

## **A STUDY OF RESOURCE DEPENDENCY: THE COAL SUPPLY STRATEGIES OF THE JAPANESE STEEL MILLS, 1960-2010**

### **Introduction**

The coal industry has long attracted the attention of management historians. It was in this industry, as J.U. Nuf (1966, p. 322) notes in his classic history of the British coal trade, that “capitalistic forms of industrial organization” were first established. While, as Pollard (1965, p. 62) observes, other industries were “still in the handicraft stage”, the coal sector led the way in introducing steam-power, cost-accounting and methods for managing large labor forces. A low-value commodity that could not be profitably transported by road any great distance, coal played a decisive role in determining the Industrial Revolution’s spatial development. By the 1960s, however, employment and profits in many old underground fields were threatened by new forms of energy, notably oil and nuclear power. Yet, during the 1960s, the foundations were laid in the Pacific Basin for a seaborne coal trade of immense scale which was to underpin the continued economic development of Japan, Taiwan, South Korea and, after 2007, China. Pioneered by two United States firms, Utah Construction and Kaiser Resources, the Pacific coal trade little resembled, either technologically or economically, the old underground sector. Sourced from huge open-cut mines deep in the interior of western Canada and Australia, and later Indonesia, coal was transported immense distances by rail and sea to the East Asian littoral. The impact of this vast production and transport system was felt far beyond the Pacific. As the world coal price entered into a steep decline, driven ever downwards by Australian and Canadian cost efficiencies, United States exporters – who had long dominated the North Atlantic coal trade - were forced from the market (Leer, 2000).

Despite its central role in underpinning East Asia’s economic expansion the Pacific coal trade has attracted little attention from management historians. The study of the genesis and

development of the Pacific coal trade therefore presents us with a number of opportunities. First, it provides an addition to the expanding field of ‘transnational’ management history which, as one recent contribution to this journal noted, needs to be grounded in an empirical consideration of actual ‘historical processes’ rather than lofty ‘grand narratives’ (Novicevic, Humphreys and Zhao, 2009, p. 307; also Smother et al., 2010, p. 524). For in the post-1945 world it became increasingly difficult to conceptualize the problems confronting management through a consideration of only national markets. In the case of the world steel industry the saturation of the United States domestic market during the 1970s at a time when Japanese steel exports were growing strongly created a crisis of oversupply that everywhere demanded radical responses from steel producers (Newell, 1997, p. 186). Secondly, the history of the Pac-Pacific coal trade allows or a longitudinal test of the famed resource dependency theory developed by Jeff Pfeffer, Phillip Novak and Gerry Salancik (Pfeffer, 1972, 1976; Pfeffer and Novak, 1976; Pfeffer and Salancik, 1978). While resource dependency theory has been subject to much critical debate over the last 33 years one of its original proponents (Pfeffer, 2003, p. xvi) has nevertheless observed that “there is a limited amount of empirical work explicitly extending and testing resource dependency theory and its central tenets.” This study provides an opportunity to redress this perceived short-coming by examining the resource procurement strategies of East Asia’s principal coal consumers, the Japanese Steel Mills (JSM), which enabled it to dictate the terms of market exchanges in the Pacific coal trade for several decades.

In exploring the relationships that developed in the Pacific coal trade the central question this article asks is: why did the JSM rely on market exchanges to secure access to coal reserves rather than gaining direct control over supply through mergers and acquisitions? The lessons of

business history suggest the latter would be a more logical course of action. As Chandler (1977, p. 339) noted in his magisterial *The Visible Hand*: “Modern business enterprise became a viable institution only after the visible hand of management proved to be more efficient than the invisible hand of market forces in coordinating the flow of materials”. In pioneering resource dependency theory, Pfeffer (1976, p. 39) came to similar conclusions, noting: “Merger represents the most complete solution to situations of organizational interdependence”. This study, however, argues that the JSM chose not to engage in a strategy of full vertical integration - that would have involved either the purchase of, or merger with, Pacific Basin coal producers – due to its ability to enforce a policy that has been described elsewhere as “vertical quasi-integration” (Desai and Mukherji, 2001; Blois, 1972; Galbraith and Stiles, 1984). With “vertical quasi-integration” one party has such market power that it is able to simply dictate the price at which a good or service is exchanged. In the end, however, this policy proved counter-productive as by the late 1990s only a small number of super-efficient mining conglomerates proved capable of surviving in the low price environment that the JSM had created. The adverse consequences eventually suffered by the JSM confirms the findings of Emiliani’s (2010, pp. 126, 118) recent historical analysis of purchaser-supplier relationships, which notes that strategies directed towards ‘zero-sum power-based bargaining to reduce unit costs’ have a tendency “to increase system-level costs for the buyer, which is opposite the outcome it seeks.”

### **Markets and organization, some theoretical frameworks**

In classical economics, firm behavior is primarily explained through reference to the “invisible hand” of market forces. However, while economists have generally shared a disdain for any organizational interference with the free functioning of markets – be it through cartels, vertical

integration or the exercise of monopoly power – business historians and management theorists have taken a different stance, seeing such behavior as rational responses to market uncertainties. The importance of securing control over resource inputs has, for several decades now, been highlighted by resource dependency theory. Pioneered in the 1970s by Pfeffer and his collaborators, notably Salancik and Novak (Pfeffer, 1972, 1976; Pfeffer and Novak, 1976; Pfeffer and Salancik, 1978), and buttressed by an array of subsequent empirical studies (Burt, 1980; Ulrich and Barney, 1984; Walter and Barney, 1990; Hitt and Tyler, 1991; Finkelstein, 1997; Hillman, 2005; Hillman, Shropshire and Cannella, 2007), resource dependency theory suggests that firms will respond to unequal market relationships by pursuing one of two strategies – “absorption” or “cooptation”. Whereas the former - which involves acquisitions, mergers or takeovers - brings an end to the dependency relationship, the latter strategy typically involves the weaker party to the exchange relationship attempting to influence the behavior of the dominant exchange partner through political action, or by offering its members positions on its board of directors (for reviews of the extensive resource dependency literature, see Pfeffer, 2003; Hillman, Withers and Collins, 2009; Davis and Cobb, 2010).

Despite its popularity, resource dependency theory has been subject to two principal criticisms. First, it has been argued by Finkelstein that the theory is largely ahistorical as it assumes that “economic transaction patterns do not change over time” (Finkelstein, 1997, p. 789). Thus, while Pfeffer’s original exposition of the theory was based on an analysis of United States merger patterns between 1948 and 1969, there was no attempt to trace how effective these mergers were in overcoming problems associated with resource dependency (Pfeffer, 1972). Pfeffer (2003, p. xxiv) effectively conceded the validity of this criticism when, in reviewing the

extensive resource dependency literature, he observed that the theory's major failing was the absence of studies into "the *consequences* of organizational efforts to manage environmental dependence" [emphasis in original]. The second major criticism of resource dependency theory involves a questioning of its assumption that the weaker party to an exchange can overcome its resource dependence by either acquiring or merging with the dominant party. As Casciaro and Piskorski (2005, pp 167-68) note, firms that are in a position of market power are unlikely to surrender their advantage through a merger with a supplier or customer on terms favorable to the latter. Instead, dominant firms that enjoy conditions that can be described as "vertical quasi-integration", where suppliers or customers have to deal with them on their terms, will want to maintain these unequal market relationships as long as possible. As Galbraith and Stiles (1984, p. 515) observe, "when quasi-integration conditions are evident, absorption strategies [such as mergers and acquisitions] are unnecessary and perhaps even counter-productive for the advantaged firm." Desai and Mukherji (2001, pp. 241-42) note that in post-1945 Japan quasi-integration was commonplace, with as firms typically managing their supply relationship through a complex web of subcontracting and other inter-firm relationships that defied "conventional [western] measures." Such relationships, they argue, enabled Japanese firms to gain an advantage over their western competitors by securing access to resources "without the high investment and inflexibility associated with integration."

If the benefits of supply relationships based upon "quasi-vertical inetegration" rests on unequal power relationships between buyers and sellers the historical studies conducted by Emiliani (2010, 2003) provide a salutary caution on the long-term effects of the exercise of such power. Noting that "most large purchasing organizations have great difficulty controlling

themselves” when they find themselves in a position of power vis-à-vis their suppliers, Emiliani (2010, pp. 121, 118) observes that such “sharp practices” inevitably create an antagonistic buyer-seller relationship to the detriment of both parties. While the much vaunted “Japanese miracle” of the 1970s suggested for a while that such problems had been superseded, the bursting of the “bubble economy” in the 1990s revealed a deep-seated malaise. Between 1990 and 2003 the Japanese manufacturing sector, including the steel industry, found itself in dire straits as it witnessed a decline in the number of factories, in total employment and nominal value added (Bala Subrahmanya, 2008, p. 29). Under internal cost pressure the JSM responded by exploiting to the utmost its power relationship over its overseas suppliers; a strategy which eventually rebounded upon it in the Pan-Pacific coal trade.

### **The origins of the Pacific seaborne coal trade: 1960-1980**

At the end of World War II the Japanese coal industry, like much of the nation’s economy, lay in ruins. Recovery was slow and fitful. Despite receiving large-scale subsidies from a government intent on boosting national coal production, the coal owners, as Garside (2005, p. 187) notes, “did little to mechanize the mines or seek greater efficiency of production”. In 1949 coal expenses were responsible for half the cost of each ton of steel produced. These constraints were institutionalized in 1955 when the industry was exempted from Japan’s anti-trust laws, legitimizing price collusion by domestic coal producers (Garside, 2005). Understandably, by the late 1950s the JSM were actively looking for alternatives to domestic suppliers.

Unfortunately for the JSM, potential sources of seaborne supply were rapidly disappearing. Whereas in 1940 there were 393 coal mines in western Canada, by 1960 only 89 were left (Dames and Moore, 1977; Patching, Harrison, Mackay and Beck, 1980). Similar trends

were evident in Australia as many small underground mines closed. Nevertheless, Japanese demand did provide a spur to Australian exports from the South Coast of New South Wales (NSW) and between 1955-56 and 1965-66 exports to Japan rose from virtually nothing to 5.8 million tons (JCB, 1972, p. 228). Such additions to supply were, however, at best a stop-gap measure. Most NSW mines, particularly those in the Hunter Valley, were producers of thermal coal used in power generation, rather than the higher quality coking coal the JSM needed. A large majority of Australian mines were, moreover, small undercapitalized affairs incapable of large-scale expansion. As a result, the JSM in the late 1950s and early 1960s found themselves heavily reliant on underground Appalachian mines in the United States for their coking coal. In 1958, Appalachian miners provided 80 per cent of Japan's seaborne imports. Twelve years later, they still provided half the nation's imports, charging JSM members US\$24.32 per ton – more than double the price of similar quality Queensland coking coal then entering the market (JCB, 1972, p. 139).

If the JSM suffered at the hands of Appalachian producers in the 1960s, succor was offered from two other United States' firms, Utah Construction Company (Utah) and Kaiser Resources, a Kaiser Steel subsidiary. Among the first to appreciate the potential of the Japanese market, in the 1950s Utah was already supplying it with Peruvian iron ore (Galligan, 1989). Similarly, Kaiser entered into a joint venture in 1962 with Conzinc Riotinto - Hammersley Iron - in order to bring the iron ore deposits of Western Australia's Pilbara region into the Japanese market (Boyce, 1998). Utah and Kaiser effectively initiated the large-scale trade in seaborne coal across the Pacific. Following the development in 1960 of a relatively small Australian mine at Moura under the auspices of a family-owned company, Thiess Bros., Utah focused its attention

on adjacent districts in Queensland's Central Highlands. On 26 April 1962 a Utah geologist, Don King, discovered a 23-foot seam of high quality coking coal at Blackwater (Trengrove, 1979) and over the next few years he mapped one of the largest coking coal deposits on the planet. Containing billions of tonnes of high-grade reserves, much of which was amenable to open-cut mining, these reserves were separated from deep-water by only a few hundred miles of undulating downs. Utah's local subsidiary, Central Queensland Coal Associates (CQCA), brought its Blackwater mine into production in 1967. By 1972 it had completed four additional open-cut mines, a coastal rail link and a port facility at Hay Point. In 1969 CQCA signed long-term contracts with the JSM to provide over 85 million tonnes of coal (Galligan, 1989, p. 25).

Utah transformed the Australian coal industry, using the largest capacity draglines, electric shovels and trucks in mines that dominated the export trade. For Utah, and the Australian industry as a whole, the 1970s and early 1980s proved a golden period. Of the 21.3 million tonnes of coal exported from Queensland in 1980, 17.4 million tonnes came from Utah pits (Queensland Coal Board, 1986). Between 1968 and 1975 the average nominal FOB (Free or Freight on Board, ie the price paid for coal loaded as its home port, thereby excluding shipping and insurance costs) price for Queensland product - virtually all of which was coking coal - rose more than four-fold, from US\$8.57 to US\$37.91. Measured in constant US dollars, prices trebled, reaching a nominal peak that was not surpassed until 2008 (JCB, 1982, p. 85). With prices still close to their historic peak, in 1984 Utah decided to exit the industry, selling its mines in the Antipodes to Australia's largest company, BHP. This sale made BHP, which had previously acquired Thiess's Moura holding, the dominant force in the Pacific trade.

While Utah was developing a large export capacity in Australia, Kaiser Resources was venturing into British Columbia's Elk Valley, high in the Canadian Rockies. After purchasing coal leases adjacent to the historic Crows Nest Pass town of Michel, in early 1968 Kaiser signed an agreement with the JSM to supply 45 million tonnes over 15 years (Hedum Menzies, 1969). Entering the market at a 40 per cent premium to Australian coking coal product, the average FOB price for Canadian coking coal, sourced from the Michel (Balmar) field, rose from \$US14.11 in 1970 to an all-time peak of US\$105.59 in 1982. Even measured in constant US dollars, this was a three-fold gain (IEA, 1995, p. I.41). As in Australia, the high prices paid by the JSM lured others into the export trade, such as Fording Coal (a Canadian Pacific Railways subsidiary). National output grew from 3.4 million tonnes in 1970 to 10.9 million tonnes in 1980, two-thirds of which was exported to Japan. By the latter date Canadian miners, having received assurances from the JSM that it would source 50 per cent of their coal imports from Canada (Hay, Hill and Rahman, 1982, pp. 2, 86), began to develop export operations outside the Elk Valley. The most significant of these were in the remote Tumbler Ridge region of northern British Columbia - where Teck Resources and Quinette Coal commenced mining in 1982 - and in the adjacent Alberta foothills. While remoteness made these regions expensive suppliers, their entry into the seaborne coal trade was facilitated by the construction of a government-owned rail link to a new coal facility at Prince Rupert. To underpin the Tumbler Ridge investments the JSM signed long-term contracts that were, by 2000, to add 90 million tons of coal to the Pacific trade (Fawcett, 2000, p. 26).

### **Controlling supply and price: 1980 to the early 1990s**

If the initial driving force for the Pacific coal trade lay with suppliers, principally Utah and Kaiser, the steady growth in the seaborne trade during the 1970s and early 1980s rested on long-

term JSM contracts. This was particularly the case in western Canada, where operators labored under a number of nature-imposed constraints. Even the most favorably located mines, those in the Elk Valley, were 700 miles from the coast with coal trains having to transverse the high passes of the Selkirk, Monashee and Cascade Ranges to reach the main export terminal at Roberts Banks south of Vancouver. Geological uplift meant that deposits were located in irregular “pods” deep within the mountains. Forced into mountain top mining, Canadian miners were unable to replicate the Australian’s use of draglines, which could move earth six-times more economically than electric shovels.<sup>1</sup>

Given the much higher cost structure of the Canadian miners compared to their Australian counterparts why did the JSM vigorously secure long-term contracts with Canadian suppliers in the 1970s and early 1980s? At the time the JSM attributed its actions to concerns about Australian reliability due to strikes by that nation’s unionized coal workforce; an explanation that was readily accepted by most observers (see Hince, 1982 for detailed discussion of strikes on Australian supply). However, such explanations are unconvincing since coal owners and their customers had for centuries countered strike action through stock-piling. For the JSM this would have been far cheaper than underpinning investment in high-cost Canadian mines. Instead, it would appear that the JSM’s commitment to long-term Canadian contracts was driven by a desire to diversify supply. In this regard, it needs to be appreciated the high prices paid to Australian and Canadian exporters in the early 1970s actually cost the JSM less than that charged by Appalachian miners when measured in CIF (Cargo, Insurance and Freight, that is the full cost of

---

<sup>1</sup> Equipment efficiency estimates are based on numerous discussions with Australian and Canadian mine operators.

coal delivered to port in Japan), rather than FOB, terms. In 1971, for example, the JSM was paying US exporters a CIF price of US\$ 24.32 per tonne. By comparison, the average per tonne CIF prices for Australian and Canadian coking coal were US\$13.93 and US\$17.89 respectively (JCB, 1972, p. 139).

If the JSM's actions in offering long-term contracts to Canadian producers were initially seen as benign behavior the views of coal producers soon changed. By 1987 the average (nominal) FOB price for Canadian coal was US\$49.07 per tonne, less than half its peak five years earlier. In Australia, a low of US\$39.98 per tonne was reached in 1988, a sum well below the US\$59.04 peak received in 1982 (IEA, 1995). While, during the early 1990s, there were brief recoveries in nominal coal prices the inflation-adjusted price received in both exporting nations continued its downward spiral. By 1999, in both Australia and Canada, the real per tonne coking coal price had fallen below 1960 levels (Barlow Jonker, 2001).

As prices collapsed observers attributed the over-supply of the market to the deliberate fostering of excess supply by the JSM (Koerner, 1993; Marshall, 1991). Certainly, one *effect* of the JSM's system of long-term contracts was to contribute to an over-supply of the market. Was this also the *intent* of the contract system? This is less clear. It is evident that the over-supply that characterized the Pacific trade was brought about by a number of factors, not just the JSM's actions. The sharp, world-wide recession of 1981-82 brought about a sudden fall in world demand for both steel and the raw materials used in its manufacture that few – including the JSM – could have predicted. High coal prices in the 1970s resulted in a large number of new coal projects being initiated, only to come into production after prices had peaked – a not untypical pattern of investment in mining.

If the over-supply that characterized the Pacific coal trade in the mid-1980s were multi-causal there is nevertheless substantial evidence that the JSM's actions were designed to control output and prices. Despite the sharp fall in steel prices eroding the JSM's profits it continued to sustain Canadian miners, paying them much higher prices than their Australian rivals. By 1990, Canadian producers were receiving an average nominal price of US\$59.23 – more than the peak received by Australian miners in 1982 (IEA, 1995). This strongly suggests that, from the outset, the JSM saw western Canadian producers as a foil to the dominance of Australian producers, rather than simply an alternate source of supply. Moreover, the continuation of high prices to Canadian coal owners masked a sharp change in the situation of the Japanese steel industry, as the global steel industry experienced a crisis of oversupply wrought by not only the large-scale entry of Japanese, Korean and Taiwanese product into the international market but also by an absolute decline in steel consumption in the world's largest market, the United States. As Newell (1997, pp. 184-6) indicates, this crisis demanded a strategic reassessment by all steel producers with many United States firms opting to either exit the industry or severely reduce their output after the mid-1970s. In Japan, so Bala Subrahmanya (2008, pp. 30, 36) records, steel companies responded by reducing their reliance on domestic subcontractors, and whereas subcontractors made up 72 percent of firms in the Japanese steel industry in 1981, by 1998 they made up only 47.4 percent. In this context, it would therefore be surprising if the JSM had not used its relationship with its overseas coal suppliers to reduce its own cost pressures.

To fully understand the JSM's resource acquisition strategies we need to consider how it exerted control over both supply and price. Significantly, in exercising its oligopolistic buying power the JSM avoided one strategy that resource dependency theory (Pfeffer and Salancik,

1978; Hillman, 2005; Hillman *et al.*, 2007; Casciaro and Piskorski, 2005) suggests is commonly used by organizations to impose control over their resource supply chain - notably the cooptation tactic of offering key suppliers positions on their boards of directors. In the 50 year history of the Pacific coal trade this tactic was used rarely if at all. Another strategy that one would expect according to resource dependency theory is mergers and acquisitions. However, such a strategy was only used as an adjunct to strategies directed towards controlling both supply and price. As a rule of thumb, the more marginal was the mining operation, the greater the JSM's shareholding. Thus Fording, which had the best deposits in the Elk Valley, remained 100 per cent Canadian owned. By contrast, Quinette Coal, which operated an isolated Tumbler Ridge operation, had 12 JSM shareholders with a combined stake of 38 per cent (Marshall, 1991). This investment pattern strongly suggests the prime objective was to encourage new entrants into the market.

To control the seaborne coal trade the JSM relied on a complex set of differential price-fixing arrangements to avoid a repetition of 1960s circumstances, when US producers gained a near monopoly of supply. As Koerner (1993, p. 78) observed, this meant "limiting reliance on Australian coking coal imports to some ceiling quota or market share, irrespective of the cost competitiveness of Australian sourced coals". To foster supply and price competitiveness, the JSM negotiated "benchmark" contracts with selected producers in February-March each year. New agreements then came into force at the beginning of the Japanese financial year in April. To encourage settlement, the JSM frequently offered increased volumes to offset any price reductions; a practice that in the 1980s and 1990s increased supply in an already over-supplied market. Once the "benchmark" for coking coal was set this standard was then adopted by South Korean and Taiwanese steel makers, who religiously followed the lead of the Japanese. The

Japanese power utilities also waited for the setting of the coking coal benchmark before negotiating prices for thermal coal, which were always fixed at a discount to that set for coking coal (IEA, 1997). Once benchmark prices were finalized, annual contracts were negotiated with other producers, with Canadian miners invariably receiving a US\$10-15 premium over their Australian rivals in the 1980s and early 1990s (IEA, 1995).

For almost 20 years the combination of annual benchmarks and differential pricing well served East Asia's coal importers. Eventually, however, the JSM's strategies proved unsustainable, as low-prices profoundly altered patterns of supply.

### **Supplier Responses, 1990-2000**

By the early 1990s the halcyon days of high prices and profits in the Pacific coal trade were long over. As prices fell, the universal response of suppliers was cost efficiency campaigns. In British Columbia, the source of most of western Canada's exports, the amount of coal produced per employee rose from 4,343 tonnes in 1990 to 8,780 tonnes in 2000. As productivity rose, employment fell, from 5,654 in 1990 to 2,925 in 2000 (British Columbia Department of Forests, Mines and Lands, 2010). In Australia, employment also fell sharply from 29,713 in 1990 to 18,475 in 2000 (Tex Report, 2002). Productivity soared. Whereas, in 1990, the average Australian coal miner produced 5,502 tonnes of coal per year by 2000 he was extracting 13,020 tonnes (Carrington Coal Company, 1997; JCB and Queensland Department of Mines and Natural Resources, 2001).

While Canadian productivity almost doubled during the 1990s it lagged well behind Australian mines, where by 2000 each miner was producing, on average, 4,240 tonnes per year

more. Canada's inferior productivity performance reflected restrictions imposed by geology and the need for mountain top mining, rather than any management failings. In 1997, for example, it cost Elk Valley miners, on average, US\$28.34 to transport a tonne of coal to Japan, shipping through Vancouver's Robert Banks. Producers in northern British Columbia and Alberta faced even higher costs. By contrast, Queensland producers could ship a tonne of coal to Japan for US\$22.22 (IEA, 1998, p. I.166).

Improvements in output per worker in both Australia and western Canada went hand-in-hand with increased volumes. In Australia, exports rose from 107 million tonnes in 1990 to 187 million tonnes in 2000 (Carrington Coal Company, 1998, p. 10; Barlow Jonker, 2001, p. 8). Canadian exports also rose steeply from 31 million tonnes in 1990 to 38.3 million tonnes in 1993, before falling back to 31.7 million tonnes in 2000 (Carrington Coal Company, 1998, p. 10; Tex Report, 2002, p. 307). Such increases in output and exports lowered unit costs of production and stimulated export sales, raising gross profits. However, as one industry observer noted in 1997, increases in both output and exports at a time of falling prices produced "a crisis simply described as profitless growth" (McCloskey, 1997).

If circumstances favored buyers in the world coal trade in the mid-1990s there was nevertheless growing evidence that exports were being concentrated in the hands of a shrinking number of very large producers. The fall in Canadian exports after 1993, in particular, strengthened the hand of Australian producers (Tex Report, 2002). In addition, in both Canada and Australia coal production was concentrated in fewer hands. This was most pronounced in Canada where, by 1998, 80 per cent of British Columbia's production was in the hands of two

firms, Fording Coal and Teck Resources; firms that merged to form the Fording Coal Partnership in 2003 (Ryan, 1998; Fording Coal, 2003).

In Australia the withdrawal of a number of long-term coal producers such as Exxon Mobile, Cyrus Amex, Shell and Peabody produced an effective oligopoly. By 2002 the Tokyo-based Tex Report (2002, p. 217) complained (in less than perfect English) that Australia “has fallen into the monopoly by very limited number of companies both for metallurgical and thermal coals – BHP Billiton, Rio Tinto, Glencore, Anglo-American”. The merger in 2001 of BHP and the South African-based Billiton caused particular concern among Japanese buyers, with the Tex Report (2002, p. 218) noting the new company’s “overwhelming” strength in the coking coal trade. Even the large-scale growth in Indonesian exports, which grew 4.5 million tonnes in 1990 to 57 million tonnes in 2000, provided little solace as these were comprised almost solely of lower-priced thermal coal. This meant, as the Tex Report (2002, p. 3) noted in 2002, that the Pacific consumers of seaborne coking coal “have no alternatives but to depend on ... Australia and Canada”.

### **The end of buyer domination, 2000-2010**

From the early 1960s to the mid-1990s the policies of the JSM were consistently directed towards ensuring not only a reliable coal supply but an oversupply, effectively subsidizing higher cost producers, most of whom were Canadian. By the mid-1990s, however, it was evident that the achievement of lower prices had become the JSM’s main objective. The major casualties of the JSM’s changed approach were Canadian producers, who no longer received a “premium”. By 1999 the average price paid for Canadian export coking was a mere US\$37.58, only half the sum received a decade earlier (PricewaterhouseCoopers, 2001). A particularly devastating blow befell

the Canadian industry when, the JSM declared that any future exports from the Tumbler Ridge and the Alberta foothills would receive only ruling market rates. All the effected mines promptly closed with a loss of 1,500 jobs (Fawcett, 2000).

If the period between the mid-1990s and 2000 was characterized by sharply falling prices, the long era of buyer domination ended abruptly in 2001 when Canadian and Australian producers insisted on a 7.5 per cent increase. The Tex Report, widely seen as the mouthpiece of the JSM, was quick to recognize the significance of the 2001 price increase, noting that the “balance of power between suppliers and consumers [had been] reversed” and that “the hegemony in price negotiations [had passed] into the hands of suppliers such as BHP” (Tex Report, 2002, p. 5). The Tex Report’s Tokyo-based analysts declared that the tipping point in this shift in the balance of power had been brought about primarily by the withdrawal of Canadian supply following the “closure of mines one after another”.

For the JSM and the other East Asian coal companies the emergence of a seller’s market dominated by an Australian oligopoly happened at an unfortunate time. China, a net exporter of coal during the 1990s, became a net importer from 2006-07. While Japan remained the world’s largest importer of both coking and thermal coal, importing 40 per cent of Australia’s coal exports compared to China’s ten per cent, Chinese competition only exacerbated the JSM’s problems. The growing power of the emerging Australian oligopoly occurred despite a belated JSM attempt to revive western Canada’s exports by reinstating the discontinued price “premium”. The reinstated Canadian premium, however, delivered the JSM only a modest return. Once destroyed, mining capacity was not easily recreated. By the new millennium, Teck Resources (which has assumed full control of operations formerly owned by the Fording Partnership) and

the large Queensland-based Australian producers, notably BHP Billiton and Xstrata, effectively dominated the Pacific coking coal trade.

Reflecting the emergence of a seller's market, FOB coking coal prices spiked sharply upwards after 2006 with the average price for Australian product reaching an historic peak of US\$193.79 in 2008. Canadian coal received even higher prices with the average FOB coking coal price reaching a record nominal price of US\$109.29 (IEA, 2010, pp. II. 21-24). Even when expressed in real terms these prices were at, or close to, the highest ever received by Australian or Canadian exporters.

## **Conclusion**

Since the early 1960s the growth of the Pacific coal trade has played a pivotal role in East Asia's rapid industrialization. Yet, strangely, the development of this large-scale commodity trade, and the organizational relationships that underpin it, has attracted scant attention from management historians. This in part, no doubt, reflects the fact that global production and distribution linkages were previously less important than they now are. While the growing trend towards transnational research within management history requires a broadening of horizons the best principles for those seeking to understand firm behavior in this environment are still those articulated by Daniel Wren (1987: 341), who advised that by "probing over long periods of time and finding commonalities among institutions" we can find commonalities "that determine or influence certain behaviors." And it is only such empirically based understanding of management practices that valid theoretical insights can be made. For management historians, the history of the Pacific coal trade therefore is particularly instructive in that it provides us with an opportunity to explore the rise, operation and long-term effects of a buying cartel whose *raison d'être* was the

acquisition of vital resource inputs for its various members. In developing long-term relationships with its international suppliers, the JSM clearly made, as advocates of resource dependency theory would suggest, the procurement of vital resources a major priority. In the pursuit of this objective, however, the JSM used sparingly, or not at all, the tactics that resource dependency theory proponents suggest are the norm in such circumstances. Of the principal “absorption” tactics which resource dependency theory predicts will be used to offset resource dependency – mergers, acquisitions and joint-ventures – only the latter strategy was consistently utilized. Even here, however, it appears to have used this tactic simply as a means of luring new producers into the market. Significantly, the JSM’s shareholding in joint ventures was highest in marginal coal producing regions, invariably located in western Canada, where production would almost certainly have never commenced had it not been for JSM support. Rather than engaging in organizational integration with its suppliers through mergers, acquisitions or shared board arrangements the JSM instead sought to control the seaborne trade through a process that has been described elsewhere as “vertical quasi-integration” (Blois, 1972; Galbraith and Stiles, 1984; Desai and Mukherji, 2001), manipulating supply and pricing arrangements in a way that left producers dependent on it as both a market and a price setter.

In fostering a set of market arrangements that primarily reflected the interests of its members, the JSM buying cartel found itself confronted with a quandary that, sooner or later, faces all purchasing oligopolies: should it use its buying power to constantly drive down prices or should it seek to maintain a diversified supply portfolio, even if this meant paying higher short-term prices? Perhaps inevitably, as time went on it increasingly chose the former, driving prices close to or even below the cost of production. While, as Emilia’s (2003, 2010) research

indicates, such behavior has become increasingly typical in modern buyer-supplier relationships, the effects soon rebounded on the JSM. As prices fell so too did the sources of supply, as only a handful of giant producers operating in the most favorable geological and geographic circumstances proved capable of surviving in the low price environment that became a characteristic feature of the Pacific trade. As a result, by 2001 the JSM found itself confronted with the very circumstances that it had long sought to avoid – a seller’s market dominated by an Australian oligopoly. This outcome, it needs to be emphasized, occurred not because of the JSM’s resource procurement strategies but because of them. Whereas for decades all East Asian consumers of seaborne coal benefited from the JSM’s buying practices, the unintended consequences of the JSM’s actions now see these same consumers paying premium prices for imported coal.

## REFERENCES

- Australian Coal Association (2010), "Australian coal industry statistics", available at: [www.australiancoal.com.au](http://www.australiancoal.com.au) (accessed 15 December 2010).
- Bala Subrahmanya, M. H. (2008), "Industrial subcontracting and structure in Japan: evolution and recent trends", *Journal of Management History*, Vol. 14, No. 1, pp. 23-38.
- Barlow Jonker (2001), *BJ coal 2001*, Barlow Jonker, Hong Kong.
- Blois, K.J. (1972), "Vertical quasi-integration", *Journal of Industrial Economics*, Vol. 20, No. 3, pp. 253-72.
- Boyce, G. (1998), "The Steel Manufacturers' Nickel Syndicate Ltd., 1901-39: the conduct and performance of a cooperative purchasing organization", *Australian Economic History Review*, Vol. 38, No. 2, pp. 155-75.
- British Columbia Department of Forests, Mines and Lands (2010), "British Columbia coal mining statistics, 1970-2010", available at: [www.empr.gov.bc.ca/mining/MineralStatistics](http://www.empr.gov.bc.ca/mining/MineralStatistics) (accessed 10 December 2010).
- Burt, R.S. (1980), "Cooperative corporate actor networks: a reconsideration of interlocking directorates involving American manufacturing", *Administrative Science Quarterly*, Vol. 25, No. 4, pp. 557-82.
- Carrington Coal Company (1998), *Coal 1998*, Carrington Coal Company, Carrington, NSW.
- Casciaro, T. and Piskorski, M. (2005), "Power imbalance, mutual dependence and constraint absorption: a closer look at resource dependency theory", *Administrative Science Quarterly*, Vol. 50, No. 2, pp. 167-99.
- Chandler, A. (1977), *The visible hand: the managerial revolution in American business*, Belknap Press, Cambridge, MA.
- Dames and Moore Consulting (1977), *A report on the current statistics of the Canadian coal industry*, Dames and Moore Consulting, Toronto.
- Davis, J.F. and Cobb, J.A. (2010), "Resource dependency theory: past and future", *Research in the sociology of organizations*, Vol. 28, No.1, pp. 21-42.
- Davis, G.F., Diekmann, K.A. and Tinsley, G.H. (1994), "The decline and fall of the conglomerate firm in the 1980s: the de-institutionalization of an organizational form", *American Sociological Review*, Vol. 59, No. 4, pp. 547-70.
- Desai, A. and Mukherji, A. (2001), "The evolution of vertically integrated organizations: the role of historical context", *Management Decision*, Vol. 39, No. 3, pp. 233-43.
- Emiliani, M. L. (2003), "The inevitability of conflict between buyers and sellers", *Supply Chain Management: An International Journal*, Vol. 8, No. 2, pp. 107-15.

- Emiliani, M. L. (2010), “Historical lessons in purchasing and supplier relationships”, *Journal of Management History*, Vol. 16, No. 1, pp. 116-36.
- Fawcett, D. (2000), “Western Canadian coal: increasing potential”, *World Coal*, Vol. 9, No. 3, pp. 25-9.
- Finkelstein, S. (1997), “Interindustry merger patterns and resource dependence: a replication and extension of Pfeffer”, *Strategic Management Journal*, Vol. 18, No. 10, pp. 787-810.
- Fording Coal (2003), “News release: court approves plan of arrangement”, Fording Coal, Calgary, 20 February.
- Galbraith, C.S. and Stiles, C.H. (1984), “Merger strategies as a response to bilateral market power”, *Academy of Management Journal*, Vol. 27, No. 3, pp. 511-24.
- Galligan, B. (1989), *Utah and Queensland coal*, University of Queensland Press, St. Lucia, QLD.
- Garside, W.R. (2005), “A very British phenomenon? Industrial politics and the decline of the Japanese coal mining industry since the 1950s”, *Australian Economic History Review*, Vol. 45, No. 2, pp. 186-203.
- Hay, K.A., Hill, S.R. and Rahman, S.S. (1982), *Canadian coal for Japan: a study prepared for the Canada-Japan trade council*, Economy International, Ottawa.
- Hedum Menzies and Associates (1969), *The impact of the coal mining operations of Kaiser Resources*, Hedum Menzies and Associates, Vancouver.
- Hillman, A.C. (2005), “Politicians on the board: do connections affect the bottom line?”, *Journal of Management*, Vol. 31, No. 3, pp. 464-81.
- Hillman, A., Shropshire, C. and Cannella, A. (2007), “Organizational predictors of women on corporate boards”, *Academy of Management Journal*, Vol. 50, No. 4, pp. 941-52.
- Hillman, A.J., Withers, M.C. and Collins, B.J. (2009), “Resource dependence theory: a review”, *Journal of Management*, Vol. 35, No. 6, pp. 1404-27.
- Hince, K. (1982), *Conflict and coal: a case study of industrial relations in the open-cut coal mining industry in Central Queensland*, Queensland University Press, St Lucia.
- Hitt, M.A. and Tyler, B.B. (1991), “Strategic decision models: integrating different perspectives”, *Strategic Management Journal*, Vol. 12, No5, pp. 327-51.
- International Energy Agency (IEA) (1995), *Coal information – 1994*, International Energy Agency, Paris.
- International Energy Agency (IEA) (1997), *Coal information – 1996*, International Energy Agency, Paris.
- International Energy Agency (IEA) (1998), *Coal information – 1997*, International Energy Agency, Paris.
- International Energy Agency (IEA) (2010), *Coal information – 2010*, International Energy Agency, Paris.

- Joint Coal Board (1972), *Twenty-fifth Annual Report*, Australian Joint Coal Board, Sydney, NSW.
- Joint Coal Board (1982), *Australian Black Coal Statistics, 1981-82*, Australian Joint Coal Board, Sydney, NSW.
- Joint Coal Board and Queensland Department of Mines and Natural Resources (2001), *Australian Black Coal Statistics, 2000*, Australian Joint Coal Board, Sydney, NSW.
- Koerner, R. (1993), "The behaviour of Pacific metallurgical coal markets: the impact of Japan's acquisition strategy on market price" *Resources Policy*, Vol. 19, No. 1, pp. 75-81.
- Leer, S.F. (2000), "An uncertain future", *World Coal*, Vol. 9, No. 4, pp. 15-17.
- Marshall, R.T. (1991), *Coal in British Columbia: an assessment of future projects*, BC: British Columbia Ministry of Energy, Mines and Petroleum Resources, Victoria.
- McCloskey, G. (1997), *International coal report: coal year 1997*, Financial Times, Petersfield.
- Newell, S. E. (1997), "The transformation of US steel 1945-1985: perspectives from the corporation and the union", *Journal of Management History*, Vol. 3, No. 2, pp. 166-92.
- Novicevic, M. M., Humphreys, J. and Zhao, D. (2009), 'An ideological shift in Chandler's research assumptions: from American exceptionalism to transnational history', *Journal of Management History*, Vol. 15, No. 3, pp. 299-312.
- Nuf, J.U. (1966), *The rise of the British coal industry*, Vol. 2, Frank Cass and Co, London.
- Patching, T.H., Harrison, J.M., Mackay, I. and Beck, R.A.D. (1980), *Western Canada's coal: the sleepy giant*, Canada West Foundation, Calgary.
- Pfeffer, J. (1972), "Merger as a response to organizational interdependence", *Administrative Science Quarterly*, Vol. 17, No. 3, pp. 382-94.
- Pfeffer, J. (1976), "Beyond management and the worker: the institutional function of management", *Academy of Management Review*, Vol. 1, No. 2, pp. 36-46.
- Pfeffer, J. and Novak, P. (1976), "Joint ventures and interorganizational interdependence", *Administrative Science Quarterly*, Vol. 21, No. 3, pp. 398-418.
- Pfeffer, J. and Salancik, G.R. (1978) *The external control of organizations: a resource dependency perspective*, Harper Row, New York.
- Pfeffer, J. (2003), "Introduction to the classic edition", in Pfeffer, J. and Salancik, G.R. *The external control of organizations: a resource dependency perspective – the classic edition*, (second edition.), Stanford University Press, Stanford, pp. xi-xxix.
- Pollard, S. (1965), *The genesis of modern management: a study of the industrial revolution in Great Britain*, Edward Arnold, London.
- PricewaterhouseCoopers (2001), *The mining industry in British Columbia – 2000*, PricewaterhouseCoopers, Vancouver.
- Queensland Coal Board (1970), *Nineteenth report of the Queensland coal board, 1970*, Queensland Government Printer, Brisbane.

- Queensland Coal Board (1986), *Thirty-fifth report of the Queensland coal board, 1985-86*, Queensland Government Printer, Brisbane.
- Ryan, B. (1998) *Summary of coal mining, exploration and related environmental impacts in British Columbia*, Ministry of Mines and Energy, Victoria, BC.
- Smothers, J., Hayek, M., Brynum, L., Novicevic, M. N., Buckley, M. and Carraher, S. (2010), "Alfred D. Chandler, Jr: historical impact and historical scope of his works", *Journal of Management History*, Vol. 16, No. 4, pp. 521-526.
- Tex Report (2002), *2002 coal manual*, Tex Report Pty Ltd., Tokyo.
- Trengrove, A. (1979), *Discovery: stories of modern mineral exploration*, Stockwell Press, Newcastle, NSW.
- Truman, J. (2000), "Coal in the eastern US", *World coal*, Vol. 9, No. 4, pp. 18-24.
- Ulrich, D. and Barney, J.B. (1984), "Perspectives in organizations: Resource dependency, efficiency and population", *Academy of Management Review*, Vol. 9, No. 3. pp. 471-81.
- Walter, G.A. and Barney, J.B. (1990), "Management objectives in mergers and acquisitions", *Strategic Management Journal*, Vol. 12, No. 1, pp. 327-51.
- Wren, D. A. (1987), "Management history: issues and ideas of teaching and research", *Journal of Management*, Vol. 13, No. 2, pp. 339-50.