

APPENDIX VII

STEEL IMPORTS AND TECHNOLOGICAL INNOVATION

Historically, according to AISI, American steel was able to compete in world markets because of its technological superiority. In the face of increased competition, says L. B. Worthington, "we've been doing everything in the book to make this industry as efficient and as competitive as it is possible for any industry to be. To enhance our position of technological leadership . . . we are now spending considerably in excess of 100 million dollars a year on research. . . . [D]uring the past ten years American steel companies have spent more than 13 billion dollars on new, more efficient production facilities—designed not only to reduce costs, but to establish new high standards of quality for our competition to shoot at." Presumably, all this is not enough. The industry wants more time to establish its technological superiority, and wants governmental protection through import quotas in the meantime.

Unfortunately, the facts do not support Mr. Worthington's claims:

(1) A 1966 report of the National Science Foundation shows that the steel industry ranks shockingly low in its R & D expenditures. In 1964, it spent only 60 cents of every hundred dollars in sales revenue on R & D, compared to a \$1.90 average for all manufacturing industry. Moreover, all the industries producing steel substitutes—aluminum, cement, plastics, and glass—invested more in R & D than did the steel industry, sometimes five or six times as much.

(2) The major steel inventions in recent years—including the basic oxygen furnace, continuous casting, and vacuum degassing—came from abroad. They were not made by the American steel giants.

(3) In innovation, as in invention, the American steel giants seem to lag, not lead. The oxygen furnace, for example, the only major technological breakthrough in basic steel making since the turn of the century, was invented and innovated by the miniscule Austrian steel industry in 1950. It was first installed in the United States in 1954 by a small company (McLouth), and not adopted by the steel giants until more than a decade later: U.S. Steel in December 1963, Bethlehem in 1964, and Republic in 1965. Despite the fact that this new process entailed operating cost savings of roughly \$5.00 per ton, as well as capital cost savings of \$20-25 per ton of installed capacity, the U.S. steel industry during the 1950's "bought 40 million tons of the wrong kind of capacity—the open hearth furnace" (Business Week, November 16, 1963). As *Fortune* recently observed, much of this capacity "was obsolete when it was built" and the industry, by installing it, "prepared itself for dying." (October 1966 pp. 130, 135). Or, as *Forbes* put it more mildly, "In the Fifties, the steel industry poured hundreds of millions of dollars into equipment that was already obsolete technologically—open hearth furnaces." (March 1, 1967, p. 23.) The technological blunder may have cost close to \$1 billion in "white elephant" facilities. (See "Big Steel, Invention, and Innovation," *Quarterly Journal of Economics*, May 1966.)

(4) Even defenders of the American steel giants concede that it was the cold winds of competition rather than the sheltered atmosphere of protectionism which ultimately forced the domestic majors (belatedly) to follow the path of technological progress. Thus, Professor Alan McAdams admits that by "1962 it appears that the costs to United States producers for *not* innovating were significantly raised by actual and threatened competition from both domestic and foreign oxygen steelmakers." (*Quarterly Journal of Economics*, August 1967) Competition, not protection, broke down the industry's habitual lethargy and resistance to change.

(5) Technological progress is less costly than AISI would have us suppose. Small American steel fabricators, utilizing the latest technology, and demanding neither special protection nor special favors from the federal government, have begun to produce their own basic steel—at costs far below the prices charged by the domestic steel giants. According to the *Wall Street Journal* (October 5, 1967), "Roblin Steel Corp., North Tonawanda, N.Y., has more than tripled its earnings since 1964, when it installed an electric furnace and a continuous casting machine and quit buying semifinished steel from major producers. Florida Steel Corp., Tampa, started making its own steel in 1958; since then, it has increased annual net income nearly 200% while achieving steel production of more than 300,000 tons a year." Such plants "turn out high-quality steel for less than \$65 a ton, at least \$20 a ton cheaper than current prices for bars of semifinished steel called billets." (Ibid.)