

**Standardization and Cartelization in the Interwar Period:
Examples from the metal industries in the foundation of the international market under the influence of
dominating cartels.**

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Resume

The foundation of the market for iron products in northern and central Europe was controlled by cartels dominated by German companies for long periods. The international competition was reduced through agreements in favor of a strong domestic market.

In the 1930s this cartelization spread globally, supported by an increasing standardization of products. This paper tells the story of how such cartel agreements were made and some of the mechanisms behind these agreements.

The paper is based on research of Danish companies and the development is seen through the eyes of North European businessmen.



The historical background

This paper will focus on the development in the international steel business between World Wars I and II and on that part of the industry that was based on wire rods and products made by this industry, the most important of which were screws, nails and wire cloth.

Creating cartels in this industry was not limited to the interwar period. The first known agreement was reached in 1493 between the dominant producers in the German town of Altena, where most of German production was done. In the same city a true cartel was formed in 1686 when the city solved the problem of overproduction by forming a sales organization through which all manufacturers would sell thread. This monopoly sales organization could set its own prices and the producers could continue to have a reasonably high price for their products.

For a long time the German industry viewed Denmark as their own backyard for wire products and the German businessmen became angry when one of the largest hardware wholesalers in the county wanted cheaper nails than those delivered from the German factories; he would start a company with those products in 1898. "Eine solche Fabrik musste man todt machen" (Such a factory had to be killed) could have been the reaction when the Germans heard about the Danish plans.

I will not tell the whole story of cartelization, but from the very beginning the Danish company Nordisk Kabel og Trådfabrikker, NKT (Nordic Cable and Wire Factories) was bound by the German cartels. They did not succeed in stopping the establishing of the firm.

In fact, the Danish government became involved by protecting the new player in the field through customs regulations. It was not killed, but the company had serious reductions of its liberty of action. The Nordic ambitions, as you can think by the ambitions in the name, were put out. The Germans made cartel agreements for Norway in 1903. According to this agreement the rather strong factories in Norway were allowed to exist but only for production in the local market. The Danish market was divided between NKT and the Germans almost fifty-fifty with most production.

Germany was a strong power in the Central European market thanks to the very strong German steel plants. Only on a few occasions could NKT buy its raw material, wire rods, in other countries. It happened in 1904 when the German cartels were weak so the company could buy the raw materials in Great Britain.

In other years the cartels were strong. They were strong especially when there was agreement across the production line. When the nail producers agreed with the wire rod producers it could be hard times for NKT (many of the German wire rod producers produced nails, too). For long periods the prices for wire rod could be higher than the price for the finished goods. This was the case in 1907 and for six months in 1913.

The Danish businessmen did not like this trap and after World War I, they made an agreement with the French Laurent group that after the peace settlement took over, German steel works Rombacher Hüttenwerke, or as it now called in French, Rombas, would deliver wire rods. The Danish company was freed from the policies of the German factories, but

they were forced to pay the French for shares in the company to have this advantage and they had to buy all the wire from France. In 1927 the agreement was loosened a little so the Danes could buy 20-30 percent of the wire rods from other companies.

The position of the Danish company in the market became even better after the French soldiers went into the Ruhr in 1923. The German steel industry was deprived of its coal delivery and it could not deliver enough to export markets for more than a year until the French army retired. The Danish company could deliver thanks to the delivery of French wire rods.

NKT used the situation to force an agreement with the Danish hardware wholesalers. They came almost crawling for an agreement with NKT because they could not get their ordinary supply from Germany. Previously, they had purchased from changing suppliers, but they were pressured by competing wholesalers that occasionally offered cheap German goods. The competition had evolved considerably and profits fell. At the same time, there had been major supply problems. Now the dominant part of the trade sector wanted to ensure permanent supply agreements. Wholesalers would have agreements on most of their products—fittings, tools, garden tools, household goods, etc. The main group was the products NKT delivered and produced and where NKT was very strong, which Wire Works could deliver.

The wholesalers formed Foreningen af Danske Isenkræmmergrossister, FADI (Association of Danish Hardware Wholesalers) and it made an agreement with NKT that nearly became the basis of the trade in hardware store items for more half a century. In next years the agreement grew. The main idea was to regulate pricing across the industry so that everyone was guaranteed a reasonable profit. This was done through price lists that carefully indicated how much

the profit should be, including the amount of volume discounts and other features of the deal. Prices were set by the manufacturers, taking into account foreign prices, while discounts were established through an agreement with FADI. For this, regulation was effective, because they had only 20 ironmonger wholesalers to sell goods from NKT; a fine system would ensure rule compliance. Conversely, the Danish factory only had to sell to members of the ironmonger wholesalers' organization, an effective safeguard for "buy Danish."

To support the agreement, NKT announced in 1925 that, after political pressure, the state indirectly supported the agreement by demanding that foreign products should be labeled, so people could see they were not produced domestically.

International agreements on iron and wire

The morning of Tuesday, Dec. 2, 1930, was one of the most difficult times for the director Tuxen from NKT (Nordic Cable and Wire Co, Denmark) and one of the most important for his factory. He had been in Paris for a couple of days for meetings with representatives of other European companies in the iron industry. They should negotiate how the world market for nails, screws, and wire—the three main products of his factory—should be shared. Tuxen was a seasoned businessman. In his time as director of a German company before he came to the Danish plant, he learned it was necessary to fight for his company's market share through agreements with competitors. The agreements the participants to that point could clarify the situation for Denmark and his company in



The factory Trådværket was a part of the Danish company NKT. It was established in 1899 to produce nails and similar products.

The raw material was mainly wire rod. Here the picture with wire rods in 1898 before the factory was finished. It was not easy to handle the raw materials. At that time raw materials often should be ordered years before the delivery.

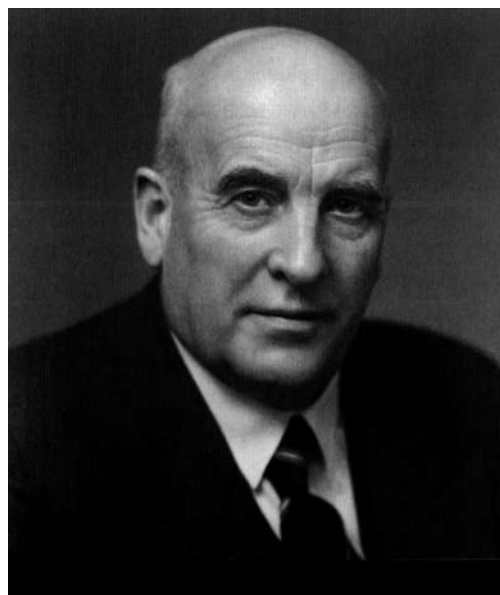
particular.

Before 10:30 a.m., a long line of business people turned up at Hotel Continental to participate in the negotiations. There were representatives from the promoter, the cartel organization Drahtverband, and the leading manufacturers from Central Europe. Germany was represented by the Westfälische Drahtindustrie in Hamm and Felten & Guillaume Carlswerk in Cologne. Moreover, Belgium was represented by directors from Clouterie & Tréfilleries des Flandres, Tréfilleries Léon Bekaert and Société Commerciale de Belgique. They all had large export interests, and it was those people Tuxen had to fight against.

The agenda was about an agreement with NKT in the Danish market and how large the company's exports should be. The agreement was important because it was one of the many preconditions to form an international agreement that divided the world market through agreements in a coherent framework.

At the preparatory meetings, it was agreed that future quotas should be based on sales figures for 1928 and the first half of 1929. Therefore, Tuxen brought the figures for those years broken down by goods such as nails, wire, barbed wire, cramps, and furniture springs. Syndicate Office in Düsseldorf could show the German sales to the Danish market, while the Belgians estimated their export to just 1,000 tons in 1928. Then came the real negotiations that determined the ratio. Tuxen played first in the complicated game. He believed that his company, NKT, should have 90 percent of Danish market. It was almost the only Danish company in the business, but his viewpoints were strongly refuted by the other participants. Previously, NKT had 77 ½ percent of the market and an increase of 12 ½ percent was completely unrealistic, the other participants said; the Danish export figures were too low—NKT was too weak to make these claims.

Instead the opponents offered to bring the percentage up to 80 percent, but Tuxen immediately declared that he would not discuss this offer. On behalf of NKT he would maintain the 90 percent, if exports went down from the current 6,000 tons (as Tuxen claimed had been exported) to 3,000 tons. Neither the Germans nor the Belgians would accept this, and the negotiations went into a stalemate. The meeting was suspended and Tuxen was posted outside the door while the others negotiated. When the meeting resumed, Tuxen was confronted with a proposal whereby NKT could have its quota in Denmark increased by 713 tons. At the same time the rival factories promised that this arrangement could give NKT peace in its domestic market. The meeting ended without a definite agreement at just



Oscar Alfred Tuxen was director for NKT Trådværket 1917-1939. He had in many years before been the manager of Brown Boveri in Mannheim where he learned the hard rules for businessmen working in the international business world.

past 1:30 p.m., but Tuxen later went into the division of the Danish market, as the other manufacturers had suggested.

Similarly, at the Paris meeting there were agreements on how the other European markets should be shared, and therefore the international export league, IWECO (International Wire Export Company), was founded. With the many partial agreements there soon could be an agreement with the British and Americans. These came into place and IWECO became effective in January 1932. This organization made a large part of the trading patterns for a large part of the world's products.

New trade agreements after the First World War

Many years passed before they came to this worldwide market-sharing agreement. At the beginning of the century the individual companies' market areas became permanent, but World War I left the traditional trade patterns in ruins and everything had to be rebuilt from scratch.

During the 1920s strong trusts and syndicates were established in Germany. The German steel industry had been organized through agreements between commodity producers and the processing industry. The first German cartel NKT was connected to was

the steel wire rod cartel, Deutsche Drahtwalzwerke, established in 1925. The German companies had divided the countries between each other, and NKT only could buy wire rod from a particular supplier. However, it was soon changed so NKT could buy from all companies but the trade had to be done through the newly established sales agency for export at the cartel office in Düsseldorf.

After 1926 NKT could also account for agreements with regard to its sales. In 1926, an important agreement on the Danish market was signed between NKT and Drahtverband that was valid for 1927. Drahtverband had become a powerful wire and nail cartel with 170 of Germany's 300 thread factories, with some of the most important companies as members. It was time for them to make agreements on their export markets, including Denmark. According to the agreement, NKT got its home with Denmark, Iceland and, as it was, "the Danish colonies" in Greenland. The agreement covered shiny, glowing, galvanized, tinned, and copper-plated drawn wire and also products such as galvanized wire, barbed wire, nails, and upholstery springs. Of those products, NKT got 82 ½ percent of the Danish market, while the Germans got the remaining 17 ½ percent. NKT decided the sale price and the German prices were approximately 5 percent below the Danish. There was a constant information exchange on sales figures, so the German pricing and share of sales could be adjusted. NKT was not obliged to export to Germany, while Drahtverband would seek agreements with Belgian and Czechoslovak producers so they did not sell goods cheaper than 2 percent below German prices.

Agreements with several European countries became possible after International Drahtgemeinschaft was formed. NKT made an agreement for 1927/1928 with the German, Belgian, Dutch, and Czechoslovak manufacturers in the Danish market. The NKT market share was reduced to 80 percent, which was reasonable, now that it was not only an agreement with German factories. However, it appears that neither the Dutch nor the Belgian factories respected the agreement. In 1928 they threw so many cheap products into the Danish market that the accepted prices could not hold. Therefore, in this area there was a grueling price war that NKT wanted to stop. It was those agreements that NKT had made at the meetings in Paris in 1930.

Commercial war on screws

In 1925 the European cartel for screws, Union Internationale des Fabricants de Vis à Bois, was reborn. The new syndicate was prepared at a meeting in June. From a presentation by the union president

that the purpose was "not only to make screws but to make money," a proposal was made for total market sharing based on the companies' sales to date and their production capacity. Representatives from all the factories were at the meeting, except for the Swedish. But the Swedish factories went hard into the Danish market, and without an agreement with the Swedes NKT could not join the cartel. Therefore in 1925, the Swedes sold screws on the Danish market with huge discounts, like the German competitors.

The English were also competitors in the Danish market, but at the meeting Tuxen made a non-binding agreement with the main U.K. factory, Nettlefolds, to complement NKT with screws not produced by the Danish factory.

The final and most complicated negotiations in November ended in an agreement that every industry had priority access to its domestic market. NKT did not become the only seller in Denmark, as the company's sales had not met the country's consumption, but the Danish plant was allowed to determine the sale prices. Seventy-five percent of NKT's production would be sold in Denmark, while 25 percent could be imported. Tuxen fixed the prices to something more than the German prices, but if it would be difficult for NKT to attain its quota, because the Germans were willing to raise their prices. The ratio was calculated according to the individual companies' sales compared to production capacity. At the same time none of the companies was allowed to acquire more screw thread machines.

Swedish producers were not members of the union and at a subsequent meeting of the screw union in 1926, it was agreed that the Swedish factories should be combated. In the areas where union members failed to achieve their agreed sales, the union should give grants to deal with Swedish competition. This meant that NKT would get a portion of its losses covered when the Swedes were fought on the Danish market.

The strong Swedish factories were not beaten by this or any action in the subsequent years. Although Nettlefolds was competing in the Swedish domestic market—partly through acquisition of a Swedish screw producer, Falu Skruvfabrik—there was no clarification. First, something happened when the union wanted to make a deal with the American manufacturers association. The goal was to divide the world market and if that was to be a success, the problem with the Swedish factories had to be solved. The world's largest factories signed an agreement that could have been better for NKT, but to have the Swedish factories in the agreement, they had to give them high quotas. The quotas were based not only on past sales, but also on the fact that two companies, August Stenman in Eskilstuna and Uddeholm, were

allowed to install many new screw machines.

The settlement about the world market meant that the Swedish factories could have 40 percent and NKT 60 percent of the Danish market. The German factories pulled out, but in return the two Swedish factories had to pull a similar volume of their exports to Germany back. In the future, NKT, in concert with the international screw union, would arrange the Danish market with the two Swedish companies. Later it appeared that the Swedish companies sold too many screws on the Danish market to the disadvantage of the Danish company. Actually, the Swedish mills were required to raise their prices on the Danish market or renounce orders, which they did not do. NKT could not sell its quota, so part of the quota was sold to Nettlefolds. The money was nice to have for NKT, but it meant a weakening of the Danish market.

Much had happened for NKT since its establishment in 1899, but the screw manufacturing started in 1921, too late for NKT to master the Danish market.

Wire cloth

Also, there was a signed agreement about the marketing of wire cloth, in the same way that we have heard about the wire, nails and screws. I will only mention the salient facts.

In 1920 visiting Danish representatives signed an agreement with German producers. The agreement involved only the six-square gauze, because there were so many manufacturers of four-square gauze that it was pointless to get an agreement between the more than 100 producers.

Although NKT had purchased a competing Danish factory, it did not do all the Danish production; there was a smaller Copenhagen business, De Borgersenske Fabrikker. To obtain an agreement with the Germans, the two Danish companies had to agree. It meant, inter alia, that the Danish market was split nearly even. Between 1926 and 1931, NKT delivered 54 percent of the reels while Borgersenske Fabrikker supplied 46 percent.

The German factories were strong and had established a syndicate with its own sales office. The Danish companies were small in 1920, resulting in an agreement that the Danish factories had to buy 250,000 square meters of gauze from the syndicate. The agreement was renewed the following year from roughly the same principles, apparently to everyone's satisfaction. However, the dissatisfaction came in 1926, when NKT was squeezed by competition from abroad, particularly from Belgian and British companies that had made very low offers on the market. Prices were so low that NKT lost money on

the reels it had to buy from Germany.

The competition was gradually perceptibly for NKT and the syndicate was contacted and asked the Belgians and English to have them to stop the competition.

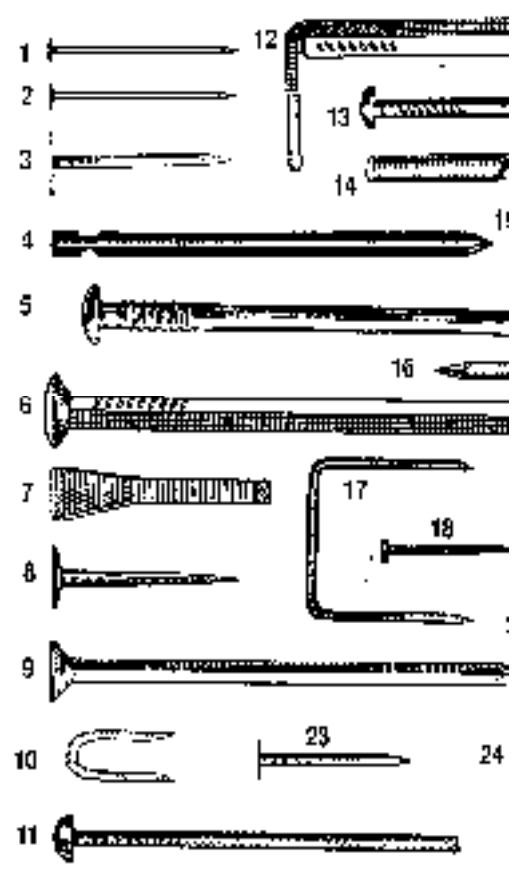
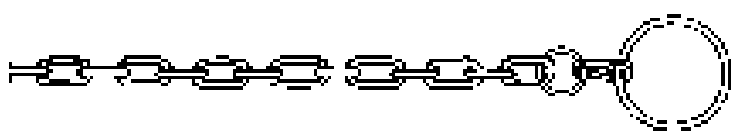
The situation was very serious and NKT had to react quickly. On behalf of the Danish factories NKT sought to have the Danish Ministry of Industry, Trade and Shipping to intervene. The company wanted to "make application for protection against dumping from a foreign syndicate." The national body could not help and NKT had to capitulate in the trade war. We know of an agreement from 1929, where the Belgian company was committed 15,000 reels for sale on the Danish market. From this quota NKT bought 5,000 reels for 15,000 francs. Furthermore, the Danes had to promise that they would price their products so high that it would not be a problem for the Belgians to dispose of their 10,000 reels. In the same contract, the German producers got a part of the Danish market on 5,000 reels, but those should only be sold in North Schleswig.

The agreement appears to have continued because in 1931 the Belgians complained that they could not have disposed their fences in Denmark. The main customers were farmers, and their economy was very poor.

The agreement was amended in 1932. Upon the establishment of the Internationale Verband für sechseckiges Drahtgeflecht, the agreements were on, so the Germans received the deliveries to the Danish market. From 1932 on, German companies had 201 tons of the Danish market, while the Belgian factories were excluded. In return, the Danish factories were banned from exporting. Incidentally the ratio not only covered Denmark and the Faroe Islands, but also Iceland and Greenland. Iceland especially had problems with quotas, because they were slow to get the necessary statistics to the cartel.

The international cartels during the 1930s crisis

The many international agreements came up short during the 1930s when most countries sought to reduce the global effects of the crisis through import protection. Denmark established Valutacentralen (the Exchange Control Office), which led the allocation of the necessary currency after 1932. Belgian nail manufacturers were caught in 1935, where they could not sell their quota in the Danish market. They claimed it was because the IWECO's Danish representative had not prioritized their trading and they wanted him dismissed. They were highly dissatisfied, because



around the same time a Belgian outsider factory had supplied nails to Denmark by going around the established channels. Belgisk-Skandinavisk Import (Belgo-Scandinavian Imports) had gotten an agreement through a compensation agreement between the countries.

Usually international trade agreements meant stability and a degree of security against unforeseen competition. NKT realized this when Dansk Søm- og Trådfabrik was established in 1930 as a small but dangerous competitor. NKT was considering asking Drahtverband to stop sales of wire rod to the competing company or at least that they priced the wire higher.

The threat of closure of commodities appears to be a general policy that IWECO practiced to address production overcapacity. It happened in 1936 when Norwegian factory Mandal Spiker & Staaltaug Fabrik, had plans to start a production of a six-edged gauze. The other five producers in Norway were contacted by IWECO, which reached an agreement on cooperation with the international cartel. Then they would be allowed to sell up to their old quota, while obliged to buy their rod from members of IWECO. Undoubtedly they would face the threat of a sharp price war if the new factory came in operation.

In the same year the establishment of a wire drawing factory in the Norwegian town Trondheim

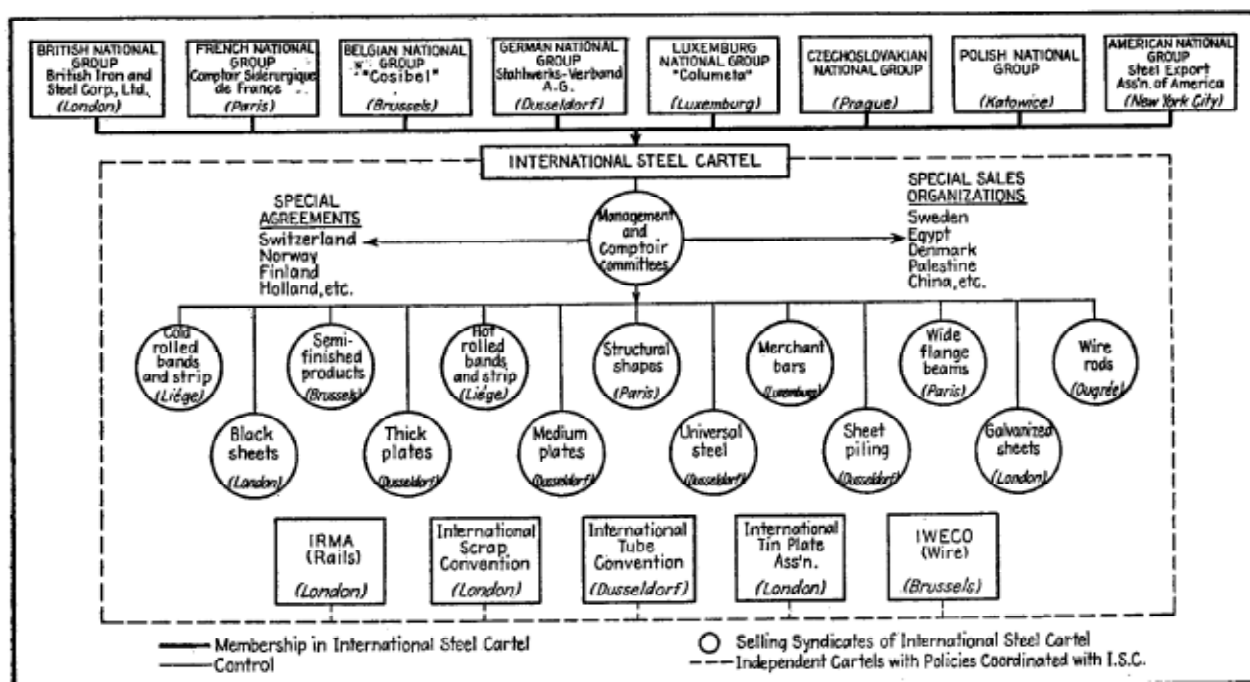
was stopped. The Danish diplomatic representative in Oslo announced that there had been a threat of a severe price war in steel ropes, if the planned, state subsidized wire drawing company was registered in the commercial register.

The report on this incident from the diplomatic representative was sent to NKT. This shows the active role the Danish foreign ministry gradually had come to play in industrial policy.

Screws with a Danish standard

In 1926, NKT got an application from a new institution, Den Danske Standardiseringskommission (the Danish Bureau of Standardization). When the letter was answered, no one could not know that there would be increasingly close cooperation with this commission, or Dansk Standard (DS), as it was called later.

Its business was to impose standards. The idea was that all Danish factories should use the same standard and that those main points were targeted at the main international standards. In 1901 Great Britain got its standardization body and at the behest of Industrirådet (the Industrial Council) and Dansk Ingeniørforening (the Danish Engineering Association), the Ministry of Commerce established a commission in the spring of 1926, which immediately started its work.



Stocking & Watkins: Cartels in Action. 1946 p. 189

In particular, the commission addressed the basic elements in the mechanical industry—bolts, screws, and nuts. NKT could only reply that it did not manufacture machine screws or the like, so there were no special requirements on design. On the other hand NKT produced wood screw and the company expected with its dominant position that NKT's dimensions would be Denmark's standards. If someone thought that standards were all they had to deal with, they should be wiser. It did not go that easy.

National standards soon became something an export business as NKT had to follow. In 1919, Germany received a DIN standard for the length of wood screws, the Americans got standards for wood screws in 1924, and the Englishmen in chains in 1925. It did not last long before the standards commission could send a steady stream of standards from different countries to NKT, and standardization went quickly. Soon afterward, there would be work with international standards.

Change of standards could have a major and serious impact on a plant if it was forced to manufacture tools in different dimensions than the usual issues that closely followed the English standards. The international screw standards were established at a conference in 1931 held in Industriforeningen (The Industrial Association) in Copenhagen. After a year with intensive correspondence, several representatives from the Continental countries and Japan came to discuss common standards for screw length and diameter, the width of the notch, and number of screws in boxes. Every country fought for its standards, but the negotiations reflected two main camps—those countries that operated with the metric system and

those that operated with measures stated in inches. To the inch countries belonged Sweden and Denmark, with some exports, and the Englishmen who, despite their absence at the conference, played a role in the discussions. Incidentally the international screw trust used the opportunity to consider the standards.

The first draft to standards could be followed by NKT. The thickness fit nicely with NKT's products when deviations were covered by the normal tolerance. The widths of the notch were different, but it was no problem for NKT to extend them if they became international standards. In 1932, in the ongoing standardization efforts the International Standards Organization, ISA, requested a solution with 14 different diameters. They differed greatly from the dimensions at NKT and they were missing three production numbers that were sold in such a large number in Denmark that they could be considered principal items. NKT was a strong opponent of the proposal, but since DS participated in the standardization work and not the national manufacturers, NKT continually informed the national standardization body. Among other messages, DS should have known which Danish screws sold the most, so the organization could fight for those interests.

England was still not included in the international standardization work. That was perhaps why the metric system looked to win the battle for the standard, when the largest inch country could not exert its influence. In fact, the English company Nettlefolds set a de facto standard, not penetrating the work of standardization. It became a problem for NKT, which in 1935 reported to the DS that it could only agree to a standard if

all countries, including the British, supported the suggestion. They fought for this point in subsequent years.

Fighting between German and Czech suppliers

In 1930 Director Hecht-Nielsen, head of the Danish branch of commerce of the German firm Coutinho in Hamburg, was given a task by its director, Mr. Muller. The German company was interested in buying the wire product factory at NKT and Hecht-Nielsen should examine how it could be done. The ownership of NKT was widely known in Germany, including the fact that Müller knew that the Landmandsbanken (the Farmer Bank) was keeping stocks of 2 million kr, and he also knew that there were French interests in the company, which also meant that most of the wire was purchased from French steelworks, Rombas. Meanwhile NKT had purchased wire rods in Czechoslovakia and, according to data from Müller, the Czechs were interested in buying NKT. Therefore, they could not only get a good factory, but they could easily circumvent the international cartels' agreements. By purchasing NKT they could deliver wire to itself outside the established quotas. The German trading company wanted to prevent this in any way possible. They had a large share of trade of wire with NKT. If the Czechs came into NKT, this cooperation would cease immediately. "Die Zeiten sind schlecht," complained the German wholesaler, for whatever reason they wanted to take the drastic step of a purchase.

The entire share capital of NKT was 10 million kr, which was a lot for the Germans. However, they were only interested in the factory for wire products. By separating it from NKT, a purchase could be handled with far fewer resources. This was a method that large German companies such as Felten & Guillaume and Eschweiler Köln Eisenwerk used to acquire as many iron processing companies as possible.

NKT would like to dispose its factory for wire products, because it had become too dependent on the French prime contractor and part owner. The front office was asked to investigate a takeover confidentially.

The wire factory at NKT was not taken over by the Germans or the Czechs. We do not know how many realities that lay behind the request. It might to some extent be bluff. In the industry, it was often necessary to have a high play to achieve a better position in the market or keep the current position.

Danish competitor stopped by the cartel

Manufacturer N. Jorgensen established a product that competed with NKT. He rented a factory in Copenhagen, where he built a factory with machinery he bought from a disused factory abroad. With this little machine installation driven by eight workers and a foreman, the factory could produce 1.5 tons of nails a day or approximately 450 tons per year. Initially, the factory Dansk Søm- og Trådfabrik (The Danish Nails and Wire Factory) could only provide nails in a smaller range, but there were new machines on the road, so the selection could become larger. In 1932, the company bought new nail machines from Germany.

But what about marketing, when NKT had solo contracts with the Danish hardware wholesalers? Jorgensen had made an alliance with Christian Janssen & Co., Sømlageret (the Nail Stock) in Copenhagen. The wholesaler could not sell to hardware stores, because it was not a member of the wholesaler organization FADI. Instead, they sold directly to builders. They could only absorb 250 tons of the new factory products so Sømlageret had to find outlets for the remaining 200 tons, and various distributors were asked whether they wanted to be buyers. It was unfortunate for Dansk Søm-og Trådfabrik, because Coutinho was informed of the matters. This company was the sole exporter of wire rod products from German plants. They were obviously not interested in a competitor in the Danish market that they shared with NKT after negotiations.

Nor was the cartel office in Germany happy about the new competitor. A factory for wire rod told them that there was a new Danish factory, which had inquired about wire rods. The factory received 100 tons of wire rods from a Polish factory at its inception, but it could not get enough wire. Both NKT and the German factories would lose huge sums if a permanent price reduction would result from the new plant. It was calculated that the price in Copenhagen, where the factory was located, would decline by 30 kr. per ton. It could be imagined that the Danish government would intervene to get cheaper prices, by procuring goods from the Belgian rivals, for example. The new plant was dangerous and should be fought with all means.

The danger of the factory was underlined by the fact that Jorgensen had obtained foreign machines for the production of horseshoe nails to Denmark. NKT responded by bringing legal action against Jorgensen. At the Maritime and Commercial Court in Copenhagen, NKT said Jorgensen had obtained nails from the Danish market produced on machines that he delivered to Riga. This would be contrary to an

agreement that existed between NKT and Jorgensen.

Jorgensen could confirm that he sold horseshoe nails machines to Phönix in Riga, but he claimed he knew nothing about the supply of nails that had come from a small trading company in Riga, from which goods were shipped in crates and packages without a factory name.

The struggle to dominate the Danish market

The trial dragged on. The directors of the factory and trading houses in Riga were called as witnesses to clarify the situation. However, the fight against Jorgensen and his new factory should have been made by quicker and more efficiently. NKT Director Lading and Hecht-Nielsen, director of Coutinho sat down together to devise a strategy. The main element was the sad but necessary weapon, a price cut. The price reduction did not happen immediately. It was published at the appropriate time. Both companies used all their information channels to be informed of the situation. Using this information, the final tactics were made. They had discovered that the contract between Sømlageret and Dansk Søm-og Trådfabrik would be terminated by August 1, 1930. The action was directed against Sømlageret, the factory's main customer. The news told when the quorum of its leaders, Janssen Junior, would come back from a business trip and the action was scheduled for late July.

The action started when Sømlageret received several complaints about the quality of the nails delivered. The next day the company received a notice from NKT announcing a sharp price cut of 10 kr. per ton. Because it happened before the contract could be terminated, one leader at Sømlageret did not dare to do anything. The company could not compete with the prices NKT and the German factories had on the market.

The first battle was won by NKT, but the war was far from over and subsequent battles had to be won. However, it should be done secretly so nobody was aware of it. Firm Coutinho had a central role in this game. NKT has had its regular and close contacts to hardware store merchants for many years, while Coutinho had business links to a wide circle for many years, whereby its director Hecht-Nielsen knew the directors of many trading firms. Sømlageret's owners decided to sell the company because they could no longer make money on the Danish nails or for that matter on horseshoe nails from Riga. There were not many assets. The offices were in rented premises;

the main asset was a new 1½ ton Ford Truck and the firm's customer files.

Sømlageret was offered to trade with the smaller and independent trading companies. Among these was Weiss Johansen from Glas-og Staalkontoret (The Glass and Steel Office), and Hecht-Nielsen could tell him that without Dansk Søm-og Trådfabrik, the company would be worth nothing. Weiss Johansen negotiated with manufacturers Jørgensen, on the advice of Coutinho for the purchase of the factory.

What the manufacturer did not know was that NKT was working behind the scenes. The papers from Jørgensen came into possession of Lading, NKT's director. It appeared that the plant ran quite well and Hecht-Nielsen suggested that the factory should not be disbanded after a possible purchase.

In the end, Glas-og Staalkontoret bought Sømlageret and Dansk Søm-og Trådfabrik where NKT paid 115,000 kr. The nails from this company were sold directly to builders for decades and the company bought large quantities of nails from NKT. However, no one knew that NKT was behind the purchase, aided by the German plants. The plant was allowed to sell a small quantity of nails, approximately 600 tons a year. This signaled that it not was worthwhile to establish more factories for nail production. New plants had no opportunity to grow, which potential manufacturers could see from Dansk Søm- og Trådfabrik, NKT's secret subsidiary.

Tangled trade relationship by thread cartel solution

The international cartel agreements in the wire industry were dissolved during World War I. How it happened during World War II will be explained in the following section. We will start with a dramatic event at Juul Andersen & Co. in Copenhagen, NKT's largest provider of its product.

One summer day in 1943 the Danish police met at the company office. The policemen wanted to see the company's accounting books, because they had reason to believe that it violated the law on prices and margins. It was believed that they had taken exorbitant profits on the wire products that came from Germany. The demand in Denmark was naturally very great. When police officers saw the large circulation of money that had passed through the company, they arranged a raid where everything was reviewed. All officers in the company were investigated, and the police also conducted raids in the four holders' private residences. In one of the houses, papers were even seen under carpets and bedclothes.

The incident arose from a complicated game that began after the German wire cartel was repealed in its old form in 1943. Until then, all trade from Germany occurred through the joint export sales office, which had a representative in each country. In Denmark, the exclusive representation for most products was handled by Juul Andersen & Co. Rising from a desire for stronger control of iron distribution, the top political level in Germany decided that after April 1943, the cartel should be part of a larger context—Organisation der Walzstahl-Verband GmbH Düsseldorf.

The monopoly on the supply of wire products to Denmark also was abolished. Now, new firms could enter and have a share of a lucrative market. One of those companies was Andersen & Maare, a trading company for steel products. Both owners had worked at Juul Andersen & Co., but founded their own company in 1924 that was related to English companies mainly. Since the international cartel agreements were concluded, they could not get permanent trade relations with wire products. Sometimes they could provide nails from third party factories called “outsiders.”

In 1927, Andersen & Maare tried to introduce cheap nails. They first raised nails from Hungary, Czechoslovakia, and later from Sweden. The nails were from plants supplied in packs confusingly similar to the Danish. Director Lading in NKT received help from the international nail cartel to stop the foreign companies by referring to the agreed allocation. They tracked down every factory that had supplied nails, and it did not take long before the factory no longer supplied the Danish outsider firms.

Knowledge of the market was needed to keep track of competitors, and it evolved several times throughout investigations. However, the cartel’s power was not perfect and NKT sold nails below cost for long periods to eliminate competition.

In the early 1940s rumors were spread in German business circles about the major players on the Danish market for wire products, NKT and the firm Juul Andersen; the rumors allegedly came from Andersen & Maare. Also, it was stated that they had received an exorbitant one million kr. profit by selling wire products at too-high prices. This story was the basis for the police action, and several of the iron industry’s big people in Germany were involved in the proceedings.

The case is presumed to have had its close in 1944. A senior representative of the German organization for iron products, director Max Feuerhake, send a letter to Head Dr. Meulemann in the German diplomatic representatives in Copenhagen, where he drew attention to the pending case between the Price Regulation Committee and Juul Andersen. The

Danish Ministry of Justice had asked the German Reichsjustizministerium to interrogate German citizens on the matter and therefore he believed that the matter had encroached on German domestic policy. The German director was asked by the Head to stop the case against the Danish companies, at least as long as the internal German relations was not been clarified. A Heil Hitler closed the letter, which probably was almost a vertical order from Berlin to stop the case. The German cartels were stopped and never played the same role again.

Conclusion

In the early to mid-1920s there was a “normal” cartel situation in the wire product business in Northern Europe dominated by the German nail producers. They formed export cartels to keep prices high in their export markets. When there was a reaction in Denmark’s export market by founding a competitive industry, NKT, they tried to protect their export through a vertical cartel agreement where the wire rod producing steelworks tried to stop the new nail producers. When this did not succeed they made an agreement instead by sharing the market on rather hard conditions. NKT tried to get away from its dependence on German steel works and made an agreement with French producers when the opportunity arose after World War I.

The Danish company was not against cartel agreements in principle. The company was against a situation when a cartel was a negative thing for NKT. Therefore it took the opportunity when it got it to bind the Danish hardware wholesalers to buying nails from Danish producers through an agreement in 1925. This step gave the Danish company a strong position in the market.

Later, it fought to keep this almost monopoly in the Danish market by using immoral tricks such as spreading false rumors and using brute power, etc., to keep competitors away.

International competition arose, as did the number of German producers with interests in the Danish market. Gradually the cartel agreements covered more and more countries, and in 1930 the cartel agreements became nearly global on many subfields of wire productions. It was a severe situation for producers without strong ties to steel works. NKT had a weak position, especially in the international cartel agreements for screws. The Swedish producers had a very strong position in Denmark and the Danish producer had to reduce its ambitions about how large a market share it could have.

The organization of the international business became tighter and more agreements had to be made on exact and recordable information. The international

screw business wanted to have a few types of screws to control and the international cartels got help from the national standardization bodies. One of the fights about screws was whether they should be measured in the meter or the inch system—the last system was used at the largest producers in Great Britain and Sweden and the small producer in Denmark, NKT.

Literature

Barbezat Daniel: "Cooperation and Rivalry in the International Steel Cartel, 1926-1933". In *Journal of Economic History*, 49, 2, 1989, p. 435-447.

Barbezat, Daniel: "Structural rigidity and the severity of the German Depression: The AVI and the German steel cartels, 1925-1932." In: *Explorations in Economic History*, 1994, p. 479-500.

Barbezat, Daniel: "A Price for Every Product, Every Place: The International Steel Export Cartel, 1933-1939." In: *Business History* 33, 1991, p. 68-86.

Bariéty, J. „Das Zustandekommen der Internationalen Rohstahlgemeinschaft (1926) als Alternative zum misslungenen ‚Schwerindustriellen Projekt‘ der Versailler Vertrages". In: H. Mommsen and B. Weisbrod (eds) *Industrielles System und politische Entwicklung in der Weimar Republik*, Dusseldorf, 1974.

Barjot, Dominique (ed) *International cartels revisited. Vues nouvelles sur les cartels internationaux (1880-1990)*, Caen, 1993.

Burchardt, Jørgen og Gitte Kjær: *NKT 100 år*. Brøndby 1998.

Burchardt, Jørgen: *Historiens lange tråd. NKT Trådværket 1899-1999*. Middelfart 1999.

Cortat, Alain: *Un cartel parfait. Réseaux, R&D et profits dans l'industrie Suisse des Câbles*. Éditions Alphil 2009.

Falkenroth, Herbert: *Die Entstehung und Entwicklung der deutschen Holzschraubenindustrie*. Schwelm 1928.

Freitag, Karl Heinz: *Die deutsche Drahtindustrie*. Düsseldorf 1958.

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

Hexner, Ervin: *The International Steel Cartel*. Chapel Hill, 1943.

Jenks, Jeremiah Whipple: *The trust problem*. Doubleday, Page, Garden City, 1919.

Krawinkel, Max L.: *Die Verbandsbildung in der deutschen Drahtindustrie, insbesondere für Walzdraht*. Köln 1968.

Maschke, Erich: "Deutsche Kartelle des 15. Jahrhunderts". In: *Festschrift zum 65. Geburtstag von Friedrich Lütge*, 1966, p. 74-87.

Maschke, Erich: "Outline of the History of German Cartels from 1873 to 1914". In: Crouzet, Chaloner og Stern: *Essays in European Economic History 1789 - 1914*, p. 226-258.

Maschke, Erich: "Deutsche Kartelle im späten Mittelalter und im 19. Jahrhundert vor 1870". In: *Proceedings fra Gesellschaft für Sozial- und Wirtschaftsgeschichte* 1966.

Peters, Lon L. „Are Cartels Unstable? The German Steel Works Association before World War I.“ In: *Research in Economic History, supplement* 3, 1984, p. 61-85.

Stocking, George W., Watkins, Myron W.: *Cartels or competition. The economics of international controls by business and government. With the report and recommendations of the Committee on Cartels and Monopoly*. 1943.

Stocking, George W., Watkins, Myron W.: *Monopoly and free enterprise, With the report and recommendations of the Committee on Cartels and Monopoly*. 1951.

Stocking, George W.: *Cartels in action. Case studies in international business diplomacy*. (Repr.). 1949

Webb, Steven B. "Tariffs, Cartels, Technology and Growth in the German Steel Industry, 1879 to 1914." In: *Journal of Economic History* 40 #2, 1980, p.309-29.

Note

Most historical facts are from Burchardt & Kjær (1998) and Burchardt (1999) and from historical sources listed in the book mentioned last.

The comprehensive cartel agreements forming the International Steel Cartel are mentioned in a long row of books (Barbezat, Bariéty, Hexner, Stoking, and Webb). Only Hexner mentions subordinate special cartels.