
Smith arrived at Alcoa’s crisis-bound Pittsburgh headquarters in 1983 to uncover the firm’s “corporate culture.” Smith parlayed this commission into a full-scale corporate history; two colleagues are researching the firm’s research and development. Smith’s study charts Alcoa’s business strategy, corporate structure, and market relationships; it is distinctive for integrating labor-management issues into a Chandlerian framework (though the IWW was not the International [sic] but the Industrial Workers of the World). The volume, based on 61 interviews, annual reports and skimpy corporate archives, fails to take the reader “inside” the corporation. Actions, not aspirations and negotiations, are the focus. In the end, Smith achieves not the executive manager’s perspective he aimed for but the stockmarket analyst’s.

Alcoa was shaped during its half-century monopoly and transformed by increasing competition, first from new domestic firms then from abroad. Charles Hall’s key process patents, active from 1888 to 1909, were the firm’s technical and legal foundation. Smith details the Hall-Héroult process that permitted producers to transform aluminum from a luxury metal worth more than gold to a commodity priced less than copper. Hall’s electrolytic process of reducing aluminum ore (bauxite) first to aluminum oxide (alumina) and then to aluminum metal has remained unchanged for a century. Scale has not. Smith maintains that Alcoa’s vast expansion, funded by vast infusions of Mellon money, yielded “economies of scale” that secured the firm’s dominance; through 1945 Alcoa held 90 percent of the North American market. Smith’s evidence, however, rests uneasily with his argument. First, while Alcoa’s patents precluded domestic competition, stiff import tariffs excluded foreign competition. Moreover, Alcoa erected formidable barriers to entry through controlling sources of aluminum ore and electrical power—the two critical raw materials—in Canada, the Caribbean, and especially Dutch Surinam. As Naomi Lamoreaux has shown for steel, such vertical integration can be independent from economies of scale or speed. Finally, even after a 1912 antitrust consent agreement barred Alcoa itself from the international cartels which “stabilized” world prices and market shares, its closely-held Canadian subsidiary participated fully in the cartels and brought Alcoa the benefits of such stability. Alcoa’s failure to replicate the German invention of Duralumin, an aluminum alloy as strong as mild steel, or to produce aluminum for airplanes during World War I, propelled the firm into research and development, which secured Alcoa even greater dominance in interwar markets for aluminum cooking utensils, wire, tubing, and castings.

Around 1945 pivots the complex story of how Alcoa lost its monopoly. Sensibly, Alcoa built and managed the $672 million wartime effort that doubled America’s aluminum capacity. Simultaneously the Department of Justice won its eight-year antitrust case, a landmark in framing antitrust policy, against Alcoa. The firm was helpless against the late New Deal’s energetic trust-busting; nor was it exculpated by its long-standing ties with Hoover’s conservative Treasury secretary Andrew W. Mellon. Here Smith follows not the political analysis of Ellis Hawley but the economic criteria of Robert Bork, finding, unsurprisingly, antitrust is undesirable. The decision against Alcoa fit perfectly with the War Surplus Property Board’s disposal of the 50 federally-owned aluminum plants: all but
one were sold to Alcoa’s incipient competitors. By 1950 aluminum had become an
oligopoly, with Alcoa (51% market share), Reynolds (31%), and Kaiser (18%).

Smith allows that oligopoly enlivened the industry. In the kitchen, not Alcoa Wrap but
Reynolds Wrap set the pace. Elsewhere, the big three pioneered aluminum roofs, house
sidings, alloys, and above all beverage containers. The aluminum industry matured:
research efforts were coupled to production rather than to fundamental innovation; Alcoa
went multinational; management was repeatedly if ineffectually centralized (and
decentralized); and, finally, an influx of foreign-produced aluminum tested American
producers with true competition. Crisis, retrenchment, and “corporate culture” followed.
Ultimately, Smith tells a story of the incremental management of conservative technology.
The breakpoint was 1985 when Alcoa aborted a decade-long effort to develop a wholly
new smelting process. Not faulty technology or unpromising economics were to blame; as
Alcoa’s chief executive officer explained, “frankly ... early in the twenty-first century, I
doubt that aluminum is going to be terribly important to the structure of the company.” (p.
375)

And pop-top beer cans? Not only were aluminum cans quick to chill and easy to recycle, a
delight in the “green” 1960s. Brewers and retailers also found that aluminum, even used
only as a top, altered the galvanic reaction that occurred between beer and all-steel cans,
and so doubled shelf-life.

Thomas J. Misa
Illinois Institute of Technology