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**The Nickel Syndicate,
1901 - 1939**

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The Nickel Syndicate, 1901-1939

Gordon Boyce

In 1901, several British armament firms formed the Steel Manufacturers' Nickel Syndicate Ltd. to exert combined purchasing power against La Societe de Nickel, then the world's only major supplier of nickel. Although membership in the Syndicate changed over time, new sources of demand for nickel arose, and additional suppliers emerged, the Syndicate operated successfully until World War II. Conventional economics and organisational theory predict that this type of co-operative arrangement is necessarily doomed to dissolution. To explain why the Syndicate endured for nearly forty years in the face of significant shifts in demand and supply we need to examine relations within the Syndicate and between the Syndicate and its suppliers in contractual terms. In the case of the former relationship, underlying communication channels gave the Syndicate a strong bargaining position, but by making judicious use of this power, the organisation was able to elicit ongoing co-operation from its suppliers. Within the Syndicate, members derived significant financial advantages from association. We can measure these benefits and show how the Syndicate conducted its activities to ensure that these gains were not absorbed by operating expenses.

Background:

Nickel was used to harden armour plate and specialty steels. A strategic material, nickel was in strong demand during the naval race leading up to the First World War and during the conflict. As armament manufacturing declined in the 1920s, the American and European automobile industries provided a rapidly expanding alternative market. When rearmament began in the mid-1930s nickel output soared.

Before 1900, the vast majority of the world's nickel came from New Caledonia.¹ In 1880, Australian entrepreneur John Higginson began to develop the two main ore bodies on this Pacific island. He soon overstretched his finances and sold a 25% interest in his firm, La Societe de Nickel, to the Rothschilds, who provided trade credits and marketing services.² Nickel deposits had been discovered in the Sudbury region of Northern Ontario in the 1880s and were exploited unprofitably on a small scale during the 1890s. It was not until the Mond Nickel Co. and the International Nickel Co (INCO) were formed in 1900 and 1902 respectively, that Canada emerged as the world's principal producer.

Dr. Ludwig Mond discovered a chemical process for separating nickel from the composite ore in which the metal was fixed. Unable to interest La Societe or North American producers in his invention, Mond set out to exploit it on his own. He purchased mining property near Sudbury where he built a smelter and constructed a large-scale refinery at Clydach near Swansea, South Wales.³ By 1902, the Mond company was producing refined nickel. Canadian copper companies became interested

¹J.M. Cohen *The life of Ludwig Mond* London: Methuen 1956, p 198 and Vickers 57/61 Statement dated 31 July 1935.

² John McKay "The House of Rothschild as a Multinational Enterprise 1875-1914" in Alice Teichova, Maurice Levy-Leboyer, and Helga Nussbaum (eds) *Multinational Enterprise in Historical Perspective* Cambridge: CUP, 1986, pp78-79.

³Cohen, pp 201-204.

in nickel because both metals were entrained in the Sudbury ores. About the same time the Orford Copper Co. invented an electrolytic separating process, which it introduced at its Canadian refinery. In 1902, Orford merged with the Canadian Copper Company and a small American firm to form INCO under the incorporation laws of New Jersey.⁴ The threat that this combination posed to La Societe's dominant position and its arrangement with the Syndicate was removed when the two companies entered into a global market sharing agreement which Mond Nickel joined later.⁵ Additional pressure for La Societe to co-operate with Canadian producers came from the British Government which encouraged the use of nickel produced within its Dominions and later insisted that its orders be made from nickel from this source.⁶ In 1929, the global market sharing arrangement was strengthened when INCO acquired Mond Nickel and thereby came to control 75% of the world's nickel production. The agreement with La Societe endured, and the formation of the much smaller Falconbridge Nickel Mines by Thayer Lindsley in 1928 did not undermine what effectively was a global duopoly.

The original members of the Syndicate in 1901 included Vickers, John Brown & Co., William Beardmore & Co., Charles Cammel & Co., and Sir W.G. Armstrong, Whitworth & Co. With the exception of Armstrong, which obtained its nickel from INCO under the terms of the market sharing agreement, the participants founded the Anglo-French Nickel Company, as a subsidiary venture, to operate a nickel refinery in Swansea. Between 1901 and 1907, a total of seven German, French, and Italian armament firms, along with British specialty steelmaker Hadfields joined the Syndicate and enhanced its purchasing power.⁷ (Although Hadfields continued to draw supplies from Mond, its inclusion within the Syndicate accentuated the co-operative's leverage over all suppliers, and from Hadfields' perspective ensured that this firm would pay the same prices that INCO and La Societe charged other members.) During World War I, the Syndicate cancelled the shares of its German members, Krupp and Dillinger Huttenwerke, and thereby in effect expelled them from its ranks.⁸ After this, membership in the co-operative did not change.

An estimate of the raw purchasing power that the Syndicate wielded after its membership stabilised can be made by comparing the annual deliveries recorded in the Syndicate's Directors Minutes from 1923 to 1934 with the total output from Canada and New Caledonia during the same years. The calculation reveals that the co-operative absorbed just under 4.5% of world output (Table I).

⁴ Alfred D. Chandler Jr. *Scale and Scope* Cambridge, Mass.: Harvard U.P. 1990, pp 127.

⁵ McKay, p 79 Vickers 1198 Syndicate DMs 8 March and 31 July 1918 refer to an earlier agreement between La Societe and INCO and arrangements with Mond.

⁶ Vickers 57/61 Statement dated 31 July 1935 indicates that the Government made these demands during World War 1, but Syndicate DM 30 Oct. 1902 reveals that the Admiralty was interested in the nickel question much earlier. The Admiralty also explored Canada's potential as an oil supplier in 1905 and pressured the Dominion Government to restrict ownership of domestic oil fields to British or Canadian firms in 1914. The relevant legislation had implications for non-British companies that owned mineral deposits. D.H. Breen, "Anglo-American rivalry and Canadian petroleum policy to 1930" *Canadian Historical Review* LXII (1981) pp 283-303.

⁷ In 1908, the Syndicate was converted to a private Limited Company in which each member held 125 shares. DM 28 May 1908.

⁸ DM 8 March 1918. Subsequent law suits brought by Krupp were dropped.

TABLE 1: The Syndicate's Purchasing Power:

<u>YEAR</u>	<u>OUTPUT</u>			Syndicate Orders	Syn as % of Canada	Syn as % of New C.	Syn as % of World
	Canada	New C.	World				
1924	31,500	3,700	35,400	1,780(a)*	5.65	48.11	5.03
1925	33,400	3,400	37,000	1,780(a)*	5.33	52.35	4.81
1926	29,900	3,800	34,000	1,780(a)*	5.95	46.84	5.24
1927	33,000	3,400	37,500	1,780(a)*	5.39	52.35	4.75
1928	43,900	5,900	51,400	1,780(a)*	4.01	30.17	3.46
1929	50,000	5,400	58,000	1,800 (e)	3.60	33.33	3.10
1930	47,100	8,900	60,000	1,900 (a)	4.03	21.35	3.17
1931	29,800	7,800	40,000	1,862 (a)	6.25	23.87	4.66
1932	13,800	5,000	22,000	1,660 (a)	12.03	33.20	7.55
1933	37,800	5,000	46,000	2,822 (e)	7.47	56.44	6.14
1934	58,400	8,600	72,000	3,382 (a)	5.79	39.33	4.70
TOTAL	408,600	60,900	493,300	22,326	5.464%	36.66%	4.53%

* DM 4 July 1929 reported that on average the annual tonnage purchased for the last five years was 1780 tons.

(a) Actual tonnage ordered.

(e) Estimated tonnage of members requirements.

Source for Market prices: Christopher J. Schmitz, World Non-Ferrous Metal Production and Prices, 1700-1976, (London: Frank Cass & Co. Ltd.) 1979, pp.287-8.

Its purchasing power constituted just under 5.5% of Canadian production, but 36.6% of New Caledonia's output. For Canadian producers, the Syndicate was a relatively unimportant customer, but to La Societe it was a vital outlet.

1: Measuring the Benefits of Co-operation

Although the original contract between the Syndicate and La Societe has not survived, subsequent agreements and the co-operative's Directors Minutes reveal the basic terms.⁹ Members agreed to buy all of the ore required by the Anglo-French company's refinery and all their remaining requirements of refined nickel from La Societe (or with its approval from INCO and Mond in the cases of Armstrong and Hadfields). La Societe, INCO, and Mond charged syndicate members at the lowest market price (excluding prices quoted to governments), less a rebate which varied according to the size of the co-operative's total annual purchases. Subsequent renewals, usually covering seven years, stipulated that signatories could give two to three years' notice to terminate the arrangement. A revised agreement arranged in 1918 included a special clause that ensured that the Syndicate would pay prices which would not leave its members "without benefit compared with the most favourable market price".¹⁰ The size of this benefit can be calculated by comparing market prices with the amounts

⁹DM 31 Nov. 1903, 6 March 1912, and 21 Feb. 1917. Vickers 57/61 Appendix 7, Agreement dated 1 July 1929.

¹⁰DM 8 March 1918.

actually paid by members of the Syndicate between 1924 and 1934, when the Directors' Minutes provide the necessary figures.

With the exception of 1923 and 1924, when variations in reporting may have distorted the price data compiled by Schmitz, the Syndicate paid market rates for its supplies. Accordingly, the benefit that members derived from the arrangement was equal to the size of the rebate negotiated with La Societe, INCO, and Mond. However, the Syndicate incurred administrative costs which it met by making a per ton levy on its members and, for a time, by charging fees to the Anglo-French Co., and La Societe. Therefore, net benefit of the association equalled the size of the rebate less the levy (Table II).

The total pound value of these savings for the Syndicate rose more than ten fold, from GBS 6,853 in 1924 to over GBS 75,317 in 1934. In percentage terms, these figures represented a net saving that rose almost as dramatically, from just under 2% of the market price of a ton of nickel in 1923 to almost 15% in 1934. Thus, as time passed members enjoyed steadily growing benefits from the arrangement.¹¹

The Syndicate's surviving records containing only a limited amount of information about how much nickel individual members ordered. As a result it is impossible to calculate the net benefits that each participant derived from the arrangement. However, for one firm, Vickers' subsidiary, the English Steel Corporation, appropriate data are available for 1931-4 (Table III).

This company purchased a total of 1876 tons of nickel and secured a net saving of almost GBS 34,000 during these four years. The significance of these savings can be assessed by comparing them with net profits before depreciation (10.9%). Clearly, this co-operative purchasing arrangement, which governed just one of this firm's inputs, generated important financial advantages, quite apart from the unquantifiable benefits of having a more secure supply and greater capacity to deter the global nickel duopoly from increasing prices in the future. The impressive size of these gains raises questions about how efficiently the Syndicate ran its operations.

The operating efficiency of the Syndicate can be measured by calculating the ratio between the size of the rebate members received from their suppliers and the level of the per ton levy they paid to meet the co-operative's expenses (Table IV) This ratio fell dramatically from 1:0.21 in 1923 to 1929, when a slight upturn occurred, and then declined to progressively lower levels to reach 1:0.01 by 1935. The overall trend is significantly downward, indicating that the Syndicate's administration absorbed little of the rebate it won for its members and that the organisation became more efficient during the 1923 to 1935 period as expenses fell from 21 to 1 % of the rebate.

¹¹ These calculations do not take into account the cash reserves that the Syndicate accumulated over time (the levy often exceeded its expenses) and the interest earned on its investments. By 1935, the Syndicate's reserve investments amounted to about GBS 2,000, and the organisation had accumulated an additional cash reserve of GBS 1,033 (DM 7 March 1935).

TABLE II: Sized Levy in relation to rebate

Year	Price paid by Syndicate	Market Price	Rebate %	Rebate £ per ton	Levy £ per ton	Net Savings won by the Syndicate per ton	Total Tonnage Ordered	Total Net Savings to Syndicate	Net Savings as a % of Market Price
2/2 1923	120	127.95	2.5%	£3	(.625)	2.375			1.98%
1924	130	147.63	2.5	3.25	(.25)	3.00	1780(a)*		2.30
1/2 1925	160	159.93	2.5	4.0	(.25)	3.75	1780(a)*		2.34
2/2 1925	170	Ave.	2.5	4.2	(.25)	3.75	Total	£6,853	2.32
1926	170	169.77	2.5	4.2	(.15)	4.05	1780(a)*	7,209	2.38
1927	170	167.31	2.5	4.2	(.15)	4.05	1780(a)*	7,209	2.38
1928	170	169.77	2.5	4.2	(.15)	4.05	1780(a)*	7,209	2.38
1929	170	171.25	6	10.2	(.60)	9.60	1800(e)	17,280	5.65
1930	170	171.25†	6	10.2	(.60)	9.60	1900(a)	18,240	5.65
1931	170	171.25†	8	13.6	(.375)	13.225	1862(a)	24,624	7.78
1932	170	171.25†	10	17	(.35)	16.65	1660(a)	27,639	9.79
1933	170	171.25†	11	18.7	(.50)	18.20	2822(e)	51,360	10.71
1934	151	171.25†	15	22.67	(.40)	22.27	3382(a)	75,317	14.79
1935		171.25†	15	30.00	.35	29.65	n/a		

* DM 4 July 1929 reported that on average the annual tonnage purchased for the last five years was 1780 tons.

(a) Actual tonnage ordered.

(e) Estimated tonnage of members requirements.

† U.K. prices are not available. Market prices for these years are U.S. prices converted to pounds.

Source for Market prices: Christopher J. Schmitz, World Non-Ferrous Metal Production and Prices, 1700-1976, (London: Frank Cass & Co. Ltd.) 1979, pp.287-8.

Source for Price paid by Syndicate, Rebate, and Levy DM [Vickers 1198]

TABLE III: English Steel Corporation's Savings as a % of profit

<u>Year</u>	<u>Saving (tonnage X nett)</u>	<u>Profit [Loss] before depreciation</u>
1931	6,625.73	[46,010-12-3]
1932	5,494.50	[225,323-7-3]
1933	8,554.0	113,550-8-11
1934	13,250.65	498,908-5-3
TOTAL	33,925.88	311,125 net profit =10.9% before deprect'n

Source: Vickers 58/124

TABLE IV: Rebate to Levy Ratio [Measure of efficiency]

	<u>Year</u>	<u>Rebate</u>	<u>Levy</u>	<u>Levy as % of Rebate</u>	<u>Rebate to Levy Expenses</u>
2/2	1923	£3	.625	20.8%	1:0.21
	1924	3.25	.25	7.7	1:0.08
1/2	1925	4	.25	6.25	1:0.06
2/2	1925	4.2	.25	5.95	1:0.06
	1916	4.2	.15	3.57	1:0.04
	1927	4.2	.15	3.57	1:0.04
	1928	4.2	.15	3.57	1:0.04
	1929	10.2	.60	5.88	1:0.06
	1930	10.2	.60	5.88	1:0.06
	1931	13.6	.375	2.76	1:0.03
	1932	17	.85	2.06	1:0.02
	1933	18.7	.50	2.67	1:0.03
	1934	22.67	.40	1.76	1:0.02
	1935	30	.35	1.17	1:0.01

Source: Table II

Given the two variables used in this calculation, the efficiency of the Syndicate reflected how economically it ran its own operations in order to minimise the size of the per ton levy it imposed upon its members and/or how effectively it translated its potential purchasing power into higher rebates. Achieving either of these objectives depended on the configuration of the Syndicate's internal and external communication

channels and the quality of the information it derived from these sources. These concerns are examined in sequence in the next two sections.

II: Administrative Procedures and Expenses:

Initially the Syndicate strove to avoid fixed administrative costs. For example, the Directors received no fees or emoluments, and the Secretary was not paid a fixed salary, but rather an honorarium at the Board's discretion.¹² As late as 1912, the Secretary received only a paltry fee of GBS50 along with GBS50 for office expenses.¹³ The next year, this lean approach to minimising costs could no longer be sustained and the Syndicate granted the Secretary a salary of GBS300 rising by GBS50 p.a. over the next three years. However, the extra cost was divided on a 2/3 to 1/3 basis between the Anglo-French Company and the Syndicate so that the latter's direct costs were the same as the year before.¹⁴ In 1917, La Societe requested new invoicing procedures which posed additional clerical costs on the Syndicate. In recognition of this, the New Caledonian firm agreed to contribute GBS200 p.a. toward these extra expenses. Participants shared operating costs until 1923 when La Societe declared that falling prices and financial problems meant that it could no longer pay its GBS200 share in the future.¹⁵ In co-operative fashion, the Syndicate did not press for payment and shouldered the expense itself. By 1929, the Anglo-French company ceased making contributions, and the Syndicate had to meet all administrative costs itself. However, the total running expenses at this time amounted to only GBS1060 p.a., a reflection of the tight cost control that the cooperative exercised in order to pass on to its members such a large proportion of the gross rebate recovered from suppliers. Thus, even though cost sharing for a time reduced the burden of the levy placed on Syndicate members, the ability of the organisation to contain its administrative expenses was of greater importance over the long-term.

Members knew the size of the organisation's running costs, but did not have to tie up their cash by making advances to the Syndicate so it could meet its commitments. Because many of the co-operative's expenses were payable yearly or half-yearly, it was able to use rebates received to date or cash reserves to make payments. The Syndicate automatically deducted the levy from the rebate received from suppliers so that members could observe directly the net benefit of association. The presentation of a cash 'bonus' in the form of a half-yearly net rebate payment free of any encumbrance served as a positive incentive for members to remain loyal to the Syndicate. By such indirect communication the organisation revealed to its members the fruits of their combined strength in the market.

III: Communication Channels and Restrained use of Bargaining Power:

Since the Syndicate's relative purchasing power did not increase in the inter-war period, its ability to secure larger rebates from suppliers reflected increasingly effective use of bargaining power and the impact of learning effects that generated the trust

¹² DM 19 December 1901.

¹³ DM 6 March 1912.

¹⁴ DM 1 October 1913.

¹⁵ DM 6 June 1923.

needed to support sequential adjustments. The size of the Syndicate's demand relative to La Societe's output gave the purchasing co-operative an initial advantage in bargaining power especially when Mond and INCO emerged as viable alternative suppliers by 1902. The conclusion of a market sharing agreement nullified some of the strength that the Syndicate derived from its raw market power, but the agreement also meant that INCO and La Societe would not collude to the disadvantage of the Syndicate.¹⁶ However, two other factors improved the Syndicate's position. First, the British Admiralty, itself a large purchaser of the refined metal, encouraged the use of Canadian nickel and placed La Societe in a more vulnerable position. Second, the Syndicate's control of the Swansea refinery, which could meet one-half of its members' requirements for refined nickel, presented a latent threat that it might acquire its own mine and expand the capacity of the facility. This policy would involve the investment of a considerable amount of capital and the commitment of resources to developing stable outlets for what was a commodity subject to acute cyclical swings in demand. By using the refinery to supply some of its members' total requirements and drawing upon INCO, Mond, and La Societe to 'top up' supplies, the Syndicate was able to run the Swansea plant at a steady production rate and let its suppliers absorb the swings in demand for refined metal. (Indeed, Vickers' records indicate that the refinery generated large profits.¹⁷) To obtain the maximum benefit from its position, the Syndicate, as a refiner of nickel, had to establish a community of interest with other refiners and use the Swansea facility not simply to pose a credible threat, but as a basis for extending co-operative links with INCO, Mond, and La Societe. Indeed, it bought enough ore and refined nickel from each of the three mining firms to preserve relations with all of them. The key to the Syndicate's success lay in its ability to recognise La Societe's vulnerable position and to make restrained use of its own strategic power. In effect, the co-operative organisation secured prices below the market level from La Societe by possessing, but never using in an overt manner, considerable market power.

The Syndicate did not use its purchasing strength to wring short-term price concessions from La Societe, but rather employed its advantageous position to gain constitutional power. With this it could shape the content and configuration of inter-organisational communication lines in order to establish and sustain a long-term co-operative tie with the New Caledonian firm. Subsidiary channels between the Syndicate and La Societe on the one hand, and the Admiralty, the Anglo-French Co., Mond and INCO on the other hand reinforced the link between the two main participants.

To assure itself access to Board level information, the Syndicate - ever with an eye to minimising costs - induced its members to pool enough capital to acquire the smallest number of shares in the widely owned La Societe needed to obtain a Directorship. (The required amount proved to be GBS35,000, or less than GBS3,000 each, a modest expense not included in the cost-net benefit analysis above, but one that was partially

¹⁶ The Syndicate sought assurances from one of La Societe's officials, M. Marchand, who furnished a statement that INCO had no interest in his firm. Syndicate members were also worried about the possibility that INCO might become a low cost producer of armour plate, but from unknown sources they obtained estimates of the new firm's total raw material costs (nickel and steel making inputs) and determined that these were too high to present a competitive threat. DM 7 April 1903.

¹⁷ Vickers 57/61 Statement dated 31 July 1935. These profits are not included in my calculations of members' net gains from participation.

offset by dividends received from La Societe.¹⁸) The Syndicate may have insisted that it have a seat on La Societe's Board as a precondition for signing the purchasing agreement. La Societe did not have enough countervailing power to demand reciprocity and could not purchase shares in this private company to force its way into the Directorate. Although information asymmetry existed at the strategic level, La Societe had the benefit of the Syndicate's signal of financial commitment to support the purchasing agreement.¹⁹ La Societe did, however, have a measure of constitutional power over the composition of the Syndicate; the New Caledonian firm had the right to approve or disapprove any new firm joining the co-operative.²⁰ This provision enabled La Societe to influence the size and purchasing strength of the Syndicate, and it was vital in ensuring that the terms of the market sharing pact with Mond and INCO were respected since the three firms exclusively supplied some members of the co-operative. The Syndicate knew the details of the tripartite market sharing agreement and could therefore protect its members' interests while avoiding taking any actions that might inadvertently impinge upon its provisions.

At the operating level, the Syndicate appointed Vickers to handle all administrative functions partly to simplify communicating procedures between its numerous members, suppliers, and outside constituents, including the British Government. However, as a result, these various parties became enmeshed in multilateral communication channels within which Vickers occupied a central, nodal position. For example, in response to an Admiralty request prompted by concern over the security of the nation's supplies of the strategic metal, the Syndicate instructed Vickers to obtain reports on the size of nickel stocks held by UK. members, the Anglo-French company, and La Societe.²¹ La Societe also submitted monthly reports about the total size of its UK. stocks, the exact locations of these supplies, and the form in which the reserve was held (whether oxide, ore, matte, or refined). The Syndicate had the right to verify the size, location, and form of La Societe's stocks and to approve exports subject to a reserve of 1,000 tons, requested by the Admiralty, being retained.²² La Societe also conveyed details of expected deliveries from New Caledonia. The configuration of these reporting flows placed the Syndicate, or more precisely Vickers, in a position from which it could monitor and influence the stock of all nickel held in the UK.

During the War, reporting and invoicing procedures were streamlined -at the request of La Societe it seems- so that all the relevant data flowed through Vickers.²³ The Anglo-French company's refinery and La Societe sent invoices and reports on the weight of metal delivered to individual members to Vickers, which in turn received all invoices and forwarded the same to members. Members sent cheques for payment to Vickers which deposited them in the bank accounts of either Anglo-French or La Societe. The arrangement implicitly made the Syndicate responsible for making collections from its members, but it also enabled the co-operative to monitor deliveries,

¹⁸ DM 9 May and 30 October 1902.

¹⁹ The signal was a weak one since the Syndicate could sell its shares on the open market, though at the possible cost of relinquishing its seat on the Board.

²⁰ DM 9 December 1908.

²¹ DM 30 October 1902 and 30 July 1903.

²² To reduce the expenses it incurred by holding this strategic reserve, the Syndicate requested the Admiralty to pay interest on the total value of the stock. DM 22 January 1904.

²³ DM 17 November 1915

consumption, and La Societe's income. Moreover, since the Anglo-French company sold some refined nickel to outside customers (presumably at market prices but with no rebate), the Syndicate's communication channels ensured that it had an independent source of information about demand conditions and the competitive advantages members secured by having the rebate. However, La Societe was not excluded from information about the Anglo-French company's refining operations; the Swansea works forwarded to La Societe reports of its deliveries to both members and outsiders so that the New Caledonian firm could determine whether or not market sharing quotas were observed.

To facilitate production scheduling and deliveries, individual members sent estimates of their requirements for the next six months to the Syndicate which, in turn, forwarded them to La Societe.²⁴ Thus, the Syndicate could monitor the volume of members' total orders which determined the size of the annual rebate. This information enabled the Syndicate to adjust its per ton levy in line with fluctuations in the volume of orders and encourage members to bring forward or hold back orders in order to maximise the size of the rebate for the current year or the next twelve month period.²⁵ Placing itself at the centre of these related reporting flows gave the co-operative important information advantages over other participants.

The Syndicate used these advantageously configured communication channels to develop a co-operative relationship with La Societe in order to maximise the size of the rebate over the long-term. The Directors' Minutes record that the two main participants accommodated each other as prices swung upwards during World War I and then downward in the 1920s and early 1930s. For example, in February 1917, the u-boat campaign caused La Societe's shipping and insurance costs to rise dramatically and in order to ease this burden and thereby ensure that members continued to receive supplies the Syndicate agreed to pay a "special allowance" of GBS25 per ton.²⁶ Through its previously established link with the Admiralty, the Syndicate tried to recover shipping space requisitioned by the Shipping Controller to overcome supply problems that affected all parties: members, La Societe, Anglo-French, and the Admiralty itself.²⁷ By May, the co-operative offered to pay one-half of all La Societe's extra freight and insurance costs and six months later increased the "special allowance" to GBS77-10-0 per ton.²⁸ Rising cost and supply pressures led to price confusion between various suppliers and their clients, so that by March 1918 the British Government had a price advantage of GBS25 per ton on the nickel it bought from INCO. To remove this irritant to Syndicate members, INCO applied for a price increase and base prices charged by all suppliers were made uniform (GBS170 per ton instead of 140), as were the rates that the Anglo-French company charged La Societe and INCO for refining their ore.²⁹

²⁴ DM 14 January 1921.

²⁵ For example, DM 7 March 1935 stated that members should try to defer orders for the rest of the year.

²⁶ DM 21 February 1917.

²⁷ DM 28 March 1917.

²⁸ DM 15 May and 5 December 1917.

²⁹ DM 3 March 1918.

At this time, the Anglo-French company received from an unknown party an offer to buy nickel mining property and although the deal did not go through the event indicates that the Syndicate was examining other sources of supply to keep its options open and had the means to exert pressure on La Societe.³⁰ Similarly, shortly before it received this offer, the Syndicate had tried unsuccessfully to obtain supplies at lower cost by purchasing from American producers through the British government. When this stratagem failed the Syndicate's Board instructed its Secretary to monitor prices paid by the government. Suppliers adjusted their prices in July 1918, by reducing the "special allowance" and including the remainder of this payment in the fixed invoice price.³¹ Moreover, La Societe reaffirmed the preferential rights of the Syndicate by agreeing to quote members the same price in the event that any large purchaser negotiated terms below the fixed invoice price.

Thus, during the War, the Syndicate and La Societe successfully co-operated as rising shipping costs threatened supplies and created confused pricing levels. However, co-operation was often of hard-nosed variety, and it did not persist in the absence of deterrence. The Syndicate monitored price levels, explored other purchasing tactics, and entertained the possibility of having the Anglo-French company acquire its own mine. As a result, it based co-operation on independent information, while at the same time it sought to enhance members' bargaining power against La Societe.

After the War, the balance of supply and demand swung back to the Syndicate's favour, and it became La Societe's turn to make concessions in order to preserve the relationship. For example, when the Syndicate's purchases for 1919 fell just short of the tonnage needed to obtain the maximum rebate, La Societe allowed the full reduction to preserve goodwill.³² Far from becoming a competitive weapon, the Swansea refinery became the focal point of co-operative effort between the Syndicate and La Societe. In 1918, the New Caledonian firm agreed to supply the Anglo-French company with oxide from INCO to keep the Swansea works in operation by evading government restrictions on the use of foreign ore, and the two firms divided the profits arising from outside sales.³³ When they sold off jointly-held excess wartime stocks, Anglo-French and La Societe again divided the profits.³⁴ Despite La Societe's accommodating actions, the Anglo-French company was forced to cease operations at its Swansea works in 1926.

At first sight, the closure of the refinery appears to be a very curious development: it meant that the Syndicate sacrificed that measure of its bargaining power which stemmed from the latent threat that it might buy its own mine and expand the capacity of the works to meet its members' total requirements. Moreover, it removed a facility that had been used to extend the basis of co-operation and to develop greater interdependence with INCO and La Societe. The reason behind the closure was that the refinery was no longer efficient enough relative to the prices charged by INCO and La Societe to pose a credible threat to the Syndicate's suppliers, who had sufficient information about the Anglo-French company's costs to be aware of this fact. Even

³⁰ DM 10 May 1918.

³¹ DM 31 July 1918.

³² DM 14 January 1920.

³³ DM 30 December 1918 and Vickers 57/61 Statement dated 31 July 1935.

³⁴ DM 30 December 1918.

though the Syndicate sacrificed its retaliatory capability, its close ties with La Societe endured. It could be that the co-operative won vital concessions from the New Caledonian firm as the two companies concluded an agreement, the details of which have not survived, at the same time that the decision to close the works was taken.³⁵ However, it is evident that the Syndicate no longer needed to exert a latent threat upon La Societe. Learning effects generated over the previous twenty-five years of co-operation, the Syndicate's intact information lines through which it could monitor outside prices, and its residual bargaining power meant that it was able to win concessions when market prices came under pressure again in 1930.

Confirmation that the Syndicate continued to obtain outside price information can be found in the Directors Minute for 29 October 1930, wherein it was recorded that new Canadian producer Falconbridge and other unnamed firms could not match La Societe's prices. By December of that year, however, Syndicate members had offers of lower prices (GBS158) and while La Societe kept the same base rate it granted a supplementary rebate of 2 %.³⁶ In 1931, the Syndicate appealed again for a reduction and La Societe introduced a more generous sliding scale of rebates based on the volume of members' purchases. In 1933 and 1934, fluctuations in currency values made US prices lower than those prevailing in the UK, and La Societe revised the sliding scale further in the Syndicate's favour to offer price parity. Thus, even without the threat implicit in having its own refining capability, the Syndicate was able to preserve most favoured pricing terms during the downturn of the early 1930s. What adjustments the two participants made during the next price upswing, which in the event proved to a modest one, are not known because the following Directors Minutes have not survived, but the relationship endured until war broke out in 1939.

Conclusion:

Contrary to received theory, the Syndicate proved to be a durable intermediate institutional arrangement. Given the small size of individual members' nickel requirements, vertical integration and the imposition of centralised control over supplies were not viable strategies for them to follow independently. The co-operative provided an instrument for combining their purchasing power to secure advantageous prices. With its greater supply requirements, the Syndicate could have expanded backwards, but in so doing it would have lost its flexibility in meeting swings in demand.

The success of the Syndicate can be attributed to three main factors. First, the organisation's efficient administration prevented savings from being absorbed by operating expenses. Indeed, what makes this case distinctive is that sufficient information has survived to enable calculation of the net benefits of association. Second, the designs of the contracts between the Syndicate and its suppliers, on the one hand, and among members of the co-operative, on the other hand, provided flexibility and visibility. The use of the sliding scale, a long-standing device, automatically accommodated shifts in demand and reduced some haggling costs, although participants did incur such expenses when they negotiated changes in the

³⁵ DM 10 December 1926.

³⁶ DM 17 December 1930.

scale itself. Within the Syndicate, members could directly observe the net benefits of association and did not face heavy 'up-front' costs. Third, and perhaps of greatest significance, was the way in which the Syndicate, by using its bargaining strength to place itself at the centre of inter-related communication channels, accumulated considerable power which it then used in a restrained manner. Its officials exhibited sound judgement by exerting enough pressure on suppliers to win justifiable concessions (and at other times offering La Societe compensation when extraordinary conditions arose) without losing sight of the long-term benefits of building a co-operative relationship.

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