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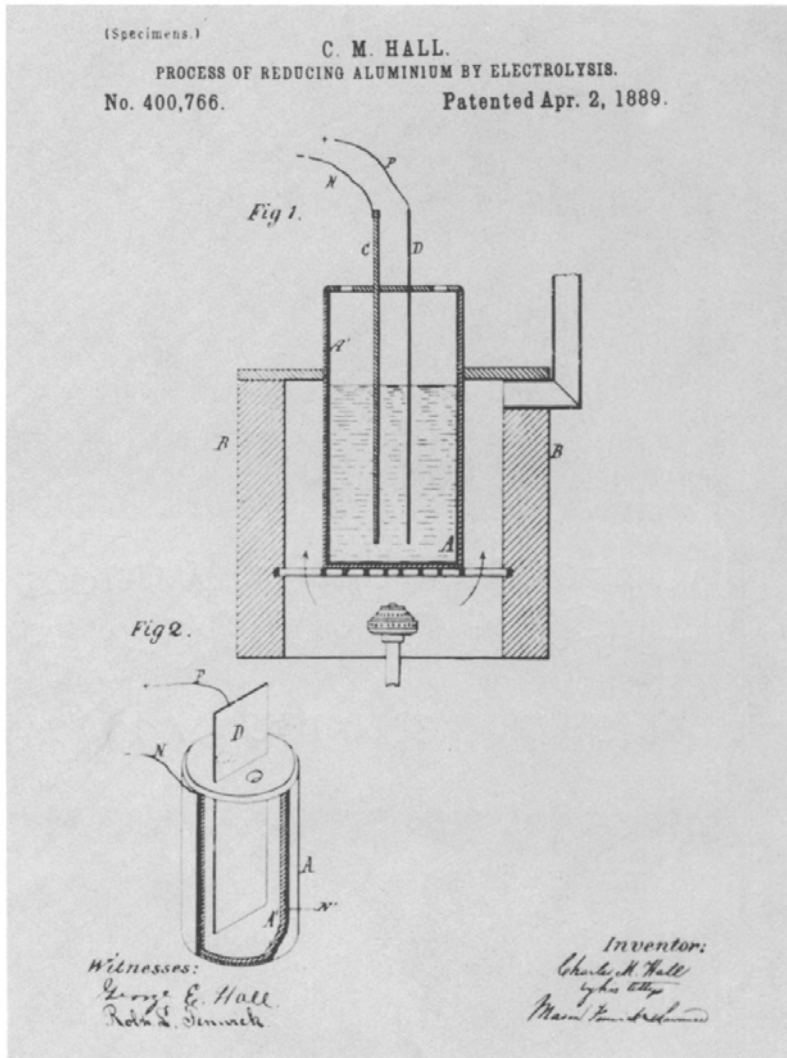
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**Patent 400,766:** Sectional drawing of Charles Martin Hall's idea for an electrolytic reduction process for making aluminum. Figure 1 illustrates an iron or steel melting pot (A) with a protective carbon lining (A') placed in a furnace (B). In the crucible, alumina (oxide of aluminum) is added to a fused bath of the fluoride of aluminum, the fluoride of sodium potassium, and cryolite. An electric current is passed through the solution by means of electrodes (C and D), which are connected to an electric power source by means of wires (N and P). By action of the electric current, oxygen is released at the positive electrode and aluminum is reduced at the negative electrode. Figure 2 represents a modified form of the apparatus in which the carbon lining (A') is employed as the negative electrode.

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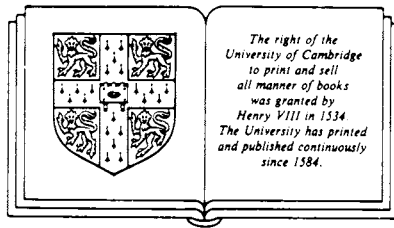
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# From monopoly to competition

The Transformations of Alcoa,  
1888–1986

George David Smith



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*For Betty*

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## Editor's preface

Throughout the world today, government officials, educators, administrators, and other informed citizens are concerned about the sources of efficiency and innovation in the private and public sectors. So concerned, in fact, that equity has for a time been forced into the backseat of social discourse in many countries. Whether a nation is capitalist, socialist, or communist, the same questions have pushed forward: How do you ensure that the means of production and distribution will be flexible enough to respond to a rapidly changing environment and effective enough to provide the goods and services society needs at reasonable prices? As a truly global economy emerges, the necessity of finding answers to these questions has become all the more pressing.

In the United States, much of the discussion about efficiency and innovation has been focused on the nation's largest firms. On those that have encountered problems meeting competition from abroad. On those that have been successful. Never has there been more interest in the business system and in the particular manner in which America's large corporations have evolved in the past century. These business giants provide most of our goods and services. To a significant degree, their fate is the fate of the American economy today and in future years.

It is thus especially important that George David Smith has written and the Cambridge University Press published a history of Al-

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*Editor's Preface*

coa, the Aluminum Company of America.\* *From Monopoly to Competition* focuses on questions of efficiency and innovation over the long term, in this case from 1888 to 1986. As Smith makes clear, the aluminum business was small potatoes when it began. Charles Martin Hall successfully patented the basic invention, an electrical process for smelting the metal, in 1886, but it was at that time far from self-evident that the new technology would become a business success. There were problems involving the technology that had to be solved. Large amounts of capital had to be raised and a workforce trained to handle the production process. But the most pressing entrepreneurial dilemma was the need to develop markets for what was then considered to be a novelty product.

One of the most intriguing aspects of this volume is its description and analysis of the manner in which Alcoa's leaders solved that basic problem of innovation. One part of their answer involved technological progress and economies of scale that sharply reduced costs and made aluminum competitive with a broad range of other materials. Equally important in the early years were the firm's moves via vertical integration into finished products. Market development – like the other modes of innovation – was an uneven process, but over the long run Alcoa succeeded and by 1916 had sales of almost \$145 million. Backward integration into raw materials and electrical power also eliminated transactions costs and improved efficiency. As a result, economies of scale and scope protected the firm's domestic markets long after the original patents on aluminum smelting had expired. Alcoa was an efficient and innovative monopoly – and thus an anomaly to many economic theorists – and it is this dimension of Smith's history that speaks with particular force to our present-day concerns.

Over the past century, Alcoa's style of innovation has changed. In the early years, Alcoa's technical progress was largely a result of hands-on management and shop-floor tinkering; the most important early advances in production and in new products stemmed from the mundane tasks of development rather than scientific research. After World War I, however, Alcoa created a formal R&D program, with substantial emphasis on fundamental research. By 1928, the annual R&D budget was \$700,000. By that time, too, Alcoa had adopted the functionally departmentalized structure common to most manufacturing companies in the United States. Top man-

\*The firm adopted this name in 1907 and Alcoa was coined three years later, but I have throughout used these names for the business.

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agement and ownership were still synonomous, but the foundations for a modern organization with professional management had been laid.

Smith gives his readers a good sense of the team of business leaders that guided Alcoa to the front ranks of American industry. Alfred E. Hunt brought to the enterprise technical and engineering training; the Mellons – Andrew W. and Richard Beatty – provided the risk capital the young firm needed; Arthur Vining Davis, who would remain in the business for an unbelievable sixty-five years, contributed aggressive business leadership and a full knowledge of the new product's unfolding markets. Davis was the personal symbol of what became in his lifetime one of the nation's largest and most successful industrial firms. Davis and the rest of the managerial team ran Alcoa in an informal, highly personalized style. The company was in their heyday paternalistic toward its labor force. Authority was centralized in a few hands. Decision-making was still a relatively simple process in a firm that by 1928 had over half of the world's capacity to produce primary aluminum.

Even though innovative and efficient, Alcoa's powerful monopoly status was bound to come in conflict with the U.S. antitrust laws. Smith recounts in an evenhanded style the business' ongoing struggles with the Department of Justice. Particularly interesting and important was the landmark 1945 court decision that undid the monopoly, creating an oligolistic market dominated for a time by three large producers: Alcoa, Reynolds, and Kaiser.

The new structure did not result in the price competition that economists and the Department of Justice might have anticipated. Prices continued to be administered and remained relatively stable, as they had long been under the monopoly. If anything, prices may have been kept high by Alcoa's efforts to protect its competitors and thereby avoid further confrontations on the antitrust front. Competition in this new setting, nevertheless, put pressure on Alcoa, and the firm did not always deal successfully with this challenge. As Smith notes, Reynolds was more innovative in distribution, using brand names and advertising more effectively than Alcoa. The edge that kept Alcoa successful during this period of growing demand was its R&D organization and the new products and processes that the firm was able to develop. Particularly important was rigid container sheet, which enabled the aluminum producers to take over the market for cans, including the ubiquitous six-pak.

The shifting patterns of Alcoa's R&D program provide an inter-

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esting subplot to this company's history. In the early years, Smith explains, research was always closely tied to production and marketing. Most of the resulting innovations reflected this influence; they included new fabricating technologies, new ways of dealing with corrosion, new forms of process metallurgy, and new alloys. In the 1930s, when the company organized the Aluminum Research Laboratory, the tie between R&D and operations was loosened, fostering more fundamental scientific research. But after World War II, Alcoa again tightened the bonds between research and the firm's short-term operational needs. A series of successful innovations followed that kept Alcoa at the forefront of primary metal production; but as Smith explains, the price was a company that was eventually not very well-positioned when those markets began to change in a dramatic fashion.

In the years following World War II, Alcoa also returned to the international operations it had abandoned in the late 1920s in order to concentrate on the domestic market. The corporation invested heavily overseas, especially in Australia and Brazil. Alcoa also diversified during these years. It backed into the real estate business as a result of its role in the construction of large, modern buildings, and by the early 1970s, real estate was providing over half of the company's net income. Multinational and diversified operations strained the firm's centralized structure, and belatedly, management adopted the multidivisional style (the M-form) of organization that most large U.S. corporations had been using since the 1940s.

Smith carefully analyzes the manner in which foreign competitors have in recent years cut into the domestic market, forcing Alcoa and the other U.S. companies to revamp their organizations and to reconsider their business strategies. Competition has also pressed Alcoa to look closely for ways to improve its operations by changing its labor-management relations. Unlike most business histories, *From Monopoly to Competition* presents a full description of the company's evolving labor policies. Smith follows this trail from the early days of nonunion operations, through the 1920s' efforts to forestall unionization by means of welfare capitalism, to the 1930s' struggles that led to a curious mixture of industrial and craft unionism under government auspices. This New Deal settlement – framed in terms of equity more than economic efficiency – lasted in aluminum and other industries through the Second World War, the prosperous 1950s, and the beginnings of the Great Inflation in the sixties. The unions gradually strengthened their positions. In the

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“golden age” of aluminum during the postwar years, Alcoa’s management yielded to the union demands for higher wages and greater fringe benefits in order to prevent strikes. Alcoa wanted to maintain its position of world leadership in the production of basic metal by buying industrial peace. When demand leveled off and competition became more intense, however, Alcoa found itself locked into expensive agreements and work rules it could no longer afford.

It was during this important transition – during the 1970s and 1980s – that equity concerns began to yield to the need for efficiency and innovation. Smith provides an especially interesting description and evaluation of Alcoa’s experience with this wrenching transition. Workers were faced with a choice between yielding concessions on wages and work rules or watching the company close their plants. Alcoa had no choice but to meet the prices set in this intensely competitive market; the company could no longer afford the wages and restrictive work rules it had lived with so comfortably in the golden years. When Alcoa could not get the concessions it needed in Pennsylvania, Texas, and Alabama, it closed the plants involved. And as competition became more global, white-collar employees began to suffer as well. Alcoa, like so many other American companies, began to slice the size of its staffs in order to cut costs.

The firm meanwhile attempted to get its workforce directly and progressively engaged in the process of revamping the business. Like many other American corporations, Alcoa wanted its workers to participate along with management in the effort to improve operations and meet foreign competition. By cutting the number of grievances filed and by reducing absenteeism, Alcoa again improved the efficiency of its operations. But this was a difficult and complex transition to manage. As Smith leaves the company in the eighties, it is unclear whether either labor or management will be able to shuck off the strongly entrenched tradition of adversarial relations. But it is evident that the competitive pressure that made a new style of labor–management relations necessary is not going to subside in the foreseeable future.

By the eighties, Alcoa was becoming a new style of firm. The leaders who had built the business were gone and their families no longer in control of the company. A new breed of professional managers was steering Alcoa toward further diversification, toward involvement in plastics and chemicals, toward production of various forms of packaging in addition to those made of aluminum. If that future seems problematical in the late 1980s, it is certainly far more

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predictable than was the original venture of the 1880s. The accomplishments and the problems of those early years and the changes that Alcoa has experienced in the past century deserved to be recounted as they have been by George David Smith in this perceptive and carefully analyzed volume. This is a history that should be of interest to everyone who wants to understand the U.S. business system and its role in American society.

Louis Galambos  
Department of History  
The Johns Hopkins University

## Author's preface

There was an air of crisis at Alcoa in the spring of 1983, when I and two of my colleagues at The Winthrop Group, Inc., arrived in Pittsburgh to begin a proprietary study of the company's "corporate culture." Alcoa had reported its first annual loss in net income since the Great Depression, and was laying off large numbers of managers, engineers, and workers. High energy costs, excess capacity, labor problems, low earnings, and gloomy demand forecasts were taking their toll on corporate morale. W. H. Krome George had just retired as chairman of the board, but not before he had made public his conviction that the "golden years" of Alcoa's basic product, primary aluminum, were past. George warned that Alcoa, which for so long had thrived as the leading producer of aluminum, would have to adapt to "a world quite different from the one we have known." "Or languish and die" was the unspoken message that almost everyone we talked to thought they had heard.

The company was in the throes of a strategic and structural change that insiders experienced as a revolutionary upheaval. George's successor, Charles W. Parry, was moving swiftly to bring his giant, multinational corporation into alignment with the economic challenges of the 1980s. The major threats to the business were posed by exogenous technological developments and foreign competition. In this regard, Alcoa was experiencing many of the same problems that confronted many other American corporations in basic, capital-intensive industries.



After five months of interviewing and reading in the history of the business, Davis Dyer, Margaret Graham, and I produced a report, some findings of which have since been published in an article by Alcoa manager John E. Wright and me in *Across the Board* (September, 1986). Alcoa, we found, was a proud company of strong and self-conscious traditions; most of the managers and workers we had spoken with had well-articulated views of the company's history. We came to understand that not only tradition in the broad sense but also some very specific events in Alcoa's past – some verifiable, some mythical – were shaping its views of the future and would continue to condition the ways in which it would conceive and implement new policies and strategies.

The dual notion of history as both a source of strength and a constraint on the corporation's ability to adapt to changing circumstances became popular very quickly at Alcoa. The company was looking forward to an industry centennial in 1986 and a corporate centennial in 1988, both of which the management wanted to commemorate in a creative fashion. Thus, I was commissioned to write a formal history of the company – in the style of an analytical narrative – that would serve as a bedrock of knowledge for managers and employees on Alcoa's evolution. That the book might be useful to significant audiences outside the company, such as industry analysts, professional students of business, government officials, customers, and even competitors was also desirable, but the main purpose was to educate the corporations.

The idea, by early 1984, was to focus a history of the company mainly on the "postmonopoly" period, that is, on the years from the end of World War II to the present. As I began the research, however, I soon became convinced that underlying the persistent concerns of the corporation since the war was a particular set of themes that had their roots in an earlier period. In the first place, there were so many institutional values and belief systems that seemed to be a legacy of the company's prewar experience as a closely held monopoly run by owner-managers whose tenure as executive managers of the company spanned not just many years but many decades. Alcoa also possessed unique attributes (when compared with the other producers in aluminum as well as most capital-intensive industries) that could only be explained by a longer-term perspective. The basic outlines of most areas of Alcoa's modern business were shaped to some degree under monopoly conditions and were only gradually transformed by increasing competition.

Moreover, the technological and strategic visions of the founders,

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Charles Martin Hall and Alfred E. Hunt, had achieved mythical stature and were enduring, if not well-understood, parts of the corporate mentality. And such men as Arthur Vining Davis, Roy Hunt, and I. W. Wilson, whose leadership of Alcoa extended from its early beginnings to well after World War II, had left deep imprints on Alcoa's management structure and style. The idiosyncratic influence of their personalities is felt at Alcoa even to this day.

I had also become fascinated by some surface anomalies in Alcoa's culture. For example, in 1983, Alcoa was a huge and complex bureaucracy, and yet its managers operated in ways that were highly collegial, informal, and reminiscent of a much smaller, familial firm. Alcoa was, until recently, highly centralized in its decision-making structure, and yet it also had strong traditions of managerial autonomy. Alcoa was also full of tradition that placed great value on the mastery of basic science, and yet its research organization had long been dominated by immediate and practical engineering priorities. I wanted very much to understand these seeming contradictions. But how was I to penetrate the surface in order to explain these and other paradoxes without tracing the origins of each problem back to its beginnings?

These intriguing questions edged me toward the conclusion that it would be useful to write a more elaborate history of this interesting institution. Alcoa seemed so different in several key respects from the large corporations I had studied. I wanted to develop a living tapestry of Alcoa's entire evolution, weaving together portraits of important personalities, depictions of events both large and small, and recurrent patterns of important themes. My wish was well-received by Alcoa's managers, who were good enough to let me have my way.

A comprehensive plan for the book then unfolded in consultation with managers assigned as liaisons to me and with an "advisory committee" that was established to review drafts of the manuscript, with the proviso that I alone retained the right of final interpretation. (The makeup and role of that committee is described in the acknowledgments.) Because my primary audience was internal and consisted mainly of people who were sophisticated readers but were largely unexposed to business history, it was important to provide some background on the larger historical contexts in which Alcoa emerged as a complex corporation. This explains Chapter 2, which is devoted to a synthesis of recent literature in business history as it is relevant to Alcoa. The company must, after all, not simply be understood in its uniqueness; Alcoa was part of and was shaped by

a more general development encompassing the rise of big business in the world's foremost capitalist economy. In subsequent chapters, I have provided historical and comparative contexts where I thought they would better anchor Alcoa in time and place.

In writing history, the historian ought to have an overriding perspective, a strategic orientation to the narrative. The orientation I have chosen is that of the executive manager. But while most of the book looks at the corporation from the top down, I have occasionally sent down shafts into the structure of the corporation to get a deeper and more varied perspective on particular aspects of Alcoa's experience. Several long-term themes run through the book relating to corporate strategy and structure, technological innovation, labor relations, international development, and regulation. The emphasis given to each of these themes ebbs and flows at different points in the narrative, depending upon the historical circumstances.

Without revealing too much, a brief preview of the chapters is in order. The first deals mainly with the founding stories and with the problem of moving an invention into commercial production through the establishment of Alcoa's corporate predecessor, The Pittsburgh Reduction Company. Chapter 2, as mentioned, provides the contexts for the formative period of the modern complex corporation. Then in Chapter 3, the technological and market characteristics of aluminum and the corporate strategies that led to Alcoa's becoming a powerful monopoly are treated in detail, along with discussions of the company's early antitrust problems and managerial and technical practices. Chapter 4 covers the turbulent period between the wars, which entailed years of rapid growth followed by years of economic depression. Here I focus mainly on the problems Alcoa's managers confronted as they tried to implement more systematic approaches to administration and innovation, as they expanded and then withdrew from international markets, and as they were confronted by the rise of organized labor. The ways in which Alcoa dealt with all these challenges had important long-term implications.

In World War II, Alcoa lost its monopoly, even as aluminum reached its apogee as a "strategic metal." Chapter 5 deals with Alcoa's role in the war and its inability to meet the sharply increased demand for aluminum – a problem which resulted in the massive infusion of government funds for the construction of new plants. I also discuss the consolidation of power by labor unions in the company's plants and revisit one of the great legal battles in the history of business, *U.S. v. Alcoa*, which culminated in a landmark antitrust ruling that held Alcoa to be an illegal monopoly because of its sheer market power.

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Following the sale of Government aluminum plants to Kaiser and Reynolds, I analyze in Chapter 6 the details of Alcoa's responses to a complex set of strategic, marketing, administrative, and technological problems posed by oligopolistic competition under continuing Government pressure. Chapter 7 is organized around the contributions of three important executives, Frank Magee, Fritz Close, and John Harper, who did much to shape the modern Alcoa. In the period from 1958 to 1970, the company moved back into international markets and developed new strategies for entering into higher-volume and higher-margin markets in semifinished products. Meanwhile, tensions between the centrifugal and centripetal forces in Alcoa's managerial structure were exposed during a series of administrative reforms. In this period, too, we see the maturing of Alcoa as a more socially sensitive institution and the erosion of the North American oligopoly. A truly international industry began to emerge.

The eighth and last chapter brings us virtually to the present day. In covering the years from 1971 to 1986, my main concern is to account for the radical strategic and structural reforms that have only recently taken shape, reforms that seemingly defy many of Alcoa's most durable assumptions about its technology, markets, and management. Some themes in this chapter will seem familiar to anyone who follows the contemporary business press: intensifying competition, especially from abroad; the rise of a new breed of top managers; a loosening of ties between ownership and management; the breakdown of long-standing patterns of labor-management relations; the disintegration of technical and economic functions; the downsizing of corporate staffs and decentralization of control over operations; crises in research and development.

Indeed, it is the final chapter and concluding remarks that are the least historical and most speculative, and yet the attention to current issues will no doubt be of greatest interest to many readers. Thus, I will issue a caveat: the particular emphases in my discussion of current and future issues will be difficult to appreciate unless the reader knows something about Alcoa's earlier history. Even during an era of change, it is in the unfolding tapestry of history where the manager will discover the vital threads that bind the corporation's past to its future.

\* \* \*

In producing this book, I have enjoyed the cooperation and assistance of Alcoans at all levels of the corporate organization. Scores

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of managers and workers, both current and retired, were interviewed – most on tape, some not. Transcriptions or notes of those interviews are on file in the corporate archives at Pittsburgh (see Appendix E). Countless others provided me with informal but important background on all manner of problems – technological, administrative, financial, and characterological – that I have treated in the text. Everywhere I went, busy plant personnel were hospitable and unflaggingly patient in showing me the details of aluminum processes and products and in discussing their views on plant technologies, labor relations, and the larger corporation.

As drafts of chapters were produced, many Alcoans were good enough to offer their ideas on points of interpretation, corrections on points of fact, and verifications of specific passages in the text that were not easy to document through conventional sources. While I am grateful to them all, it would be a futile (and risky) exercise for me to try to account by name for everyone who helped. Yet there are a few whose indispensable support merits special acknowledgment. It was Jack Nettles, a senior manager of Alcoa's public relations, who first discussed with me the possibility of doing a corporate history of Alcoa, which the company would underwrite. He made it clear from the outset that his company wanted a history that was rigorously researched and independent in its conclusions. Once we all agreed that to go forward, Alcoa's chairman, Charles W. Parry, put the full weight of his authority behind my primary demands: that I be granted access to all records and people in the corporation and that I be given complete freedom of interpretation. Dana Friedman, an Alcoa attorney, was wonderfully flexible in accommodating the corporation to a contract that protected my intellectual freedom on all matters historical, while I agreed to ensure the confidentiality of *present-day* proprietary or competitive secrets. The late Alfred E. Hunt lent his gracious and crucial blessing to a project that he understood might alter many long-standing beliefs and assumptions that had been a part of the culture of his very tradition-conscious corporation. I regret that he did not live to see the finished work.

Richard Schalk was my first liaison, and he guided me nimbly through the Alcoa system until his retirement in 1986. He was a constant source of good humor and companionship. He was succeeded by John Wright, who, with his remarkably subtle grasp of corporate culture and politics, helped me thread my way through the more arcane nooks and crannies of Alcoa's bureaucracy in the difficult, final stages of research. Both men are endowed with the openness

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and sophisticated skepticism that I soon came to realize were highly valued attributes at Alcoa headquarters.

For primary records and photographs, I leaned on Norman Belt, Kristen Hensen, and their overworked staffs in Pittsburgh and on Philip Morton, Virgie Jo Sapp, and their colleagues at the Alcoa Laboratories. Robert Washburn and his staff at the *Alcoa News* ran a series of biographical sketches (which I spun out of research in progress) that elicited all kinds of useful responses from both currently active and retired employees. Elinore Thomas in Pittsburgh read the text with an excellent eye for facts and style, and William Frank at Alcoa Laboratories provided critical commentary on technical matters. Correspondence from Edward B. Foote and Howard Dunn, late of the Alcoa Laboratories, were especially useful. Karen Rafalko did long and hard work on the artistic design of charts and graphs. Linda Graf and Barbara Yuhasz made sure that I got lodged, fed, and paid and were themselves valuable repositories of more Alcoa history than I could possibly include in this book.

Outside Alcoa, Mary E. Curry and David B. Sicilia of The Winthrop Group, Inc., helped with research in the public record, while Alan Gardner, a historian living in New York, gathered some useful materials on the labor history. John Smith, a graduate student at Carnegie Mellon helped isolate and compute data for the charts and graphs in the appendices. Forrest Reinhart, a graduate student at the Harvard Business School, brought to my attention an important source I would have otherwise overlooked in my discussion of the sale of the aluminum defense plants in Chapter 5.

Correspondence from Norman Craig, Professor of Chemistry at Oberlin College, had a transforming influence on my perception of Charles Martin Hall as a research scientist. He and Geoffrey Blodgett, a historian at the same institution, informed me about the sources relating to Charles Martin Hall's will and Arthur Vining Davis's difficulties with the college's trustees in the late 1920s. William Bigglestone then gave me access to the voluminous records on Alcoa at the Oberlin College Archives.

At my request, an "Advisory Committee" was established to read and comment on the manuscript at various stages of its development. The committee's members were as follows: Alfred D. Chandler, Jr., of Harvard University; Joel A. Tarr of Carnegie Mellon University; Richard A. Hunt of Harvard, who also is a member of Alcoa's founding family; Arnold Kramer, a Nashville, Tennessee, attorney, who is former general counsel to Alcoa; Jack Morber, former vice president of labor relations at Alcoa; and William Shepard, former vice



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president of public relations at Alcoa. The committee had authority to make recommendations and suggestions but no power to order any alterations in the text, unless it could be established that I had made an error in fact. Even though Richard Schalk and I had originally conceived of the committee as a way to help allay any “political” problems that might develop in reaction to the emerging text, no such problems surfaced; nevertheless, each member of the committee made vital contributions to the intellectual process. I commend such an arrangement to any professional who would write a company history as a way to bring a broad range of theoretical and practical perspectives to bear on the subject, from conceptualization to final presentation.

I owe a lot to Louis Galambos of Johns Hopkins University, who did a deft and sensitive job in his general editorial criticism of the manuscript. Frank Smith managed the arrangements for publication by the Cambridge University Press with a steady hand, and Ernest Haim shepherded the manuscript through design and typesetting with consummate skill.

Finally, I wish to thank the principals and managers of The Winthrop Group, Inc., for their unflagging support and good cheer. David G. Allen played an important role in drafting the agreement with Alcoa. Davis Dyer and Margaret B.W. Graham helped with the formulation of issues early on, and Graham and Bettye Pruitt, who are completing a more specialized history of Alcoa's research and development, offered keen observations on the penultimate draft. Their criticism was of the rigorous high quality that I have come to take for granted from all my Winthrop colleagues.

Brooklyn, New York  
March, 1988

## Note on the corporate name

The business of Aluminum Company of America was first chartered as The Pittsburgh Reduction Company on October 1, 1888.

The modern legal name, Aluminum Company of America, was adopted in 1907. According to Edwin S. Fickes, the company's chief engineer, "The Pittsburgh Reduction Company . . . did not indicate the business in which the company was engaged [by 1907]; moreover, the name of the company was often confused in Pittsburgh with the name of the American Reduction Company, a local concern engaged in garbage collection and disposal, to the great annoyance of telephone operators and mail clerks."\*

Alcoa, which today is the commonly used name for the company, was coined in 1910 by Lucy M. Rickey, wife of the company's chief hydraulic engineer. Mrs. Rickey suggested the name to company president Arthur Vining Davis to designate a village that had sprung up in eastern Tennessee in support of the development of power sites in the area. In 1919, that village was renamed Calderwood, but Alcoa was quickly revived to designate another settlement that was forming around Alcoa's smelter located near Maryville, Tennessee.

\*Edwin S. Fickes, "History of the Growth & Development of the Aluminum Company of America," a typescript bound in Volume 17 of the *Histories of the Manufacturing Properties of the Aluminum Company of America . . .*, Alcoa Archives, p. 62.



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In the late 1920s, Alcoa was registered as a company trademark for ingot and became the telegraph address for the company's New York and Pittsburgh offices. It was also incorporated into the company's logo. In the late 1930s and 1940s, Alcoa was often used by the courts, the press, and the company itself as a convenient shorthand for the legal corporate name. Internally, the corporation was often referred to as "ACOA" in correspondence and as "The Aluminum Company" in discourse.

After the war, Alcoa came into common usage both within and without the company, as the company's experience with antitrust rendered common usage of "The Aluminum Company" increasingly problematic from a public relations standpoint. Today, one almost never hears the name Aluminum in the company's Pittsburgh headquarters.