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『日本鉄鋼業試論(1850-1990)』

—その連続性と非連続性—

Seiichiro Yonekura, *The Japanese Iron and Steel Industry, 1850-1990*, St. Martin's Press Inc., 1994 xviii + pp. 327.

In the late nineteenth century, world steel—in terms of tonnage production—was dominated by three nations. First was Britain, which from the 1740s to the late nineteenth century pioneered most of the major steelmaking technologies, allowing it to dominate world production until the 1890s. Thereafter Germany and America made the running, with the latter ruthlessly exploiting European innovations and its huge internal market to assume world leadership. Japan's steel industry was then almost non-existent and even after the First World War its tonnage production was negligible compared with its rivals: it produced less than a million tons in 1920, whereas the USA produced well over 40 million tons and the UK and Germany produced about 9 million tons each.

The position had not changed markedly by the 1940s, except that America had assumed an even more dominant position. While American production soared to over 80 million tons by the late 1940s, Japan's fell to as low as 1/2 million tons in 1946. Since then, however, Japan's production record has been spectacular. American output of steel rose to a peak of over 130 million tons by the early 1970s, but despite this performance, almost incredibly, Japan had closed the gap with its competitor in only twenty years. In 1973 its production reached a record high of 120 million tons. Moreover, Japan's tonnage performance—which was to make it the leading non-communist producer by the 1980s—was accompanied by an equally strong export record. Its share of world exports of steel rose to nearly 29 per cent in 1973, making it the world's largest steel exporting country. Steel personifies the Japanese economic 'miracle' and this book sets out to explain how that country, despite its lack of natural resources, succeeded so well.

Seiichiro Yonekura tackles the subject in a straightforward chronological fashion, utilising a wide range of mainly published sources. The approach is heavily influenced by the work of Alfred Chandler Jr., so that the focus is very much on factors such as productivity, economies of scale and technological innovations. However, there is also some discussion of the influence of key entrepreneurs, particularly in the industry's early growth phase.

Japanese iron and steel technology was launched in the 1850s by a medical student, Oshima Takato, who established the first modern blast furnace in Japan. The first state-owned venture, the Kamaishi Works, opened in 1880, and though this was a financial failure and had to be sold it provided resources for future development by the private sector. In 1901, the strategic importance of steel meant the launch of another government factory—the Yawata Works (the forerunner of Nippon Steel)—which proved more enduring. It succeeded in providing the country with a supply of basic steel, but also indirectly nurtured the development of the private sector, which produced more

specialised products. Overall, however, the Japanese industry was far from integrated with a great imbalance between iron and steel production—a factor which is highlighted by the author as a key obstacle to achieving economies of scale. An attempt was made to remedy this by a rationalisation programme, which saw the formation of the Japan Steel Corporation in 1934—a semi-public corporation (half owned by the government), which was nevertheless based on the private managerial ethos.

After 1936, wars with China and the United States followed, leading to Japan's defeat by the Allied Powers, and the postwar feeling that Japan did not need a steel industry anyway. This proved to be a prelude to a dynamic period of investment-driven expansion, initiated in 1951 by the state-of-the-art Kawasaki Steel Works, the creation of Nishiyama Yataro. Using the latter's competitive model, which was fuelled by heavy (particularly foreign) borrowing, six large integrated firms emerged to compete for market share. The Japanese steel industry was now ready to take off in the late 1950s and 1960s. The climate of fierce competition and expansion meant that Japan was quick to embrace the latest technologies, especially the basic oxygen furnace (BOF) and continuous casting (CC), which were themselves transforming the manufacture of steel. The Ministry of International Trade & Industry (MITI) played a supporting role in this, but its interventions—contrary to the traditional interpretation—were only indirect.

Inevitably, Japan has been unable to beat the logic of the product cycle and by the 1980s even Japan was finding it difficult to make a profit on steelmaking, because of world over-capacity. Yet such has been the momentum generated by its largest steel firms, that some have been able to switch their resources into information technologies. Others have globalised their operations and have established subsidiaries in Brazil and South Korea and begun joint ventures with American steel firms. The long-term success of these strategies remains to be seen.

Observers of the Japanese steel industry's

success since 1945 have invariably focussed on the huge (albeit unsought) advantage gained by its defeat in the war, which, as in Germany, swept away its old technologies and brought in foreign capital. Although the author pays due attention to these 'discontinuities', a major theme of this book is the *continuity* between various periods of Japanese steel history. He argues that the nineteenth-century experience, though it was largely a commercial failure, fostered private businesses and the foundation of the *zaibatsu*, the most influential economic institution in prewar Japan. Similarly, the war experience taught the government and private firms much about how personal profit could be reconciled with national goals. Although defeat obliterated much of the plant of Japan's steel industry, it had not prevented steelmakers such as Nishiyama from continuing to accumulate experience and ideas, which could be fully utilised in the 1950s and beyond. The aggressive adoption of BOF and CC technologies is also described as being based on prewar experience, as is MITI's indirect and supportive stance.

Seiichiro Yonekura's adoption of Chandler's framework means that his study is

heavily supply-side oriented: in other words, the emphasis is on the steel companies, their managerial strategies and their technologies. The changing nature of demand is only lightly explored. Like Chandler, the author pays relatively little attention to the importance of cultural factors, though there is some discussion towards the end of the book of the quality control circle movement in the steel industry in the 1960s. As regards his central thesis, that the roots of Japan's success lay as much in the past as the present, the author argues his case well: though some may still feel that it was the unique mix of postwar circumstances, especially the *tabula rasa* created by the war and the influx of overseas aid, that provides most of the answer for the Japanese miracle in steel.

On the whole, though, the author's big business framework works well for Japanese steel. The book is logical, coherent, easy to read and filled with useful statistics and references. It will be particularly welcome to academics and students in the West, where most of the literature on the Japanese steel industry is relatively inaccessible.

[Geoffrey Tweedale]

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