴ Greta Devos, "International Cartel Agreements in the Zinc Industry, 19th-20th Centuries," in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 143-151.

¹⁵ Florence Hachez, "Le cartel international de l'aluminium du point de vue des sociétés françaises 1901-1940," in *ibid.*, p. 153-162. Marco Bartilorenzi, "From Patents to a Stock Buffering Schemes. The Historical Evolution of the International Aluminium Cartels (1886-1945)," *Revue économique*, vol. 64, no. 6, November 2013, p. 1145-1169.

By 1939, the aluminium cartel had achieved its original aim: regulation of world markets. Nonetheless, it had never acted as a brake on technological progress. During the inter-war years, development of uses for that metal had stridden ahead. Publicity and information campaigns, sponsored by the cartel or by its affiliates, had worked as a stimulant to the creativity of architects, car-makers, and aircraft constructors. In a sector such as aluminium, establishment of a cartel was a requisite, bearing in mind the scale of financial resources called for by the industry. In this respect, this position was not unlike that of the capital goods industries.

Capital goods industries: the electrical equipment industry

This group of industries also witnessed the emergence of powerful cartels, most notably in the electrical equipment industry (Leonard S. Reich).¹⁶

The strategy of the multinational firm

In this sector, ententes were “established on somewhat insecure and shifting grounds.” There is no dearth of instances of ententes that required underpinning with direct bilateral agreements between companies, or that needed overhauling and reaffirming at regular intervals. Such was the case of the International General Electric Company (IGEC), investigated by Pierre Lanthier.¹⁷ Set up in 1919 by the world leader in the field, General Electric, IGEC’s objective was to take up the group’s activities outside the North American sphere. Taking advantage of the temporarily weakened position of AEG and Siemens, and of Westinghouse’s and Western Electric’s decision to concentrate the main thrust of their activity on the American market, General Electric set about establishing a world-wide organisation for electrical engineering, to be based both on market demarcation and on financial and technological cooperation among its affiliates. By concluding agreements with Philips, Compagnie générale d’électricité (CGE) and Compagnie française des procédés Thomson-Houston (CFTH), and later on with a number of other European firms, IGEC was able to take on the joint venture established, as early as 1919, under the name Osram by AEG, Siemens and Auergesellschaft., and which had drawn Philips into its sphere. Indeed, the cartel initiated by Osram was to make way to the Phoebus cartel, which kept up strong links with IGEC. The latter company also proceeded to take up substantial holdings in the equity of Philips, as early as 1919, of AEG, in 1929 and again in 1930, of Osram, and of the Budapest firm Ganz & Co. It sought to bring together the four leading British electrical

¹⁶ Leonard S. Reich, “General Electric and the World Cartelization of Electric Lamps,” in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, op. cit., p. 213-231.

¹⁷ Pierre Lanthier, “L’IGEC et l’organisation mondiale de l’industrie électrotechnique dans l’entre-deux-guerres,” in Dominique Barjot (ed.), *International Cartels Revisited*, op. cit., p. 165-175.

engineering concerns, under the aegis of a joint holding company, controlled by IGEC and Vickers. And it fostered the creation of Alsthom, a joint subsidiary of CFTH and Société alsacienne de constructions mécaniques.

The move to create Igec was of course intended to protect General Electric's own market. But that was not its sole purpose. Also at stake was the ability to respond to a far-reaching shift affecting its customer base. No longer was it tenable to look only to the electrification of the public utilities in the major cities: what was called for was to cater for the requirements of industry for machinery, and to meet the demands of the electrification of rural areas and railways. Considering the magnitude of the research effort this called for, an entente, with concomitant concentration, does appear as the best solution. A number of subsidiaries, such as CFTH, did indeed profit handsomely from the protection extended by IGEC, and from their cooperation with the international organisation. Thus, the ententes advocated by the management of General Electric were anything but along traditional lines. Showing little concern for price control, they did not ensure market stability, or an assured hierarchy of engineering firms. On the contrary, this type of cartel furthered industrial concentration and thus promoted change, with its emphasis on market organisation and the advancement of research.

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Cartels: a chance for outsiders?

As Renato Giannetti demonstrates, cartelisation in the electrotechnical industry went ahead largely as a result of the technological stabilisation obtained in that sector.¹⁸ In the early 1920s, only a few firms had succeeded in developing the ability required to master the problems in the construction of extensive electrical networks: General Electric and Westinghouse, Siemens and AEG, Brown Boveri (Switzerland) and ASEA (Sweden). These large undertakings constituted an international oligopoly, which was relatively stable (accounting for 81.6% of total world exports of electrical machinery in 1926). In Italy, these multinational operations had built up a powerful base, by means of subsidiaries such as Tecnomasio (Brown Boveri) and Compagnia generale d'electricità (General Electric), supplying the greater part of heavy electrical equipment built in Italy. During the First World War, competitors such as Ansaldo, Breda, Marelli and San Giorgio had emerged as offshoots of heavy engineering firms, capitalising on a specific technological "niche."

Ansaldo stands as exemplar of the evolution of Italian capital, with its characteristic repeated financial upheavals and recurrent state intervention to save the firm from bankruptcy. Such chronic problems notwithstanding, the

¹⁸ See Renato Giannetti, "Cartels and Innovation Capabilities: A Case from Electrotechnical Industry (1925-1935)," in *ibid.*, p. 177-186.

Ansaldo management remained firmly wed to a nationalistic course of action, aiming for import substitution. This was indeed successful, the firm reaping the benefits in “learning by doing,” and from its policy of systematic acquisition of licences from small but technologically competitive undertakings.¹⁹ However, General Electric’s offensive on the European market in December 1931 resulted in the formation of a fully-fledged international cartel, the International Notification and Compensation Agreement (INCA), in which eight firms had combined: AEG and Siemens, General Electric and Westinghouse, and four British concerns, with ASEA joining in 1932, and then Brown Boveri, in 1933. The cartel pursued a policy of international market regulation, in conjunction with agreements concerning national markets. Concurrently, as early as April 1931, a market-sharing agreement was ratified by five leading Italian companies, including Ansaldo. On the other hand, that agreement did not include any clause concerning R&D, or patents and licences. In this respect, the repeated attempts by Ansaldo to achieve closer links with Siemens, and later with General Electric, were all to prove abortive. Nonetheless, Ansaldo did gain from the April 1931 agreement, inasmuch as that understanding was conducive to a reduction in wasteful duplication of R&D.

THE EXTERNALIST APPROACH: THE INSTITUTIONAL AND TECHNOLOGICAL ENVIRONMENT

Institutional factors acted in particular to curb the cartels’ activities. As evidenced by the Japanese example, cartels were powerless to achieve their own aims when faced with firms or governments acting on a strongly assertive strategy, predicated on national independence.

Limiting the action of cartels: the Japanese case

In the area of dyestuffs, examined by Kudo Akira, Japanese firms were indeed undoubtedly successful.²⁰

The successful rise of a dyestuffs industry

In the period prior to the First World War, German firms were exporting large quantities of dyestuffs to the Japanese market. During the Great War, however, a domestic dyestuffs industry arose, dominated by Nihon Senryo and, to a

¹⁹ Renato Giannetti, “The Power Equipment Cartels: The International Agreement and the Italian Case in the 1930s,” in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 190-212.

²⁰ Kudo Akira, “Japan strategy of international Dyestuff Cartels,” in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 215-222.

lesser extent, Mitsui Mining, a subsidiary of the Mitsui zaibatsu. With the end of hostilities, the German firms, who were soon to combine to constitute I.G. Farben, attempted to recover the ground they had lost. However, they were thwarted in their effort by the implementation, by the Ministry of Commerce and Industry, of an import licensing policy. As early as 1927, the effectiveness of that policy forced I.G. Farben to enter into an initial market-sharing agreement with the Japanese dyestuffs industry. In 1929, an international dyestuffs cartel was established, bringing together German, Swiss and French producers, joined in 1932 by the British ICI group. The cartel, however, had to contend with outsiders of some substance: American firms (Dow Chemical, Du Pont de Nemours, the National Aniline and Chemical Company or Nacco), as well as Italian undertakings (*Aziende colori nazionali affini*) and Japanese concerns. The last proved highly dynamic. Led by Nihon Senryo, Mitsui Mining and Nihon Tar Industries – a firm affiliated to the Mitsubishi group – they initiated negotiations with the cartel, and those American firms that had lined up with it. Through a succession of related individual agreements, the Japanese companies were able to secure a monopoly over their home market, as well as a sizeable share of the exports markets of the Far East.

The dyestuffs industry was by no means an exception, as Miyajima Hideaki ably demonstrates: Japanese government intervention enabled the domestic industry to head off the offensive mounted by foreign firms. The First World War brought about the formation of a Japanese chemical industry. In the dyestuffs area, Nihon Senryo, initially set up as a wholly state-owned undertaking, was incorporated as a public limited liability company, open to private shareholders, enticed by a guaranteed dividend payment. In the soda-ash field, the government Research Council for Chemical Industries promoted, from 1914 on, the ammonia-soda process, making this technology available to Asahi Glass. Finally, the Special Nitrogen Research Laboratory was established in 1918, as a public-service research organisation, to assist the domestic industry. This latter could look to drawing level, in the longer term, with its Western counterparts. The goal of self-sufficiency was a prerequisite, and was eventually met for dyestuffs. The situation proved more complex in the case of nitrogen, owing to the requirements of the agricultural sector, which by the late 1920s accounted for some 50% of the national workforce. In this area, a government policy of low prices was maintained, involving a certain amount of foreign imports. The Great Depression of 1929, however, radically altered the state of play. As early as 1930, an international cartel was set up, the *Convention internationale de l'azote* (CIA), which agreed on a dumping policy with respect to Japan. The Japanese government reacted to this by imposing import restrictions. Consequently, the cartel opened negotiations, resulting in an initial

agreement in 1931, which the Japanese government opposed. This stance redounded to the benefit of Japanese firms. Further advantaged, from 1932 on, by the depreciation of the yen, they combined to establish a domestic cartel, and, this time in a position of strength, they resumed negotiations with the CIA, arriving at a second agreement, markedly more favourable to Japanese industrial interests.

Japanese industry facing international cartels: soda and petrol

As for the soda industry, this experienced difficulties as early as 1920, when the international alkali cartel was established, dominated by Solvay, together with two powerful British concerns, Brunner, Mond & Co., and the United Alkali Co.²¹ The three companies agreed on a division of the markets: Europe would be allocated to Solvay, while the two British firms, which were to merge later in 1926, to form ICI, were left the rest of the world. Brunner, Mond, and subsequently ICI, directed its efforts at the Japanese market, which had become its main outlet, outside of the Empire. Initially – once they had established their position – the cartel maintained high pricing levels, which furthered an intensive investment drive on the part of the Japanese firms, Asahi Glass and Nihon Soda. From 1929 on, ICI modified its pricing policy, with the aim of conserving, at least, its position on the Japanese market. But the Japanese government responded by instituting anti-dumping tariffs, and backing financially the two firms' investment programme. In the 1930s, they were thus able to capture their own domestic market, and in a position to decline overtures made by ICI, whose competition could now be met.

In the oil industry, Japan showed itself to be equally capable, as Kikkawa Takeo makes clear, of successfully holding its own against the strategy of the international cartels.²² The 1932 petrol (gasoline) agreement is a good example of this success. Yet foreign positions in this area were powerful indeed: by 1941, of all foreign subsidiaries in Japan with over 50% of assets accounted for by overseas capital funds, the first two places went to oil companies. Thus the two leading Japanese oil companies were in thrall to overseas interests: Royal Dutch-Shell controlled Rising Sun, while the US Socony Vacuum (an offshoot of the Standard Oil Co. of New York) ran its Japanese-based operation under its own name. To this may be added a joint venture set up by Mitsubishi and the Associated Oil Co.: Mitsubishi Sekiyu. In 1929, Shell and Socony Vacuum concluded a market-sharing agreement, covering sales in Japan; this

21 Miyajima Hideaki, "Strategic Intervention against International Cartel: The Case of Japanese Chemical Industries of the Interwar Period," in *ibid.*, p. 223-232.

22 Kikkawa Takeo, "International Cartel and Domestic Cartel in Japan: The Case of Gasoline Agreement of 1932," in *ibid.*, p. 233-241.

being complemented two years later by an agreement with the other American “majors.” This agreement, however, remained ineffective. On the one hand, many strategic divergences existed between Shell and Socony. On the other hand, such divergences were also present between the two companies, as an entity, and their Japanese subsidiaries. The tariff policy operated by Japan favoured the import of crude oil, to promote the development of a domestic refining capacity. Whereas the 1929 depression was adversely affecting Socony, Japan turned to the USSR as a source of low-cost crude. And, finally, the depreciation of the yen worked to the Japanese industry’s advantage, in that it impaired the competitiveness of imported refined oil derivatives, which were the cartel companies’ stock in trade. Thus, Rising Sun and Socony Vacuum were led to acquiesce in the agreement that was signed in 1932 with four other Japanese companies. This market-sharing agreement entailed a voluntary reduction, by the two companies belonging to the cartel, of their activity in the Japanese market. Furthermore, this development was to usher in an oil procurement policy that was increasingly predicated on national independence.

Competition and cooperation in the Japanese electrical engineering industry

Government intervention, however, was not the only key to the emergence of a competitive domestic industry.²³ The case of the Japanese electrical engineering industry, considered by Hasegawa Shin, is illuminating in this respect.²⁴ In the area of vacuum tubes, the firm of Tokyo Denki had concluded in 1905 an exclusive rights agreement with General Electric, for GE patents and their applications. This agreement, when renewed in 1918, further covered vacuum tubes, and specifically the so-called Langmuir patent, which was essential for wireless communication apparatus. In 1932, the firm of Nippon Denki (NEC: the Nippon Electric Co), a telephone equipment manufacturer tied up with Western Electric (and its successor, International Standard Electric), on passing into the Sumitomo zaibatsu, broke the Tokyo Denki monopoly. Tokyo Denki responded by entering into competition with Sumitomo on the electrical wire and cable market. In 1935, the validity of the Langmuir patent rights lapsed, and Tokyo Denki turned to a strategy of securing agreements with the major Japanese manufacturers in this field – a policy that was conducive to the later expansion of the electrical engineering firms, in post-war Japan.

²³ Hasegawa Shin, “Competition and Cooperation in the Japanese Electrical Machinery Industry,” in Akira Kudo and Terushi Hara (eds.), *International Cartels in Business History*, *op. cit.*, p. 165-189.

²⁴ *Id.*, “International Cartels and the Japanese Electrical Machinery Industry in the Interwar Period,” in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 243-252.

On the other hand, in the area of heavy electrical equipment, Japanese manufacturers did not come into direct contact with the international cartels, since cartel members had concluded exclusive rights agreements with Japanese firms. On the home market, fierce competition developed, fuelled by this technological tie-up with foreign manufacturers, but equally stoked up by unaffiliated, purely Japanese, firms. On the eve of the outbreak of war in the Pacific, Japanese electrical equipment manufacturers, albeit restricted to their own domestic market, had grown to the point of becoming potential outsiders, poised to make inroads in the world markets of the major German or American businesses. Indeed, international agreements had intensified technological transfer processes. By the latter half of the 1930s, Japanese firms had gained the capability to export, a potential that had been won against the efforts of the international cartels. These developments further illustrate the importance of the political dimension, in that the Japanese government had essentially achieved its aims, in terms of import substitution. This impact of political factors was by no means specific to Japan, nor did it only affect bilateral relationships, as pertaining between domestic firms and government on the one hand, and international cartels on the other.

The impact of the political factor

This political dimension of international cartels is clearly set out by Clemens Wurm.²⁵

British diplomacy and international cartels

In the inter-war years, some 30-50% of world trade was controlled by international cartels, Wurm points out, taking a leaf out of Ervin Hexner, who contends that cartels originated and operated in a “peculiar historical setting,” that of the period 1920-1940.²⁶ In those years, they became a political device, providing the means to strengthen the position of national groups and companies on the world market, to promote and stabilise a world economic order, and to ensure peace. The international steel cartel was to be an essential element of British diplomacy, as well as in the shaping of the business environment in that country. British firms had not participated in the entente set up in 1926. Indeed, the British iron and steel industry was disadvantaged by its low

²⁵ Clemens A. Wurm (ed.), *Internationale Kartelle und Aussenpolitik. Beiträge zur Zwischenkriegszeit [International Cartels and Foreign Policy]*, Stuttgart, Steiner, 1989.

²⁶ Ervin Hexner, *The International Steel Cartel*, Chapel Hill, University of North Carolina Press, 1943; *id.*, *International Cartels*, Chapel Hill, University of North Carolina Press, 1946; Clemens A. Wurm, “The Politics of International Cartels: Great Britain, Steel and Cotton Textiles in the Interwar Period,” in Dominique Barjot (ed.), *International Cartels Revisited, op. cit.*, p. 255-264.

degree of concentration and integration, by the free-trade tenets prevalent in British political circles. It was equally disadvantaged by the reticence of its own downstream sectors and consumer industries, lest participation in the cartel established on the Continent lead to higher domestic prices for steel, thus putting in jeopardy those industries that were exporters of finished end-products (e.g. rails, tinplate). Consequently, Britain was flooded by German, Belgian, French and Luxembourgian steel. This position was dramatically altered in 1931, as a result of the devaluation of the pound sterling, and the imposition of a prohibitive protectionist tariff. The subsequent drastic fall in steel imports from Europe was concomitant with a remarkable resurgence in the domestic iron and steel industry, which was to be sustained until 1940.

This new situation resulted in the signing of agreements, in April and July 1935, between the EIA and the British Iron and Steel Federation (BISF). As for the reasons for the British industry's joining in the cartel, six points may be singled out:

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1. In contrast to its predecessor, the revamped EIA was deemed to be an organisation with which business could and should be done, the more so since Continental companies were threatening to terminate the existing agreements on rails and plates – regarded as favourable to the British industry – unless the United Kingdom joined the main steel cartel.
2. A number of leading business figures in the industry favoured a replacement of “destructive competition” with “constructive cooperation.”
3. An agreement with the Continental steel cartel would make it feasible to raise prices, in particular for exports, and thus boost corporate profit margins.
4. The high hopes placed in the formation of an Imperial bloc had turned out to be illusory: Australia, Canada, India and South Africa had decided to build up their own iron and steel capacities, protecting them with high tariffs detrimental to British industry.
5. Joining the EIA was expected to bolster the establishment of a national, domestic cartel (i.e., the newly-formed BISF), thus giving British industry full control over its home market.
6. The British government now saw in the cartel a possible tool for its policy of appeasement.

The Lancashire cotton industry, by contrast, failed in its endeavour to establish the international cotton cartel it had sought. Since the 1920s, that industry had faced a massive contraction in its sales. A number of developing countries had been pursuing import substitution policies, to the point of moving towards self-sufficiency, as in the case of India. Most importantly, the Japanese cotton industry was undergoing a process of rapid expansion, displacing the British

industry as the leading exporter by 1933. Lancashire industrialists therefore initiated protracted negotiations, held in London in February-March 1934, with their Japanese counterparts. The talks ended in failure, which resulted in the British government introducing protective quotas for all the Empire. That failure may be attributed to two factors. First, the Lancashire mill-owners were solely intent on preserving at all costs their share of the markets, a demand the Japanese resisted. Moreover, the British government gave but limited backing to the domestic industry's stance, its main concern being of maintaining good relations with Japan.

The League of Nations: cartels, an instrument for a durable peace?

If the imperatives of diplomacy at times militated against the formation of international cartels, such organisations were equally regarded, in the 1920s, as instruments for the stabilisation of the world economy. In this perspective, Hara Terushi has explored the proceedings of the World Economic Congress, held in 1927 in Geneva, under the auspices of the League of Nations.²⁷ The final report of that conference distinguished between “good” and “bad” ententes, taking as its criterion the “general interest.” It further enumerated both the advantages to be expected from cartels – rational organisation of production, reductions in production costs, the damping out of economic fluctuations, and ensuring stability of employment – and their disadvantages – arrested technological development, artificially high prices, restrictions in supplies of raw materials, a crystallisation of production in the then-current state. At the same time, the report surveyed the nature of national legislations in this area, be they unfavourable (the USA, the United Kingdom) or favourable to cartels (Germany, Japan). As to the meetings of the preparatory Commission for the Congress, these were heated exchanges between advocates of industrial ententes, untrammelled by any State control, such as the Frenchman Louis Loucheur (1872-1931); proponents of international ententes subject to government monitoring, as defended by Germany; and opponents of cartels, as instanced by delegates from the United Kingdom and Scandinavia.²⁸

The League of Nations' activity was examined by Éric Bussière.²⁹ He details the way ententes were regarded, in the inter-war years, as the means of reinstating free trade in a negotiated, organised form. Louis Loucheur, in

27 Hara Terushi, “La conférence économique internationale de 1927 et ses effets sur la formation des cartels internationaux,” in *ibid.*, p. 265-272.

28 Dominique Barjot, “Les cartels, une voie vers l'intégration européenne ? Le rôle de Louis Loucheur,” *Revue économique*, vol. 64, no. 6, November 2013, p. 1043-1066.

29 Éric Bussière, “La SDN, les cartels et l'organisation économique de l'Europe entre les deux guerres,” in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 273-283.

particular, saw the formation of international cartels as a means of promoting a close association of the French and German economies, to meet the American challenge. As a proponent of regulated economic organisation, he regarded the cartels as reconciling the requirements of free trade with the constraints of differing local conditions of production. While these views were not subscribed to by the greater part of participants at the 1927 Congress, from 1928 to 1931 the role of cartels was to remain an issue that sparked off wide-ranging debates, concerning in particular the respective remits of labour unions, of business organisations and trade syndicates, and of the League of Nations. In spite of the fairly promising prospects afforded by such agreements as those covering cement and aluminium, however, the experts committed by the Economic Commission of the League came to the conclusion, in the report they submitted in 1931, that industrial ententes, while they might stabilise protectionism at current levels, could not be the means of effecting tariff reductions. On the other hand, ententes were deemed to lead the way to a step-by-step approach for a European customs union. Indeed, by the early 1930s, the notion of an on-going process of European integration had taken hold.

The role of technological development

On the other hand, the fundamental role of technological development should not be passed over when examining the rise and development of international cartels.

Cartels and technological transfers

Rolf Petri has subjected to careful scrutiny the case of a cartel set up for the specific purpose of controlling technology, know-how and the diffusion of patents in the petroleum, petrochemical and carbochemical industry.³⁰ This was the pool established around 1929-30 by I.G. Farben and Standard Oil, with the aim of monitoring and keeping in check the flow of information in the field of hydrogenation of carbon compounds, hydrocarbon synthesis and catalytic refining. In his study of the admittance of a late-comer to the field, the Italian Azienda nazionale idrogenazione combustibili (ANIC), established in 1927, the author shows how the cartel assisted in speeding up geographical diffusion of the new technologies, while slowing down diffusion of know-how. To achieve this end, the cartel brought external factors into play; by holding on to its monopoly of technological information, the cartel could impose its own specific conditions.

³⁰ Rolf Petri, "Cartels and the Diffusion of Technologies: the Case of Hydrogenation and Catalytic refining," in *ibid.*, p. 287-300.

The example of ANIC demonstrates that, in such a context, possession of certain capacities for autonomous R & D is the prerequisite for technological development. The Italian patents derived from the licences granted by the Standard I.G. Company and the Joint American Study Co. (JASCO Inc.), the joint subsidiaries set up by Standard Oil and I.G. Farben, while of scant interest to carbochemical or petrochemical concerns of multinational stature, were nonetheless technologically competitive, and, as such, liable to imperil the cartel's hegemony. The organisation was thus led to agree to exchanges, in order to restrict diffusion of such new derivative patents. This internal logic, which also proved to be the Achilles' heel of many a cartel, promoted, in effect, the rapid diffusion of the techniques developed by I.G. Farben and Standard Oil to their rivals, both actual – ICI, Shell, Ruhrchemie – and potential – ANIC – but equally the Japanese concern Nihon Kihatsuya. The case of ANIC thus illustrates the vulnerability of the first-comers to the field; it further shows how technological transfers may be affected to the advantage of “second league” firms or industries, provided these latter have mastered the relevant basic scientific knowledge, and implemented an intensive R&D effort. This would appear to be the only way, affording the prospect of breaking through the barriers to entry erected by cartels.

International cartels and technological innovation

Adhering to a resolutely econometrical approach, John Cantwell and Pilar Barrera have endeavoured to measure the impact of international cartels on large firms, in the inter-war years.³¹ Their analysis is based on a survey of US patents granted to the largest firms, in the chemical and electrical equipment industries in Europe and the United States. They draw two main conclusions from their study:

1. As regards the argument that cartelisation may have contributed to raise the underlying level of technological development of the firms involved, which would be reflected in an increase in patents granted to these firms, econometric analysis suggests that agreements for technological cooperation do not appear to have had any significant impact, in terms of an increase in corporate patenting during the inter-war years. Other factors (investment, “technological watch,” etc.) are responsible for such growth in R&D, in the European case, and explain the concomitant increase in propensity to patent in the United States.

³¹ See John Cantwell and Barrera Pilar, “The Influence of International Cartels on Technological Development in Large Firms,” in *ibid.*, p. 301-324; “The Rise of Corporate R&D and the Technological Performance of the Largest European Firms from the Interwar Years Onwards,” *University of Reading. Discussion Papers in Economics*, serie A, vol. VI, September 1993.

2. As regards the effect of cartels on the direction of corporate research, technological cooperation would appear to have strengthened the focus of technological specialisation of the cartelised firms. In the chemical industry, such cartelisation appears to have exerted a greater influence, with the result that firms became more similar to one another, in terms of their patterns of specialisation. In contrast, in the electrical equipment industry, cooperation appears to have been looser, with firms tending, in this context, to go off in directions corresponding to their own favoured line of activity: thus, General Electric increasingly specialised in power plant equipment, and Westinghouse in mechanical technologies.

STRATEGIES OF FIRMS AND INTERNATIONAL CARTELS: THE CASE OF THE FRENCH COMPANIES IN CONSTRUCTION AND CONSTRUCTION RAW MATERIALS SECTOR

72 Traditionally, construction and raw materials for construction constituted a strong economic sector in France.³² Consequently, it is interesting to study the strategies of the French firms of this sector in relation to cartels.³³ The case of Lafarge was similar (D. Barjot).³⁴ In 1914, at the eve of World War I, this firm was probably the second or the third European producer of cement. She was co-founder, in 1936, of Intercement, an international cartel concluded between the most European producers (Belgian, British, French, German, Italian and Swiss). But the cases of Saint-Gobain, the famous glassmaker, or Pont-à-Mousson are privileged, because of the quality and the wealth of corporate archives.³⁵ International ententes existed in the civil engineering industry too, as was shown in an important research, also founded on firm archives.³⁶

32 Dominique Barjot, *Travaux publics de France. Un siècle d'entrepreneurs et d'entreprises*, Paris, Presses de l'École des Ponts et Chaussées, 1993.

33 François Caron, "Ententes et stratégies d'achat dans la France du XIX^e siècle," *Revue française de gestion*, no. 7, September-October 1988, p. 127-133.

34 Dominique Barjot, "Lafarge : l'ascension d'une multinationale à la française (1833-2005)," *Relations internationales*, vol. 31, no. 124, Winter 2005, p. 5-67; "Lafarge (1993-2004). Comment on devient firme mondiale," *Revue économique*, vol. 58, no. 1, January 2007, p. 79-111; "Lafarge: the keys of a successful internationalisation process (1946-1973)," in Hubert Bonin et al. (eds.), *Transnational Companies (19th-20th centuries)*, Paris, P.L.A.G.E., 2002, p. 663-680. Cécile Coursières-Jaff and Aurore Cartier, "Following the Pack or Fighting the Crises? The Role of Large French Firms in the European Cement Cartels During the Interwar Period," in Dominique Barjot (ed.), *Entreprises et Histoire*, no. 76, "Cartels et régulation des crises," September 2014, p. 41-57.

35 Jean-Pierre Daviet, "Saint-Gobain et les ententes internationales 1862-1939," in Dominique Barjot (ed.), *International Cartels Revisited*, op. cit., p. 105-116.

36 Dominique Barjot, *La Grande Entreprise française de Travaux publics (1883-1974)*, Paris, Economica, 2006.

Ranked among the leading French chemicals firms was Compagnie de Saint-Gobain, whose fortunes Jean-Pierre Daviet has charted.³⁷ It was party to a number of international agreements: those concerning, for example, phosphates (1901-1904), rayon (1928), or the potash syndicate.³⁸ On the other hand, the firm did not join in the nitrogen cartel, having no export activity in that area. As for the soda agreement entered into with Solvay, its sole purpose was that of a market-sharing arrangement on the home front, asserting the ascendancy of the Belgian firm.³⁹

Where glass – Saint-Gobain's other major line of activity – is concerned, the company acted as a driving force in the setting up of international ententes: with Belgian firms, as early as 1862, and with British producers, one year later, albeit in the limited context of a mere price harmonisation.⁴⁰ What were the purposes of the Saint-Gobain management, in their advocacy of such ententes? Even aside from any concern for security, this must be seen as reflecting a sober assessment of the market – plate glass then still being an expensive product, with limited consumer potential –, as well as the wish to contain the dangers inherent in a more extensive internationalisation.

This readiness to enter into agreements came increasingly into the fore from the 1880s on.⁴¹ Factors that contributed to this readiness included the rise of an American plate glass industry, the emergence in Europe of new plate glass making facilities, and technological developments affecting the industry, which now involved heavier research and investment inputs, for the purposes of furthering automation of processes. Even as it set about developing its own operations in Germany, Italy, Spain, Belgium and the Netherlands, the company nurtured the setup of international ententes. Those ratified in 1887, in 1892, and later still in 1900-1901, brought together French, Belgian, German and British producers. They nonetheless foundered in every case, as a result of the British and the Belgian contending over export markets. The International Plate Glass Makers Convention of 1904 was a far more effective agreement.⁴² It covered all European plate glass producing plants, and was to remain in place up till 1939. The dominant position of Saint-Gobain within that entente

37 Jean-Pierre Daviet, *Une multinationale à la française. Saint-Gobain 1665-1989*, Paris, Fayard, 1989; *Un destin international. La Compagnie de Saint-Gobain de 1830 à 1939*, Paris, Éditions des Archives contemporaines, 1988. Maurice Hamon, *Du Soleil à la terre. Une histoire de Saint-Gobain*, 3^e éd., Paris, Jean-Claude Lattès, 2012.

38 Jean-Pierre Daviet, *Un destin international*, *op. cit.*, p. 48-50.

39 Kenneth Bertrams, *Une entreprise au cœur de l'histoire. Solvay, 1863-2013*, New York, Cambridge University Press, 2013, p. 53-55.

40 *Ibid.*, p. 341-359.

41 *Ibid.*

42 *Ibid.*, p. 412-421 and 473-474.

proved conducive, from 1912 on, to a closer understanding with the British firm of Pilkington's, which had taken over all of its competitors on the home front. On the other hand, agreements with the two American giants in the industry, Pittsburgh Glass and Libbey-Owens, were not forthcoming until those of 1929 and 1934 – and, most importantly, 1939, concerning glass fibre. This last agreement, in fact, was to usher in cooperation of a new kind, based on the exchange of patents and joint planning of investments.

Pont-à-Mousson

Founded in 1856, the Société anonyme des hauts-fourneaux de Pont-à-Mousson chose to produce tubes for water supply and gas distribution in 1866.⁴³

A strategy based on “ententes”

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These tubes were made in cast iron and steel.⁴⁴ It was attractive market. In France, however, because demand grew slowly, it was more and more necessary to export.⁴⁵ On the Foreign markets, Pont-à-Mousson was opposed to a number of strong British, German and Belgian competitors. Consequently, the prices remained low. Since Pont-à-Mousson was becoming a strong leader in France, (around 50% of the cast tube production in 1913), the firm chose to practice high prices. But it dictated the organization of a specific syndicate of sales (or, in French, “*comptoir de vente*”). With the development, after World War I, of numerous competitive technologies (reinforced concrete or steel tubes, for example), Pont-à-Mousson needed to become a producer of both steel and iron, but the firm could not diversify her products.⁴⁶ It was for this reason that it belonged to several syndicates (or “*comptoirs*”): Office statistique des produits métallurgiques (OSPM) against the competition of other cast products, Société des Minerais de Lorraine (Somilor) because the necessity to assure supplying, etc.⁴⁷

At the center of the Pont-à-Mousson's strategy was the “Participation Tuyaux.”⁴⁸ This had evolved from an initial syndicate, named “Syndicat de la Place Vendôme” (at Paris), constituted in 1887 and dissolved in 1902. After a short period of competition, in 1907, Pont-à-Mousson created a new syndicate

43 Alain Baudant, *Pont-à-Mousson (1918-1939). Stratégies industrielles d'une dynastie lorraine*, Paris, Publications de la Sorbonne, 1980; Maurice Hamon, *Du Soleil à la terre*, *op. cit.*

44 Alain Baudant, *Pont-à-Mousson (1918-1939)*, *op. cit.*, p. 253-255.

45 *Id.*, “Une entreprise française face à l'exportation. Pont-à-Mousson (1860-1940),” *Revue économique*, vol. 31, no. 4, July 1980, p. 685-705.

46 *Id.*, *Pont-à-Mousson (1918-1939)*, *op. cit.*, p. 319-327.

47 *Ibid.*, p. 377-397. See also Éric Bussièrre, “The Evolution of Structures in the Iron and Steel Industry in France, Belgium and Luxemburg,” in Abe Etsuo and Suzuki Yatsuo (eds.), *Changing Patterns of International Rivalry*, Tokyo, University of Tokyo Press, 1991.

48 Alain Baudant, *Pont-à-Mousson (1918-1939)*, *op. cit.*, p. 329-372.

in order to favour export of cast iron and steel. It was not a cartel *stricto sensu*, but an instrument to develop exports. Based on a secret agreement between all the French producers, the new syndicate planned sales on the syndicate's behalf, but if the prices of the sales were fixed, deliveries and invoicing were made by each firm. Completely dominated by Pont-à-Mousson, and reinforced by the take-over of a German firm, Halbergerhütte in Saarland, the syndicate became public in 1936, as a consequence of an agreement with the French State. Henceforth, the "Participation Tuyaux" declined rapidly, because the State fixed prices. Facing a growing competition of pipes and tubes in reinforced concrete (Société des tuyaux Bonna, become subsidiary of the Compagnie générale des eaux from 1924), steel (Acéries et usines à tubes de la Sarre or AUTS, issued from Mannesmann), then in asbestos-cement (Eternit), Pont-à-Mousson conducted numerous other agreements. The first concerned steel, with the constitution of an Office de statistiques de canalisations in 1924 (and definitively concluded in 1929). The second, signed in 1929, concerned reinforced concrete, but remained very fragile, due to the fierce competition between two contractors, subsidiaries respectively of Générale des eaux (Société auxiliaire de distribution d'eau or SADE) and Pont-à-Mousson (Eau et assainissement). The third happened in 1932 between France-Eternit and Pont-à-Mousson (Société de l'Évérite), firstly against Belgian (Compagnie française des conduites d'eau or CFCE de Liège) and American (Johns Manville) competitors.

International "entente" as a necessity

Logically, Pont-à-Mousson entered in an international "entente" after the Wiesbaden agreements (October 6th, 1921).⁴⁹ Indeed, this opened the French market to German castings (Gelsenkirchen, of Hugo Stinnes, Konzern, etc.). After an initial provisional agreement in December 1921, the most important actors concluded a second and definitive agreement concerning Nederland and Scandinavian countries, in June 1924 and founded on the respect of the established positions. Then, in April 1929, Pont-à-Mousson and its most important competitors (the two German firms and CFCE) became parties to a new larger agreement: the constitution of the Office statistique des tuyaux en fonte (OSTEF). From 1930 to 1933, the relations between members remained peaceful, in spite of the growing competition of the British producers (Stanton, Staveley & Cochrane), which introduced a new process to make cast, the centrifugation. From 1934, however, German members required an increase of their market shares (from 40 to 50%) to the detriment of their French and Belgian counterparts. Because the board of directors of Pont-à-Mousson did not seek to invest in centrifugation, it

⁴⁹ *Ibid.*, p. 403-434.

preferred to acquiesce to the other firms. But this was insufficient, in spite of a tardive diversification to export reinforced concrete pipes in USA, Canada and Argentina and to invest in asbestos-cement (acquisition of the Magnani license). The change to centrifugation was becoming necessary. In July 1938, Pont-à-Mousson adopted the new process, albeit after its German competitors.

A defensive but inefficient strategy

The “ententes” were a necessity for Pont-à-Mousson, for three reasons:

1. The firm organised its internal market in a zone without competitors, where the prices included a large profit margin and, in this fashion, permitted the firm to subsidise exports. This was the primary function of the “Participation Tuyaux.”

2. Additionally, they furnished a sufficient cash flow, which authorized an ambitious investment program. This was the role of different “ententes” with producers of steel, reinforced concrete and asbestos-cement pipes or tubes.

3. Lastly, they protected Pont-à-Mousson’s sales.⁵⁰ This was the primary purpose of the OSTEF. The “ententes” showed an industrial policy giving priority to tonnage. This policy also functioned as a means to reduce costs. The strategy of Pont-à-Mousson was founded on an integrated logic, and implicated massive investments in mines (both iron ore and coal), coke fuel, and rough and moulded cast iron and steel. Consequently, it was necessary to sell massive quantities of heavy products to export, in order to amortize new equipments. Nevertheless, this strategy failed. The “ententes” were the consequence of an industrial policy, which aimed to reduce production costs by diminishing the supplying costs and developing capacities of production. The final result, however, was the increase of the global production cost, on account of the fall of the markets’ shares and competition.

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Prototype-oriented industries: the case of civil engineering

Cartels also arose, or attempts were made to set up ententes, in two capital goods industries with the common feature of dealing only in prototypes, for instance in shipbuilding.⁵¹ It was also the case in the civil engineering industry.⁵² International ententes proved very fragile in this industry. Inherently consonant with certain forms of public sector contract adjudication – this being the case, in particular, for competitive tendering of contracts, allocated to the lowest

⁵⁰ *Ibid.*, p. 435-436.

⁵¹ Andrea F. Saba, “Vers un cartel international de constructeurs navals : le groupe italien Conave,” in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 187-194.

⁵² Dominique Barjot, “Réalités et limites des ententes internationales : le cas de l’industrie des travaux publics entre les deux guerres,” in *ibid.*, p. 195-210.

bidder –, they nonetheless tend to remain unstable, as the not highly capital-intensive nature of civil engineering swiftly acts as an incentive to new firms to enter the market. Internationally, such ententes are also entered into, to cover national markets in third-party countries. While their emergence can probably be dated to the period around 1880, they did not take on a multinational character until the inter-war years. Paving the way for such multinational agreements, to a large extent, was the system of compensations in kind, provided for under the Dawes Plan, from 1924 on, as a solution to the problem of the War Reparations still outstanding from Germany.⁵³ These compensations in kind took the form, in particular, of major public works to be carried out jointly by leading French and German firms. This provided an opportunity for these companies to forge lasting bonds: this was the case for Grands Travaux de Marseille (GTM) with Dyckerhoff und Widmann (Dywidag), or Schneider and Fougerolle with Philipp Holzmann, or Société de construction des Batignolles (SCB) with Schmidt.⁵⁴

Such partnerships were still bilateral arrangements, in contrast to the wider-ranging agreements set up with SCB and the US Ulen Engineering Corporation at their core.⁵⁵ These two firms played a decisive role in the formation, in August 1924, of the “Four-Party Consortium,” together with Julius Berger (Germany) and Stewart & Mc Donnell (UK).⁵⁶ Dissolved as it was after but a short period, this consortium proved less influential than the European Contractors’ Syndicate, which brought together French, German and British firms. Definitively formed in September 1932, this cartel had been born on the initiative of five large companies of public works: three French – Fougerolle Brothers, GTM and SGE – and two German – Julius Berger and Philipp Holzmann. From January 1933, the cartel counted a new member: the Dorman Long and Co. of London. Then it widened then to three other members: two British firms, Hollard, Haven and Cubitts, Limmer and Trinidad Lake Agbolok Co., both of London; a French, the Company of Fives-Lille. So came true the project of the president of the European Contractors’ Syndicate, Louis Marlio, to constitute a powerful French-English body with German participation. While it accrued mainly to the advantage of the French, it did

53 *Id.*, *La Grande Entreprise française de travaux publics (1883-1974). Contraintes et stratégies*, thèse de doctorat d’État, Université Paris-Sorbonne (Paris IV), 1989, vol. 2, chap. 10, p. 1100-1111.

54 *Id.*, *Fougerolle. Deux siècles de savoir-faire*, Caen, Éditions du Lys, 1992, chap. 1, p. 30-31.

55 Anne Burnel, *La Société de construction des Batignolles de 1919 à 1939. Histoire d’un déclin*, Genève, Droz, 1995, 116-122.

56 About Julius Berger, see Bernhard Stier, Martin Kraus, *Drei Wurzeln – Ein Unternehmen. 125 Jahre Bilfinger Berger AG*, Heidelberg, IFU, 2005, p. 185-205.

prove to be of some benefit to German firms, and it remained active up till the onset of hostilities.

Such incipient cartels reaped but limited results, as instanced by the failure of the Ulen-Berger consortium, set up to build the Transiranian Railway.⁵⁷ Although it harnessed together strong American, German and British companies, this foundered when the Shah's government proved unable to rise the required funding. The railway was built, nevertheless, but as state-owned industry, and with the collaboration of other firms, most of which had been kept out of the original consortium. In sum, though they had become a requisite, owing to the scarcity of capital funds endemic in the world economy at that time, such consortiums ended in failure, in the first place as a result of economic, political and strategic rivalries between the major powers. While ententes have again become more widespread since the 1960s, they have retained that piecemeal and ephemeral character to this day. Moreover, the weight of the institutional and technological environment proved crucial, not only in the inception, but also for the staying power of international cartels.⁵⁸

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To conclude, the sheer diversity and range of the studies concerning cartels bear witness to the on-going historical debates that have arisen on the topic of international cartels.

1/ International cartels: from the historical debate to broader perspectives

Firstly, the scholars presented the different types of cartels and the effects they had, both micro- and macro-economically. In the electrotechnical industry, "ententes" did have a number of positive effects, such as Phoebus, for instance. Yet one can remain sceptical about the positive effects to be expected of cartels.⁵⁹ Another issue concerns the regulatory role of cartels; that role is largely contingent on the relationships prevailing between the smaller and the larger firms.⁶⁰ The Japanese case is of particular interest. The question arises as to which was the decisive factor in that context: the role of government or the dynamism of companies. John Cantwell submitted a three-stage model to account for the possible relationship between cartelisation and stages of economic development. The final topic examined by the studies concerning cartels was the impact of

57 Anne Burnel, *La Société de construction des Batignolles*, *op. cit.*, p. 248-267.

58 Odette Hardy-Hémery, "Une limite au libéralisme intégral? Ententes et cartels dans le monde au XIX^e siècle et dans le premier tiers du XX^e siècle," *Revue du Nord*, vol. 75, no. 300, April-June 1993, p. 319-341.

59 John M. Podolny & Frank M. Scott Morton, "Social and Predation: The Case of British Shipping Cartels 1879-1929," *Journal of Industrial Economics*, no. 47, 1999, p. 41-83.

60 Peter Z. Grossman (ed.), *How Cartels Endure and How They Fail. Studies of Industrial Collusion*, Cheltenham, Edward Elgar, 2004.

technological development on cartelisation. In this respect government played an important role, particularly in Italy and Japan. The impact of cartelisation on the level of research and development appear to have no net effect. While patenting may not constitute the only possible measure of technological activity, it does nonetheless provide the best measure for it.

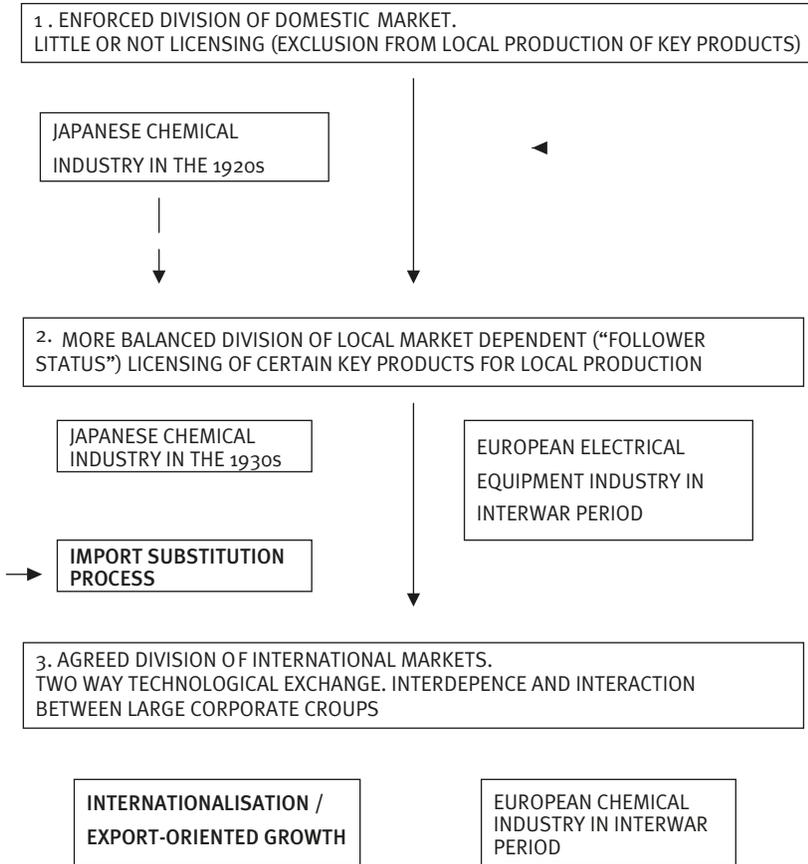


Fig. 1. Cartellisation in three stages of economic development
Source: John Cantwell

Alice Teichova noted a number of points that required further clarification, such as the connection between economics and politics, and the connection between foreign direct investment, cartels and licences.⁶¹ An international cartel is effective only if all members keep to the agreement and member firms

⁶¹ Georg W. Stocking, Martin W. Watkins, *Cartels in Action: Case Studies in International Business Diplomacy*, New York, The Twentieth Century Fund, 1946.

dominate the market in their respective countries.⁶² Like A. Teichova, Henri Morsel gained his understanding of the cartels developments by making forays into company archives and the records of trade syndicates.⁶³ Documents drafted by major figures in the business world, such as Louis Marlio, are of lasting value to historians.⁶⁴ H. Morsel considers three periods in the history of international cartels:

- 1890-1926 saw initial emergence of international cartels;
- 1926-1939: a new model of cartelisation emerged, where technology took pride of place, in conjunction with financing;
- Post-1945: international cartels are circumvented by the rise of multinational firms.⁶⁵ As far as international cartels are concerned, the debate remains wide open.⁶⁶ The first point still pending is the issue of the definition of the term itself. Another fundamental area of concern focuses on the effects of cartels. Finally, there is the problem of profits. These points drew a number of responses from participants at the two conferences, who suggested tentative answers.

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2/ Three main results

According to François Crouzet's analysis, three main results could be drawn about cartels:⁶⁷

2.1. A broad outline of a chronology may be established. A number of international cartels were formed prior to the First World War.⁶⁸ While the earliest known instance – the zinc cartel – would appear to date as far back as 1847, such cartels only developed in any significant manner from the 1880s and

62 Alice Teichova, *An Economic Background to Munich: International Business and Czechoslovakia (1918-1938)*, Cambridge (Mass.), Cambridge University Press, 1974. Alice Teichova, Helga Nussbaum, "Multinational Enterprise: International Finance, Markets and Government in the 20th Century," 9th International Economic History Congress, Bern, 1986, Debates and Controversies, Zurich, VDF, p. 110-131.

63 Henri Morsel, "Contribution à l'histoire des ententes industrielles (à partir d'un exemple de l'industrie des chlorates)," *Revue d'histoire économique et sociale*, vol. 54, no. 1, 1976, p. 118-129.

64 Henri Morsel, "Position idéologique et comportement politique d'un dirigeant d'une grande entreprise dans la première moitié du XX^e siècle : Louis Marlio," in François Caron (ed.), *Entreprises et entrepreneurs, XIX^e-XX^e siècles*, Paris, Presses de l'université Paris-Sorbonne, 1983, p. 339-351.

65 Alice Teichova, Maurice Lévy-Leboyer, Helga Nussbaum (eds.), *Multinational Enterprise in Historical Perspective*, Cambridge/Paris, Cambridge University Press/Éditions de la maison des sciences de l'Homme, 1986; *Historical Studies in International Corporate Business*, Cambridge/Paris, Cambridge University Press/Éditions de la Maison des sciences de l'Homme, 1989.

66 Geoffrey Jones (ed.), *Coalitions & Collaboration in International Business*, London, E. Elgar, 1993.

67 François Crouzet, "Conclusion," in Dominique Barjot (ed.), *International Cartels Revisited*, *op. cit.*, p. 339-350.

68 Richard Tilly, "Mergers, External Growth and Finance in the Development of Large Scale Enterprise in Germany 1880-1913," *The Journal of Economic History*, vol. 42, no. 3, 1982, p. 629-658.

1890s on. The “golden age” of cartels arrived in the inter-war period.⁶⁹ To some extent, this resulted from the peace settlements that came in the aftermath of the First World War. But this rise of the cartels stemmed from broader causes: the intensification in competition and consequent fall in prices; the wartime expansion of production facilities, resulting in excess capacity; the need to find in the United States the funds required for further industrialisation. As a result, a number of new cartels appeared in the 1920s (e.g., the EIA). Even though some cartels did not survive the 1929 depression, many of those that had been disbanded were soon revived, and a number of existing agreements were extended to cover more countries (e.g., the dyestuffs cartel). And new cartels were founded, in two waves, in the early 1930s (electrical equipment industry) and towards the end of the decade (Inter cement).

2.2. These cartels primarily appeared in branches producing intermediate goods (chemicals, metallurgy and, above all, petrol).⁷⁰ But they were also found in capital goods industries (electrical engineering, shipbuilding).⁷¹ These various industries share some common features: capital-intensive as they are, they require the seeking of economies of scale and the development of new, expensive production processes. The existence of national cartels in these industries is contributing to the emergence of international ententes. On the other hand, major differences exist, either in terms of organisation, or specific to the nature of the products and technologies involved, or to the form of membership. A further contributing factor in this respect was government policy.⁷² Its impact, however, does not appear altogether decisive, as the major American corporations frequently consorted with such cartels when they did not dominate them, the rigorous anti-trust policy prevailing in the USA notwithstanding.⁷³

2.3. Though they are impugned by free-market liberals and marxists alike, cartels are far from having only negative effects.⁷⁴ To be sure, there is no gainsaying this debit side of cartels. In perpetuating monopolies initially

69 Dominique Barjot, “Cartels et cartellisation : des instruments contre les crises ?,” *Entreprises et Histoire*, no. 76, September 2014, p. 5-19.

70 Anthony Sampson, *The Seven Sisters: The Great Oil Companies and the World they Shaped*, New York, Bantam Books, 1991.

71 Barbara J. Alexander, “Failed Cooperation in Heterogeneous Industries under the National Recovery Administration,” *Journal of Economic History*, vol. 57, no. 2, 1997, p. 323-330.

72 George Symeonidis, *The Effects of Competition: Cartel Policy and the Evolution of Strategy and Structure in British Industry*, Cambridge (Mass.), MIT Press, 2002.

73 Harm Schröter, “Cartelization and Decartelization in Europe, 1870-1995: Rise and Decline of an Economic Institution,” *The Journal of European Economic History*, vol. 25, no. 1, 1996, p. 29-38; *Americanization of the European Economy: A Compact Survey of the American Economic Influence in Europe since the 1880s*, Dordrecht, Springer, 2005.

74 Frank M. Scherer & David Ross, *Industrial Markets and Economic Performance*, Boston, Houghton Mifflin, 1990.

entrenched by patents, international cartels suppress competition. They act as a brake on innovation, stifling the emergence of new technologies. By conserving the status quo, they prevent the weeding out of inefficient firms. They often make for high prices on the home markets – at the expense of consumers –, while going in for dumping practices on the foreign, “third-country” markets, thus hampering transfers of technology, and industrial development of the less advanced countries. But these allegations need qualifying, in the light of historical experience. Indeed, cartels do not always suppress competition, either owing to their reduced effectiveness, or as a result of that competition being transferred to other products through diversification. Apart from inducing a degree of stability, cartels may in some instances accelerate the process of technological diffusion; and they have proved powerless to check the progress of Japanese industry. It will be advisable, therefore, to take a balanced view of the operations of cartels: they had no notable impact on the growth of firms which could avail themselves of patents, or indeed on the growth of corporate patenting; and they have been bypassed, in the years since the Second World War, by the advent of the multinational enterprise.⁷⁵ On the other hand, they probably promoted European integration – conceivably, because their roots are dug deep in the Continental business culture.

75 Richard Maddox, *The War within World War II. The United States and International Cartels*, Westport, Praeger Publishers, 2001; Peter Hertner, Geoffrey Jones (eds.), *Multinationals: Theory and History*, Aldershot/Brookfield, Gower, 1986.

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