Chapter 12
Second break-up

The end of World War II left an array of bewildering economic impacts around the world. While the U.S. hadn't suffered from invasion and large-scale destruction of cities and infrastructure, it faced the dilemma of thousands of returning veterans coinciding with the sudden end of a colossal defense industry. In the case of the U.S. aluminum industry, there was an added factor that led to as many questions as answers – the large number of giant and potentially valuable government-owned refineries, smelters and fabrication plants that were now war surplus. Government officials who had battled Alcoa's monopoly for a decade saw a chance to finally bring competition to the industry by selling the surplus plants to eligible companies. But first they had to close the case on an anti-trust lawsuit brought against Alcoa in 1937 – before the war.

U.S. anti-trust legislation was put into law in 1887 when the federal government reacted to the rapid growth of the railroad industry by creating the Interstate Commerce Act. The Act followed a controversial court decision which found that states had no jurisdiction over interstate trade. Three years later in 1890, the federal government established the Sherman Anti-trust Act in response to a general public unrest over how large and powerful American businesses had become. Passed nearly unanimously, the Sherman Anti-trust Act made it illegal for companies to form a trust or conspiracy in restraint of trade or commerce. [1] Section 1 of the Sherman Act made restraint of trade illegal. Section 2 made anyone who monopolized trade or commerce guilty of a misdemeanor. In debates prior to the law's passage, Congress focused on restraint of trade and left its definition of monopoly uncertain. A legal understanding of restraint of trade and monopoly was expanded upon by the courts over the next 60 years. One key issue was whether a company's sheer size and share of the market was harmful to the American people. [2] U.S. anti-trust law was further developed with the Clayton Anti-trust Act of 1914, which sought to prevent anti-competitive practices in their incipiency. The Clayton Act specified prohibited conduct, a three-level enforcement scheme, exemptions and remedial measures.

The U.S. government filed an anti-trust lawsuit against Alcoa in 1912, accusing the company of monopolistic practices involving restrictive covenants with its suppliers. Additional accusations of unfair competition and discrimination followed the Federal Trade Commission's investigations from 1922 to 1930, with Alcoa taking steps to avoid further trouble even when rulings went in its favor. All of this culminated in a major case in 1937 when the U.S. Department of Justice filed a complaint charging Alcoa with

monopolizing interstate commerce in more than 15 markets and commodities and engaging in conspiracies with foreign producers. A trial lasted 13 months, including appeals, with a final court decision in 1951 that absolved Alcoa of wrong-doing. But there were two major ramifications of the overall anti-trust actions – Alcoa had to divest its holdings of World War II-era aluminum plants, and major Alcoa stockholders had to dispose of their common stock holdings in the company's Canadian spinoff, Aluminium Ltd. [3]

The trial began in June 1938 in the U.S. District Court for the Southern District in New York and concluded in August 1940. Judge Francis G. Caffey found the defendants not guilty on every one of the charges in a March 1942 ruling. The verdict was appealed by the U.S. government, and the tribunal of Justices Learned Hand, Augustus Hand and Thomas Swan ruled in January 1945 that Alcoa had monopolized the aluminum industry. But the judges wouldn't break up the company. The Justice Department continued to press for a divestiture of Alcoa's many holdings, and Alcoa petitioned in 1947 for a ruling that it no longer monopolized the aluminum industry. Judge John Clark Knox ruled in 1950 that although Alcoa was not a monopoly, the company possessed "monopoly potential." Judge Knox ordered that shareholders in Alcoa and Aluminum Ltd. dispose of their holdings in one or the other of the two companies within 10 years. To ensure that Alcoa acted fairly, the company's every move was scrutinized by the Justice Department and Congress. Finally in 1957, after the Department of Justice's request for an extension of judicial jurisdiction over Alcoa was dismissed, the government's long anti-trust effort came to an end. [4]

Establishing control over an industry

Alcoa's growth from 1870 through World War I and the 1920s relied on huge investments of capital and economies of scale, according to George David Smith's 1988 corporate history of Alcoa. Andrew Carnegie, the father of the U.S. steel industry, summed it up by stating that "the larger the scale of operation, the cheaper the product." This principle applied well to continuous-processing industries such as aluminum production. Alcoa's move upstream into bauxite mining, alumina refining and power generation followed a pattern set by Carnegie's steel companies and led to the transition from an entrepreneurial owner-based company to a formally organized corporation. As it grew, Alcoa became a visible target for populist politicians as the "property" of one of America's best-known financiers, Andrew Mellon, according to Smith. The U.S. Supreme Court had ruled in 1920, "The law does not make mere size an offense," but Alcoa was pursued by persistent Federal Trade Commission investigations during the 1920s. Alcoa was the first major investment for the Mellon brothers, Andrew and Richard B., who grew in wealth and financial influence over the decades, moving

into steel, shipbuilding, electrical machinery, glass, carborundum, oil, coke and aluminum. By the end of World War I, the brothers held positions in 60 major companies, including Gulf Oil, Koppers, Carborundum and Alcoa. By 1942, two-thirds of Alcoa's common stock and over half of the preferred stock was held by 20 stockholders from six families: Mellon, Davis, Duke, Hunt, Clapp and Gillespie. The Mellon family share in Alcoa had declined over the years from new stock issues, deaths and inheritances to only 25% of the company. [5]

On May 16, 1912, the U.S. government brought an anti-trust lawsuit against Alcoa for participating in an international cartel that restricted the free trade of aluminum between aluminum-producing countries and thereby fixed prices. A federal court ruled against Alcoa on June 7, 1912. [6] The decree contained sweeping injunction provisions with clauses that were considered quite broad, but the result was that Alcoa was more cautious in its future business deals. On Oct. 25, 1922, Alcoa applied for a modification of the 1912 decree so it could acquire two Norwegian aluminum producers: Norsk Aluminium and Det Norske Nitrid. In 1923, Europe exported 16,000 tons of aluminum to the U.S., and nearly half came from Norway. The Norwegian companies were interested in joining with Alcoa and had been negotiating with Alcoa since 1920. Another federal lawsuit brought by Federal Trade Commission against Alcoa in 1922 was settled on appeal in the Third Circuit Court of Appeals. The Cleveland Metal Products Co. had found itself in financial problems brought about by government actions during World War I. Alcoa helped bail out the company by forming a new company called the Aluminum Rolling Mill Co. with the stock split between Alcoa and Cleveland Metal's proprietors. The Federal Trade Commission sued to compel Alcoa to divest itself of the stock it had received from Cleveland Metal. The court agreed with the FTC, and Alcoa was left with a substantial debt owed to Cleveland Metal. [7]

In 1922, the Federal Trade Commission began an eight-year long investigation of Alcoa after receiving complaints from several companies in the U.S. aluminum industry, including the Charles B. Bohn Foundry Co. of Detroit, Mich. In 1925, the FTC filed a full complaint against Alcoa focused mainly on the kitchen utensil business. Alcoa was accused of price discrimination and monopolizing portions of the aluminum industry. At the time, the FTC had little enforcement authority – its responsibility was to subpoena documents and take testimony to develop cases which were then referred to the Justice Department for more investigation and prosecution. [8] On Dec. 16, 1929, a U.S. court examiner issued findings in a lawsuit brought by the Federal Trade Commission against Alcoa covering the years 1925 to 1930. The case included 10,000 pages of testimony and numerous exhibits. The FTC accused Alcoa of violating the Federal Trade Commission Act and the Clayton Act. The findings of the examiner, however, were affirmed by the FTC and were in favor of Alcoa. The findings included: 1) Alcoa never attempted to

monopolize the aluminum scrap market; 2) Alcoa had no monopoly on bauxite; 3) Alcoa had no monopoly on water power; 4) Alcoa did not control the Aluminum Goods Manufacturing Co.; 5) Alcoa did not control the market for aluminum imported into the U.S.; 6) imported aluminum competed with domestic aluminum; 7) the purchase price for scrap aluminum was controlled by supply and demand; and 8) Alcoa never had a monopoly on the sand casting industry in the U.S. [9] The case was dismissed in 1930 with the result that the FTC lost face and Alcoa was never officially cleared of the charges, according to Smith. [10]

By 1928, Alcoa owned more than half the world's capacity to produce aluminum metal – 90,000 metric tons per year in the U.S., 45,000 tons in Canada and 15,000 tons in Europe. The Federal Trade Commission had issued a report criticizing Alcoa's practices in 1924. Additional complaints were filed and investigations were started, all leading up to the main 1937 anti-trust case filed against Alcoa. The FTC claimed Alcoa tried to monopolize bauxite and hydropower in the U.S. and other countries, dominated and controlled the foreign market for aluminum in the U.S. and engaged in injurious price cutting. [11] Alcoa held interests in 32 aluminum operations in 11 different countries. At the same time, the company had vertically integrated and grown to control the U.S. aluminum industry. In 1928, to hold off potential anti-trust lawsuits by the U.S. government, Alcoa reorganized its business by transferring all of its foreign holdings, except for its bauxite properties in Dutch Guiana, to a Canadian subsidiary company named Aluminium Ltd. Alcoa Chairman Arthur Vining Davis felt at the time that the company could not competently conduct foreign and domestic business at the same time, especially in light of a rising tide of nationalism and tariff barriers worldwide. A Canadian company, Davis felt, could do better than Alcoa inside the British Commonwealth market. Davis' brother, Edward Davis, became president of Aluminium Ltd., and for a time Aluminium Ltd. served as a foreign arm for the joint stockholders. [12]

On June 4, 1928, Alcoa transferred ownership of 29 of its 34 foreign companies or properties to Aluminium Ltd. The foreign interests had been acquired by Alcoa between 1920 and 1928, and Alcoa was paid by issuance of Aluminium Ltd.'s common stock. Three more foreign companies were transferred to Aluminium Ltd. after June 4, 1928. According to Alcoa executives testifying in the 1937 anti-trust case, the company initially viewed expansion into foreign operations as a way to supplement its growing domestic operations. Gradually that viewpoint had changed. Alcoa's top executives believed they were not giving the foreign operations enough attention and that they could develop properly if segregated into a separate grouping. Furthermore, the global increase in protectionism and nationalism posed a problem to aluminum facilities owned and operated by Americans. The most significant example was the "Buy British" campaign inside the British Empire. The Alcoa executives testified that the creation of a new and

independent company in Canada solved the company's problems where creation of another subsidiary would not. U.S. attorneys, however, viewed the creation of Aluminium Ltd. as a way for Alcoa to shield itself from charges of joining foreign cartels and practicing unfair competition inside and outside of the U.S. The fact that all of Aluminium Ltd.'s original common stock went to Alcoa indicated to U.S. attorneys that the two companies were tied together in a conspiracy to defy the Sherman Act. On June 4, 1928, when Aluminium Ltd. was created, only three stockholders held 51.3% of Alcoa's stock and thus became owners of 51.3% of Aluminium Ltd.'s stock. [13]

The allegations and charges

On April 23, 1937, the U.S. government filed an anti-trust lawsuit against the Alcoa. The lawsuit named 63 defendants and accused them of monopolizing interstate and foreign commerce, particularly in the manufacture and sale of virgin aluminum ingot. The government asked that Alcoa be dissolved. [14] Alcoa, Aluminium Ltd. and 61 related corporate and individual defendants were sued under Sections 1 and 2 of the Sherman Act for restraint of interstate and foreign trade and for monopolization of the U.S. aluminum industry. Some 140 charges accused Alcoa of monopolizing 16 markets and entering into conspiracies with foreign competitors. Some of the charges went all the way back to the 1912 case. The remedy sought was a divestiture that would break up the company into separate enterprises. The case cost Alcoa $2 million in legal fees and the U.S. government about $500,000 to prosecute. [15] The trial began June 1, 1938 and continued without interruption until Aug. 14, 1940. From Sept. 30 through Oct. 10, 1941, Judge Caffey ruled in all respects in favor of Alcoa. Judge Caffey entered his judgment on July 23, 1942, dismissing the government's complaint on the merits. [16]

Alcoa became a target for anti-trust lawsuits because it was a monopoly, even if it did so because monopoly was the most efficient business practice and because other companies were reluctant to take the risks necessary to enter and compete in the aluminum industry, according to Smith. Alcoa also had a public image problem because it had become a symbol of corporate America and was seen as a "Mellon Company." The Mellon family was one of the richest in the world, and Andrew Mellon had drawn considerable heat from the U.S. Senate while he was Secretary of the Treasury. America was still recovering from the Great Depression, and statistics showed that the nation's 60,000 wealthiest families had as much money as the 25 million poorest. Sen. George Norris, a populist from Nebraska, called Andrew Mellon the "head and front of the aluminum trust." Meanwhile, Arthur Davis had become openly arrogant about his business success – he was known to publicly brag about Alcoa's complete control of the U.S. aluminum industry. The Roosevelt administration argued that big business prolonged the Great Depression by setting high prices and withholding investment.

Considerable publicity was given to the anti-trust case by the press as it went to trial in June 1938. Alcoa's press management was negligible, while the Department of Justice successfully guided the press into portraying Alcoa as the villain. [17]

Evidence against Alcoa was not hard to find, especially when it came to its dominance in aluminum ingot production. In 1912, Alcoa was making ingot aluminum in both the U.S. and Canada, with both accounting for 91% of the ingot aluminum for sale inside the U.S. Alcoa operated two smelting plants in New York State that produced less than 21,000 tons per year of aluminum ingot. This share of the U.S. market fell as low as 68% in 1921 and reached a high of more than 90% averaged for the years 1934 through 1938. Alcoa's production increased almost eightfold by 1939 to about 163,500 tons per year, with five smelting plants operating in the U.S. – the two in New York State, which had been expanded, and one each in Tennessee, North Carolina and Washington. During this entire time not a single pound of aluminum ingot was produced by any other company inside the U.S. Among the other charges were claims that Alcoa bought up bauxite deposits in Arkansas, Dutch Guiana and British Guiana far in excess of the company's future needs, purchased water power rights in order to prevent competition, and tried to stop competition by purchasing interests in two Norwegian aluminum smelting companies. [18] Alcoa was also charged with monopolizing the alumina industry. From 1928 through 1937, Alcoa produced about 2.15 million tons of alumina, about 98% of the total U.S. output, through its wholly-owned subsidiary the Aluminum Ore Co. Alcoa used 78% of its alumina for aluminum smelting and sold the remainder for other uses. Despite a ruling by the District Court of New York in an earlier anti-trust case, Alcoa had a nearly perfect monopoly in the U.S. alumina business, according to Nathanael Engle's 1945 account. [19]

Other charges related to more specific actions Alcoa took to prevent competition. During the winter of 1920 through 1921, the Ford Motor Co. attempted to secure an independent source of aluminum and began indirect negotiations with a Norwegian aluminum company. Word of an impending deal reached the ear of Arthur Davis, and by July 1921 Alcoa had purchased a half interest in the Norwegian company. In October 1922, Alcoa bought the Norwegian company outright after receiving permission from the U.S. Attorney General, as required by the rules of the 1912 decree. According to a manufacturing charge, in 1922 Alcoa owned 45 out of a total of 53 design patents held by a close group for the manufacturing of aluminum alloy engine pistons. These patents were pooled together and Alcoa was given an exclusive license to control the patent rights, including the right to sub-license the patent rights. Alcoa then issued sub-licenses for all the patents to three companies with conditions which limited the number of pistons each company could make. One of the three companies was also forced by contract to purchase its aluminum ingot from Alcoa. [20]

Through the 1930s, Alcoa produced and sold virtually 100% of all the aluminum electrical transmission cable in the U.S. Competition at that time still existed between copper and aluminum transmission cable. [21] Between 1925 and 1932, Alcoa was suspected by the federal government of attempting to put competing aluminum sheet manufacturers out of business by manipulating prices, specifically by lowering prices for its sheet product and raising prices for its ingot aluminum. At this time, Alcoa was the sole source of aluminum ingot for sheet fabricators, and the problem was brought to the attention of the government by several sheet fabricators. By 1932, Alcoa had succeeded in eliminating four out of eight of the competing sheet fabricators. Soon after the government began to investigate Alcoa, the company lowered its price for aluminum ingot, and sheet manufacturers began to recover by 1933. [22] In 1928, one of Alcoa's competitors in the sheet aluminum business, the Baush Machine Tool Co. of Springfield, Mass., filed a lawsuit claiming Alcoa violated anti-trust laws. By 1937, competition in the aluminum sheet business improved when the Reynolds Metals Co. began producing sheet at its plants in Louisville, Ky., Richmond, Va., and Farmingdale, N.Y. [23]

The Justice Department also alleged Alcoa engaged in five foreign cartels from 1928 through 1937. The first cartel allegedly existed from June 4, 1928 through July 2, 1931. The second, called the Alliance, allegedly existed from July 3, 1931 through Dec. 31, 1935. The third allegedly existed from Jan. 1, 1936 through March 31, 1938. Members of the third cartel included Aluminium Ltd. and aluminum producers in England, Norway, France and Switzerland, and the cartel's market was in India, Japan, Russia, Czechoslovakia and the Balkan States. The fourth cartel allegedly began April 1, 1938 and was considered part of the preparation for war. The fifth, not related to the previous four, allegedly existed from 1929 through 1937 and related to marketing agreements. The chief allegation for the government involved the Alliance Aluminium Compagnie, the second cartel, which included Aluminium Ltd., the British Aluminium Co. Ltd., Aluminium Francais, Aluminium Industrie Aktiengesellschaft Neuhausen of Switzerland and Vereinigte Aluminium Werke A.G. of Germany. The Alliance set quotas for the maximum production by its members and set prices at which Alliance members could buy unsold aluminum in excess of the quota from other members. Aluminium Ltd. Chairman Edward K. Davis testified that he had rejected advances to join the first cartel in 1928 but that following the collapse of the stock market in 1929 and the general economic decline which followed, he felt it was necessary in 1931 for Aluminium Ltd. to join the Alliance in order to successfully compete in the world aluminum market. [24]

U.S. prosecutors also pointed to the shared majority shareholders of Alcoa and Aluminium Ltd., claiming that the two companies worked together in the aluminum market and did not compete. In 1931, a major transaction in common shares began

between Alcoa and Aluminium Ltd., the new company that was incorporated in Canada on May 31, 1928, to take over nearly all of Alcoa's non-U.S. properties. By the time the transfers of stock were completed and the two companies had been virtually separated, a slim majority of the common stocks in Alcoa were held by three people: Andrew Mellon, Richard Mellon and Alcoa Chairman Arthur Davis. Eight years later in 1939, eleven descendants of these three collectively held 48.9% of Alcoa and 48.5% of Aluminum Ltd. [25] As testimony in the case drew to a close on Aug. 14, 1940, Alcoa remained a dominating player in the world aluminum industry. Alcoa owned about 48% of known deposits of bauxite in the U.S., consumed about 1.65 million tons of alumina and sold another 389,000 tons to foreign aluminum producers, and had been the sole producer of primary aluminum ingot in the U.S. from 1909 through 1940. Most of Alcoa's primary aluminum was used in its own fabricating plants, but some was sold to independent fabricators. There was a secondary market for recycled scrap aluminum, but it was small – between 1935 and 1938, about 51,000 tons of aluminum was produced from scrap. Alcoa also controlled the market for fabrication of aluminum cable and large rolled structural shapes up to 1940, but the company faced serious competition in all other fabrication markets. [26] By 1941, Alcoa was the only producer of primary aluminum in the U.S. The primary aluminum market faced three competing factors: 1) imported aluminum; 2) scrap or secondary aluminum; and 3) alternative materials, including stainless steel, nickel, tin, zinc, copper and lead. [27]

The first round of arguments

Alcoa won the first round in the big case in March 1942 when Judge Caffey ruled that Alcoa was not guilty of any of the 130 charges. Caffey went through 26 months of testimony, countless motions and 58,000 pages of trial record. He ruled that in a case such as U.S. v. Alcoa, it was necessary to prove intent to monopolize and/or the actual commission of an unlawful act, and he found in charge after charge that Alcoa's success came from sound business practices. In fact, Caffey found that in most cases no monopoly existed – Alcoa only controlled 50% of the bauxite business in the U.S., and its hydroelectric power amounted to only 0.0003% of the entire U.S. capacity. Alcoa's purported monopolization in the fabrication of cooking utensils, foil, engine pistons and other products could not be proven to Caffey's satisfaction. In foil, he noted, Reynolds Metals surpassed Alcoa in production. [28]

Judge Caffey found that Alcoa held a monopoly in the production of alumina and primary aluminum in the U.S., but he ruled that unless the government could specifically prove that Alcoa sought to exclude competition in these materials, then no illegal monopolization took place, according to Smith. Furthermore, Caffey said, if the secondary aluminum market was considered, and the portion of Alcoa's primary

aluminum that it used for fabrication in its own plants was excluded from the total market numbers, then Alcoa only produced about 33% of the primary aluminum in the U.S. Caffey also dismissed old allegations and charges of Alcoa's involvement in foreign cartels, as well as hearsay testimony about Alcoa's ongoing market manipulations. With regard to Alcoa's relations with Aluminium Ltd., Caffey was largely unconcerned about the fact that the two companies shared many of the same owners, and he ruled that specific instances of conspiracy between the two companies had not been shown by the government. It was readily apparent from Caffey's words that he held unabashed admiration for Alcoa, and in particular for Arthur Davis, according to Smith. The government never produced a better witness for the defense as Davis, who spent 30 days on the stand demonstrating his understanding of complex concepts, Smith said. [29]

The record of the case included 41,722 pages of minutes, another 15,000 pages of exhibits and 1,500 pages of answers to interrogatories. There were 155 witnesses and 1,803 exhibits. The 63 defendants named in the lawsuit could be divided into four groups: 1) those connected with Alcoa; 2) those connected with Aluminium Ltd.; 3) the Aluminum Manufactures Inc. company; and 4) the Aluminum Goods Manufacturing Company. The lawsuit covered three broad topics – monopolization, conspiracy and other misconduct. The monopolization charge was broken up by Judge Caffey into three historical periods: 1) from Sept. 1, 1888, to Feb. 2, 1909, from the start of the Pittsburgh Reduction Co. to the expiration of its Hall and Bradley patents, a period during which the company possessed a legal monopoly based on exclusive patents; 2) the immediate post-Patent Period from Feb. 2, 1909, to June 4, 1928, when Alcoa divested itself of nearly all its foreign holdings to Aluminium Ltd.; and 3) from June 4, 1928, to 1941, the time of the current anti-trust lawsuit. The monopolization charges covered bauxite, water power, alumina, primary aluminum, castings, cooking utensils, pistons, extrusions, foil, sheet, electrical cable and miscellaneous aluminum products. In each instance, Judge Caffey found the government's charges to be unproven. One of Judge Caffey's central premises was that since the Hall and Bradley patents on the production process used to smelt aluminum and the Bayer patent to process alumina had all expired, all that any company needed to enter the aluminum smelting business was bauxite and water power, and he decided some of the monopolization charges on that basis. In reply to the government's accusations regarding monopolization, Alcoa admitted that "it does produce and sell all the alumina used for the production of aluminum in the United States and it does produce all the virgin aluminum manufactured in the United States." [30]

Judge Caffey ruled that by 1939 the ownership of Alcoa had been diluted – the 11 largest stockholders together barely owned more than 50% of Alcoa's stock, and the overlap between Alcoa and Aluminium Ltd. stocks had been diversified. Judge Caffey

argued that “usually time does away, or can and is almost certain to do away, with control of a corporation by any small group of stockholders” as a result of voluntary sales, insolvencies or deaths. The U.S. government charged that Aluminium Ltd. produced large quantities of ingot aluminum in Canada and Norway but shipped none of that aluminum to the U.S., thereby protecting the parent organization, Alcoa. From the viewpoint of Aluminium Ltd. itself, under the helm of Edward Davis, the company had faced an uphill battle since its inception in 1928. The foreign properties acquired from Alcoa were extremely valuable and included bauxite deposits in British Guiana as well as processing facilities. The largest and most valuable properties were in Canada and included two aluminum smelters and an alumina refinery, all in Quebec. On the other hand, Aluminium Ltd. lacked any fabricating plants, and the alumina refinery was solely dependent on an experimental dry process which was abandoned by 1930 in favor of the Bayer process. As a result, Aluminium Ltd. was forced to process its South American bauxite at Alcoa’s East St. Louis alumina refinery through a tolling contract, or purchase alumina from European suppliers. Aluminium Ltd. also set up tolling contracts with Alcoa for rolling its aluminum at U.S. plants. [31]

Aluminium Ltd. began operating short of working capital, and its constituent companies all owed money, much of it to Alcoa. In order to assure repayment of its debts, it made sense for Alcoa to assist Aluminium Ltd., and that argument was presented by government attorneys. At the time of its creation, Aluminium Ltd. owed $25 million. By 1941, it had paid off all its debts, including a $20 million bond to Alcoa. In 1928, there were 4,000 employees working for Aluminium Ltd. By 1939, there were more than 12,000 employees. In 1928, the Arvida smelter in Quebec produced 30,000 tons of aluminum per year. By 1938, Arvida produced 75,000 tons per year. The capacity at the Shawinigan Falls smelter was about 16,500 tons per year. From 1928 to 1939, the company’s business increased three-fold, and Aluminium Ltd. had established a complete system of vertically integrated facilities, from alumina refining to fabrication. [32]

Of particular benefit to Aluminium Ltd. was a preferential tariff system, created at the Ottawa Conference in 1932. Aluminium Ltd. was able to use the tariff system to sell its products to the United Kingdom, Australia, New Zealand and India, as well as other members of the British Empire. Aluminium Ltd.’s management developed a business strategy focused on selling aluminum to undeveloped regions with high populations, such as India, China and Japan. The company chose to avoid the U.S., with its 5 cents per pound duty on raw aluminum imports. Over time, the company expanded into Argentina, Brazil and Italy. Aluminium Ltd.’s sales of aluminum to Japan escalated from more than 3,500 tons in 1935 to more than 14,000 tons in 1937, on the eve of World War II, and was equal to Japan’s domestic production of aluminum in each of those

years. The principle Japanese company which Aluminium Ltd. dealt with was the Sumitomo Corporation, and by 1941 Aluminium Ltd. owned half of Sumitomo's stock. Judge Caffey described Edward Davis as a man with "a mind of his own" who "is entitled to the chief credit for the success of the Aluminium enterprise under quite difficult conditions." [33]

The second round

Irving Lipkowitz, a New Deal economist who helped the Justice Department in its case, took the stance that business practices in a monopoly were irrelevant – monopolies were wrong, period. His fundamental point that monopolies were a social evil, however, was lost in the complex arguments and piles of evidence, and essentially the government handled the case ineptly, according to Smith. [34] Two years later, as the federal government appealed Caffey's ruling, the U.S. Supreme Court announced it could not assemble a quorum to hear the case and referred the matter to the U.S. Court of Appeals for the Second Circuit. [35] The case could not be reviewed by the U.S. Supreme Court because four of the sitting justices had been involved in prior anti-trust lawsuits against Alcoa. A special act of Congress in 1944 was needed to give the Second Circuit Court of Appeals the weight of a Supreme Court opinion in ruling on the case. [36]

Some economic circumstances had changed since 1937. Defense needs leading up to World War II had helped the company grow substantially, and Alcoa's total assets had grown from $250 million in 1927 to $427 million by 1941. During that time period, Alcoa had doubled its aluminum reduction capacity since 1938, and a new alumina refinery was built in Mobile, Ala. At the end of World War II, the Temporary National Economic Committee investigating the ownership of Alcoa found that about 100 of the company's 8,000 shareholders held more than three-fourths of the company's stock, worth $250 million. Further analysis showed that the 20 largest stockholders owned nearly two-thirds of the company's common stock and more than one-half of the company's preferred stock. Among the top stockholders were Arthur Davis, Richard Mellon, George H. Clapp, Roy A. Hunt, George R. Gibbons, David K.E. Bruce, Robert E. Withers and Edwin S. Fickes. [37]

The tribunal of Justices Learned Hand, Augustus Hand and Thomas Swan ruled in January 1945 that Alcoa had monopolized the aluminum industry, but the justices would not break up the company. [38] Justice Learned Hand rendered his opinion for the court on March 12, 1945. The court held that Alcoa had exercised an unlawful price "squeeze" in the aluminum sheet market and monopolized the primary aluminum ingot market. Justice Hand argued that the mere existence of monopoly power, though not used abusively, was an indication of illegality according to the Sherman Act, and subsequent

court rulings agreed with Justice Hand. Two basic signs of monopoly power were size and vertical integration, Justice Hand argued, and 90% of market control was "enough to constitute a monopoly" while 60% might not be enough. The court, however, did not decide what kind of relief was needed because it saw changes taking place in the uncertain post-World War II aluminum industry. By 1945, the War Assets Administration had not yet decided how it would dispose of its large aluminum industry holdings. [39] The appellate court had found that Alcoa controlled more than 90% of the U.S. market for aluminum ingot, which was sufficient to support the case that Alcoa had violated the Sherman Act, regardless of its intent to monopolize. In one of the longest trials in U.S. history, Alcoa had come close to being dissolved if not for its role in World War II. [40]

Alcoa had argued that if it was in fact deemed a monopoly, it had acquired that position honestly by out-competing other companies through greater efficiencies. Justice Hand held that he could consider only the percentage of the aluminum market in virgin aluminum for which Alcoa accounted. Alcoa maintained that it had to compete with the scrap aluminum market, and even if the scrap aluminum originated with Alcoa, they still had to compete with it as scrap. Justice Hand disagreed and defined the relevant market narrowly in accord with the prosecution's theory. Justice Hand also applied a rule that said Alcoa violated the Sherman Act by creating a monopoly per se – it didn't matter how Alcoa became a monopoly since its offense was simply that it had become one. "It was not inevitable that it should always anticipate increases in demand for ingot and be prepared to supply them," Justice Hand said. "Nothing compelled it to keep doubling and redoubling its capacity before others entered the field. It insists that it never excluded competitors; but we can think of no more effective exclusion than progressively to embrace each opportunity as it opened, and to face every newcomer with new capacity already geared into a great organization, having the advantage of experience, trade connections and the elite of personnel." [41]

Part of the original decision by Judge Caffey was affirmed and part was reversed and remanded to the trial court for determination of a remedy. In his decision, Justice Learned Hand described the history of Alcoa. He listed numerous instances where Alcoa monopolized the aluminum industry, from holding exclusive rights to the Hall and Bradley patents, to creating contracts with electrical power companies which denied power to other aluminum smelters, and to the creation of international cartels whereby international parties agreed not to compete in each other's country. Justice Hand pointed out that in the years 1920 through 1937, Alcoa's foreign competitors faced added transportation costs as well as a U.S. tariff, conditions which provided Alcoa, as the sole domestic producer, an opportunity to profit dramatically. Justice Hand also pointed out that Alcoa only averaged about 10% profits during this time period, which "so conditioned, could hardly be considered extortionate." However, Justice Hand

believed that Congress "did not condone 'good trusts' and condemn 'bad' ones; it forbad all." He concluded that Congress' intent in passing the Sherman Anti-Trust Act was to support an economic system "of small producers, each dependent for his success upon his own skill and character, to one in which the great mass of those engaged must accept the direction of a few." [42]

Justice Hand focused on Section 2 of the Sherman Act, relating to monopolization, rather than on Section 1, relating to restraint of trade, according to Smith. He reversed precedent by ruling that Alcoa had illegally monopolized the primary aluminum market, but not through proven acts of misconduct. Justice Hand ruled that Alcoa was not a passive beneficiary of its monopoly position, but had engaged in a "positive drive" to maintain its monopoly, according to Smith. It was enough for the government to merely prove the extent of Alcoa's monopoly of the primary aluminum market, Justice Hand argued. He dismissed Alcoa's defense that it had averaged only 10% profits per year, and the government's estimate of profits averaging 55%, as irrelevant. Alcoa had the power to fix prices, and that was enough. In fact, Alcoa's long-term goal was to bring the cost of aluminum down in order to compete with other materials, such as steel, copper, glass, paper and wood. [43]

Justice Hand also pointed out that many of the unlawful acts which took place prior to 1937 had long ago ceased and were no longer an issue. The trade agreements between members of the international aluminum cartel, however, with their 99-year life span, were declared unlawful by Justice Hand. The Alliance cartel still existed on the books in 1945 and posed two different legal questions – do actions by foreign companies which have repercussions inside the U.S. fall within the jurisdiction, or at least the interest, of U.S. courts; and more particular to the case, did the Alliance in fact affect imports of aluminum inside the U.S.? Justice Hand believed the latter question to be the determining one and ruled that the 1936 cartel agreement violated the Sherman Anti-Trust Act. [44] With regard to Aluminium Ltd., Justice Hand found that the Canadian company's involvement in the 1936 Alliance was a violation of the Sherman Act, but he was particularly disturbed about the common ownership between Alcoa and Aluminium Ltd., according to Smith. [45]

Some fine lines and gray areas were crossed in Justice Hand's ruling. As one critic of the court's decision remarked in 1999, companies that failed to innovate would lose in the marketplace, and those that innovated too well might face the wrath of the government. Alan Greenspan, who was the Federal Reserve chairman from 1987 to 2006, was critical of the court's decision, noting that Alcoa was "being condemned for being too successful, too efficient, and too good a competitor." [46] The Justice Department had called for Alcoa's dissolution, but Justice Hand saw a moot situation

evolving by the end of World War II – numerous war-surplus aluminum plants, once privatized, could present competition to Alcoa for the first time inside the U.S. Many of the plants were leased to Alcoa during the war, and some leases did not expire until 1947 or 1948, but the 1944 Surplus Property Act provided the government with the means to dispose of the plants much sooner. [47]

The case broke new ground in anti-trust law and is considered controversial to this day – the merits of Justice Hand's decision are still debated in law schools. Conservative judicial theorists believe Justice Hand's decision did untold damage to both the intent of the Sherman Act and the entire spirit of anti-trust, according to Smith. Some found illogical the notion that a company could be found guilty of being too efficient. The 1945 Alcoa decision came out of a fairly young judicial tradition of activism that began in the late 19th century and included modern legal realists such as Louis Brandeis, Oliver Wendell Holmes and Felix Frankfurter. Justice Hand's judicial activism was rooted in a nostalgic view of how the U.S. market should work, a vision harking back to the times of Adam Smith, when the first industrial revolution was taking shape in England and small producers predominated. But Justice Hand failed to understand the nature of the aluminum industry and the importance of vertical integration, Smith said. His decision eventually led to the creation after World War II of an economic oligopoly consisting of three large and integrated producers. [48]

Dividing up the aluminum industry

The U.S. Congress passed the Surplus Property Act in 1944. Among the act's provisions was the disposal of government property "as promptly as feasible without fostering monopoly or restraint of free trade." The act also required that the Surplus Property Board submit to Congress a report describing government property and a plan for its disposition. At the close of World War II, the War Assets Administration, representing the U.S. government, owned two alumina refineries, nine aluminum smelters, three aluminum sheet rolling mills, 10 aluminum foundries, eight aluminum forging plants, seven aluminum extrusion plants, one plant manufacturing aluminum rivets, four plants producing aluminum powder and one plant producing aluminum rod and bar. These government-owned assets included the $39 million 750,000 ton-per-year Hurricane Creek alumina refinery, the $26 million 500,000 ton-per-year Baton Rouge alumina refinery, the $29 million 72,000 ton-per-year Jones Mills smelter, the $19 million 72,000 ton-per-year Troutdale smelter, the $23 million 108,000 ton-per-year Mead smelter, the $32 million 144,000 ton-per-year Maspeth smelter, the $11 million 54,000 ton-per-year Riverbank smelter, the $16 million Burlington smelter, the $24 million 54,000 ton-per-year Los Angeles smelter, the $19 million 54,000 ton-per-year St. Lawrence smelter and the $6 million 20,500 ton-per-year Tacoma smelter. Some property was scrapped. The

Torrance smelter in Los Angeles was uneconomical to run, having survived brownouts during the war due to insufficient electrical power, and was sold to the Columbia Steel Co. The Maspeth smelter was turned over to the U.S. Navy, and all the aluminum reduction equipment was removed and scrapped. The Burlington smelter was partially dismantled, with one potline in standby condition as late as 1950. The Riverbank smelter remained in standby condition as late as 1950, although some pots had been moved to one side so the building could be used as a warehouse. [49]

The nation's aluminum production capacity had increased by seven times during World War II, and its aluminum fabrication capacity had increased by 45 times. By 1946, the U.S. aluminum industry had changed in terms of geography, technology, pricing, supplies, markets and competition. About 2 million workers, technicians and managers had become familiar with the aluminum business since the war began, and new alloys, fabrication methods and other adaptations had been developed during the war. New potential markets included buildings, railroads, truck trailers, packaging, protective paints and the automobile industry. If 100 pounds was used in each automobile, and 6 million to 7 million automobiles were produced in a year, the aluminum industry could sell a large part of the wartime capacity. Alcoa spent $300 million in construction costs trebling its own facilities during the war, and the company built and operated $500 million worth of aluminum plants for the government. [50]

As the sole repository of technical, managerial and engineering knowledge and skills in the aluminum business, the government had turned to Alcoa during the war for assistance. The wartime aluminum plants were the most modern and efficient in the U.S. Some criticism was expressed against Alcoa on the suspicion that some of the plants built by Alcoa for the government were placed in uneconomical locations where power or transportation costs would be too high after the war. This argument was based on the suspicion that Alcoa anticipated that the wartime plants would be sold to competitors after the war. Countering that argument was evidence showing that the aluminum plants were constructed in locations chosen by the military for security, available labor, available power despite the costs, proximity to aircraft building plants and other wartime considerations. Of the nine modern Defense Plant Corporation aluminum plants built during the war, only three were able to produce primary aluminum at the 14 cent per pound competitive price for pigs in 1946 – the smelters in Spokane, Troutdale and Jones Mills. [51]

By 1946, Alcoa controlled 90% of the U.S. capacity for alumina and primary metal, 86% for sheet and plate, 90% for rolled rod and bar, and 70% for extruded shapes. The declared policy of Congress in the disposal of the wartime aluminum plants was to "discourage monopolistic practices" and to "foster the development of new

independent enterprise," and these guidelines directed the efforts of the Surplus Property Administration. To dispose of its aluminum properties, the Reconstruction Finance Corporation, the Defense Plant Corporation's parent organization, contacted 224 leading American companies in the metal and metal-working business seeking buyers for the aluminum plants. According to a lengthy account in the May 1946 Fortune magazine, nearly all replied in the negative, including larger firms such as the American Smelting and Refining Co. (ASARCO), Kennecott Copper and the Anaconda Copper Mining Co. The main reason for these large firms backing away from a good deal was the lack of a secure and independent supply of alumina, Fortune reported. Alcoa not only controlled most of the high-grade domestic bauxite deposits, but it also owned patents for processes that could refine low-grade bauxite into alumina. [52]

Fortune also reported that the large metal companies recognized Alcoa's tenacity – and even unscrupulousness – in controlling the U.S. aluminum market, and they decided to shy away. The major costs for aluminum smelters were paying for alumina, power, labor and carbon for electrodes. Alumina and power made up about 60% of the total costs for primary aluminum. The principle cost for alumina was transportation from the bauxite mines to the alumina refinery and then on to the smelters. Many of the wartime smelters were built in the Pacific Northwest, where power was available but transportation costs for alumina were high. Alumina costs ran about 5 cents per pound for ingot aluminum in the Pacific Northwest, compared to 3.2 cents per pound for Alcoa in 1937 before the war. Alcoa's power costs were also the lowest in the country, running about 1.25 cents per pound of ingot aluminum, a result of the company's ownership of power generating plants and good contracts with Niagara Falls, Canadian utilities, the Tennessee Valley Authority and the Bonneville Power Administration. New entries to the U.S. aluminum industry could expect to pay about 2 cents per pound of ingot aluminum for electrical power from the BPA. [53]

The U.S. government had invested about $633 million in aluminum plants at various levels of production across the nation during the war, accounting for more than half of aluminum reduction capacity – more than Alcoa itself. The government had about $100 million invested in alumina refineries, including about $15 million in experimental non-bauxitic refineries, and it owned nine reduction plants costing about $174 million, two large rolling mills in Chicago and Spokane that cost about $50 million apiece, an extrusion and fabricating plant in Phoenix that cost more than $32 million, and various other facilities across the nation. According to Engle's 1945 account, the government was faced with six alternatives for dealing with all this property: 1) dismantle the plants; 2) retain them as stand-by plants for times of emergency; 3) sell them to the highest bidder; 4) lease them to responsible parties; 5) retain them and operate them in competition with private industry; or 6) employ a mixture of these alternatives. [54]

By the end of the war, however, the total aluminum smelting capacity in the U.S. was about 1.65 million tons per year, far in excess of any immediate postwar demand. According to economists, aluminum demand was elastic – demand could be increased by lowering prices – but even with a price as low as 10 cents per pound, the most optimistic forecast envisioned a market consuming less than half the 1945 capacity. Drastic curtailment seemed inevitable, according to Engle. With that in mind, the most rational approach to disposing of the government aluminum plants was to dismantle the most inefficient ones and then try to sell off the rest to private industry. Many of the smaller wartime plants were located near urban centers where electrical power costs were excessive. These plants were run on a wartime emergency basis and could be shut down right away. It was also expected that Alcoa, the lone aluminum producer prior to the war, might consider closing down its older and most inefficient plants and keep its newer plants running. The same logic applied to the government's alumina refineries, but the biggest error was in not building an alumina refinery in the Pacific Northwest, where most of the new reduction plants were located. Strategic planners during the war thought shipping bauxite through the Panama Canal to the Pacific Northwest was too risky, so no alumina refineries were built there during the war, according to Engle. [55]

Several issues surfaced when it came to disposing of the war-surplus aluminum smelters in the Pacific Northwest, according to Carleton Green's 1954 account. First, U.S. aluminum production capacity had increased seven times since 1939, and there was concern about whether aluminum producers could sell all they made. Second, plants in the Pacific Northwest were a long way from sources of raw materials, especially bauxite from Dutch Guiana and Arkansas or alumina from refineries along the Mississippi River or Gulf Coast. Third, the plants were a long way from their customers, primarily fabricators in the East and Midwest. Fourth, Alcoa, the most experienced aluminum company and the one that built and operated most of the Pacific Northwest plants, was precluded from acquiring any of the government plants because of the 1945 anti-trust ruling. To address these problems and to draw bids from respectable companies, one government solution was to offer long-term power contracts, according to Green. In 1946 and 1947, the BPA signed favorable long-term power contracts with Kaiser and Reynolds. [56]

Debate over the division

The Surplus Property Board issued a report on the disposal of aluminum plants owned by the government on Sept. 21, 1945. Its recommendations included the following: 1) reduction plants with high power costs were to be maintained in standby condition; 2) the St. Lawrence reduction plant near Massena was to be sold to Alcoa, and Alcoa's older plant in Massena was to be junked or held in standby condition; 3) Alcoa was to

operate its reduction plants at normal capacity; 4) Alcoa was to let go of its leases on reduction plants in Spokane and Troutdale, with the Spokane plant to be leased to another operator and Alcoa purchasing the Troutdale plant if a suitable buyer could not be found in six months; 5) the reduction plant in Jones Mills would be sold to Alcoa and the alumina plant at Hurricane Creek would be leased to Alcoa, with Alcoa agreeing to supply alumina to any purchaser at a government-fixed price; 6) Alcoa would purchase the alumina plant in Baton Rouge and move it to the Pacific Northwest; 7) the reduction plant in Tacoma was to be sold to the American Smelting and Refining Co. or the Swiss Aluminum Co., or both; 8) the Surplus Board was to recommend to the President that the tariff on alumina and bauxite be cut in half; and 9) the Surplus Board was to recommend to Judge Caffey, who was overseeing the 1937 anti-trust case, that there would be no violation of the Sherman Anti-Trust Act so long as Alcoa did not produce more than 75% of the U.S. aluminum supply. [57]

On Sept. 11, 1945, ten days before the Surplus Property Board's report came out, the Justice Department criticized the plan arguing that "it could be said as a general rule that any disposal to Alcoa would be in violation of the anti-trust laws." During the war, Alcoa's lease on many of the government plants required that the company operate the plants at a minimum of 40% average capacity. In the summer of 1945, Alcoa dipped below that figure and the government canceled all the leases. The government wanted to avoid laying off all the government plant workers, but it also wanted to avoid a situation where Alcoa's position as operator would prejudice the Surplus Property Board's decision on disposal. W. Stuart Symington, head of the Surplus Property Administration, reported that "his attempt to discuss the matter with Arthur V. Davis had proved fruitless," so the government served Alcoa with a termination notice dated Aug. 30, 1945. With Alcoa out of the government's aluminum plants, and with the Surplus Board's report in hand, Congress voted to reject the board's plan on the grounds that it would increase rather than decrease Alcoa's monopoly. [58]

Sen. James Murray of Montana played a significant role in determining how the government disposed of its surplus war-time aluminum plants. Born in St. Thomas, Ontario, on May 3, 1876, the son of Irish immigrants, Murray was named for a wealthy uncle who lived in Butte and paid for Murray's education at New York University Law School. Murray moved to Butte after he graduated in 1901 to establish a legal practice there. He became active in Democratic politics in Butte and earned support by working for a time alongside copper miners there. After inheriting a sizable portion of his uncle's fortune, Murray spent most of the 1920s pursuing business interests, but he suffered a considerable loss in the 1929 Stock Market Crash, which left him embittered about Eastern financiers for the rest of his time in politics. In 1931, as the chairman of the Silver Bow County Democratic Party, Murray became a convert to President Roosevelt's

political ideas and earned a seat on Montana's Public Works Administration Advisory Board. He soon learned about the plight of Montana farmers facing an historic drought. [59]

In 1934, Murray successfully ran for election to finish the two years remaining of the late Sen. Thomas J. Walsh's term of office. Murray and Montana Sen. Burton K. Wheeler started out as political allies, but they soon divided over Roosevelt's Supreme Court-packing attempt and Roosevelt's foreign policies on the eve of World War II. Over the years, Murray's support of labor in turn garnered him the support of Butte miners, timber workers and railroad unions, and he was able to defeat powerful Republican opponents in several narrow election victories. As the chairman of the Senate Interior Committee, Murray helped secure funding for a number of Western water projects, including the Hungry Horse Dam and the Libby Dam – hydroelectric projects that benefited the aluminum smelter built near Columbia Falls, Mont. Declining health forced him into retirement in 1960. He died four months after leaving the Senate on March 23, 1961. [60]

As chairman of the Senate Small Business Committee, Sen. Murray spoke about the war-time aluminum plants at the Joint Committee Hearing on Aluminum on Oct. 15, 1945. The meeting was held by the Military Affairs Committee, Senate Small Business Committee and the Senate Postwar Planning Committee. In his prepared statement, Murray noted that his committee was "concerned with the disposal of the government-owned plants so as to provide full employment, encourage small and independent business enterprise, and maximum development of the light metals industry throughout the United States under terms of equality of opportunity to compete, and to remove all handicaps and discrimination against individuals, firms, localities and regions of the country." Murray said he wanted to see quick action taken on the disposal of the aluminum plants in order to keep the plants operating without unnecessary curtailments or shut-downs. "There can be no doubt that, although difficult problems must be met and overcome, the light metals industry is facing a brilliant future," Murray said. "I do not think it is extravagant to hope that we are in the early period of an age of light metals which will parallel the phenomenal growth of steel during the last 50 years." Murray provided a number of recommendations, including providing financial assistance for the sale or lease of the aluminum plants to independent operators. [61] Alcoa had held a monopoly in the U.S. aluminum industry since its founding, and during the war the U.S. government bought 1.1 million tons of aluminum from Alcoa at 3 cents per pound above the market price on average, Murray said. The U.S. government also advanced loans of $68 million to Aluminium Ltd. to build aluminum plants and hydroelectric dams in Canada, as did the British government. The loans to Aluminium Ltd. did not require security and were low interest until they were investigated by the Truman Committee,

at which time a 3% interest was placed on the loans. Aluminium Ltd. also was allowed to sell all its aluminum in the U.S. during the war without paying a duty, Murray noted. [62]

The U.S. Attorney General's Office weighed in on Sept. 19, 1945, with a 77-page plan for the war-time aluminum plants that focused on the monopoly held by Alcoa. One alternative in the plan called for dividing Alcoa into smaller companies based on geographical "clusters" – for example Alcoa, Tenn., New Kensington, Penn. and Massena, N.Y. The war-surplus plants could be reapportioned to these successor companies of Alcoa as well as to new companies that would compete with them. [63] James P. McGranery, assistant to the U.S. Attorney General, presented the plan to the Joint Committee Hearing on Aluminum on Oct. 15, 1945. McGranery began by noting that the U.S. courts still held control over whatever actions would be taken with respect to Alcoa's private property. He noted that the court ruled in March 1945 that "in deciding whether to dissolve Alcoa or how to do it," the court will "wait until it learns what the (Surplus Property Administration) has in fact done." [64]

McGranery pointed out that Alcoa currently managed more than 90% of the U.S. aluminum industry's production capacity and 75% of its fabrication capacity, but most of that capacity was actually owned by the U.S. government. He noted that Alcoa's leases on government plants would end on Nov. 1, 1945, but no bidders had come forward yet to purchase the plants. Potential bidders faced handicaps in acquiring bauxite and power supplies, operating government plants that were far too big to be run profitably, and dealing with government plants that were in bad locations. McGranery called on the government to help new competitors enter the industry. "The burden of monopoly during the war was the burden of having only one experienced company to carry the enormous responsibility for supplying the aluminum needed by the aircraft companies," McGranery said. "It is not at all an issue of patriotism. Even the best of one company was not enough. Also, when expansion had to take place, there was only one small pool of experience which had to be spread very thin." McGranery pointed out that the Reconstruction Finance Corporation's announcement in September 1945 that it would cancel Alcoa's leases at some government plants "had a wholesome effect" and led to the first formal bid by Reynolds. [65]

On Sept. 21, 1945, Alcoa issued a formal 45-page "letter of protest" to the Surplus Property Administration in response to statements made by the U.S. Attorney General's Office and other officials regarding Alcoa's monopoly status and the proper disposition of surplus aluminum plants. To put Alcoa's position in perspective, the company noted that the federal government held $672 million worth of aluminum production facilities in 50 different wholly-owned plants and $30 million more in other facilities, with title nearly all held by the Reconstruction Finance Corporation. In comparison, Alcoa held

older properties worth about $474 million, with a substantial portion relying on borrowed money. The U.S. share of production of alumina from bauxite was 52%, of alumina from other ores was 100%, of primary aluminum was 57%, of sheet, strip and plate was 40.5%, of rolled rod and bar was 44.3%, of tubing was 15.8%, of forgings was 44.7%, of sand castings was 10.3%, of permanent mold castings was 4%, of cylinder heads was 69%, of rod and bar extrusions was 59%, of shape extrusions was 45%, of tube blooms extrusions was 20%, of rivets was 25% and of powder was 69%. [66]

In its protest letter, Alcoa sharply criticized the idea of providing government assistance to new aluminum companies. “Everyone realizes the viciousness of subsidizing a private operator with public funds,” the letter said. “It is not only a waste of taxpayers’ money; it is a diversion of public money to private use. Everyone realizes that he who pays the piper calls the tune. If the Reconstruction Finance Corporation subsidizes the operators of government plants, it will control their raw materials, their manufacturing costs and their sales programs. Through these subsidized private operators, the Reconstruction Finance Corporation will also largely control the policies of the competitors of such subsidized operators.” Alcoa also noted that the aluminum industry was not difficult to enter. “Subsidies are wholly unnecessary in the aluminum industry,” the letter said. “Raw materials are available in unlimited quantities at competitive prices. The manufacture of aluminum is not controlled either by patents or secret processes.” Alcoa specifically protested language used in the War Surplus Board’s Sept. 21, 1945, report that characterized Alcoa as dominant in control of raw materials, a low-cost provider that nobody could compete with Alcoa, dominant in the global aluminum market and a ruthless competitor. “These are incorrect assumptions, but it is on the basis of them that the report reaches the conclusion that the government-owned aluminum plants cannot be operated competitively unless the lessees or purchasers are sustained with tremendous federal subsidies, which will carry in their train a substantial governmental control of prices and markets,” the letter said. “We protest both these premises and that conclusion.” [67]

Judge Knox later described Alcoa’s protest letter this way: “From the intemperated wording of the letter, its many misstatements, and its misinterpretation of the Report by quotations improperly abstracted from their contexts, it is hard to believe that it was not a deliberate attempt to set a gloss upon the Board’s work.” On Oct. 17, 1945, Alcoa made a serious bid to lease the Hurricane Creek alumina refinery, but the Surplus Board sought the advice of the Justice Department, which advised against the lease. On Jan. 6, 1946, Symington sent a report in response to Alcoa’s letter to Sen. Joseph O’Mahoney of Wyoming, chairman of the Senate Subcommittee on Surplus Property, and released it for the public. The report accused Alcoa of interfering with the statutory aims of the Surplus Property Act, including preventing ASARCO from inspecting Alcoa’s operations

records from Hurricane Creek, which had led to ASARCO's dropping out. [68] Symington also publicly accused Alcoa of using its patents to obstruct the government's effort to dispose of the plants. Symington claimed Alcoa was attempting "to distract the members of Congress and the public from the fact that Alcoa was seeking to obtain the more desirable government plants and thus to increase and solidify its own monopolistic position." He also accused Alcoa of using its patents as bargaining tools to either settle or dismiss its ongoing anti-trust lawsuit. A proper disposal of the plants to foster competition in the aluminum industry might not be possible unless Alcoa changed its attitude or the courts reorganized the company under the Sherman Act, he concluded. [69]

Patent rights and competition

The patent rights in question involved processes used at the government-owned Hurricane Creek alumina refinery, which was capable of producing 750,000 tons of alumina per year from low-grade bauxite. The Alcoa patents reduced the cost of production at Hurricane Creek by $10 to $12 per ton. No company could successfully enter into the aluminum business without an independent source of alumina, which made the Hurricane Creek refinery a key element to the government's effort to dispose of its wartime aluminum properties, Fortune reported in 1946. Reynolds was interested in buying the plant, and the government wanted to promote that sale. On Jan. 8, 1946, two days after Symington's public announcement, three of Alcoa's top officials arrived in Washington, D.C., including board chairman Arthur Davis, vice-president of operations Irving Wilson and the company's leading counsel, Leon Hickman. Alcoa was interested primarily in protecting itself from the 1945 anti-trust decision. The final ruling in the case had been suspended until the government was able to dispose of its wartime aluminum properties. [70]

The three Alcoa officials met with Symington and Attorney General Tom Clark, according to Fortune. Alcoa's first offer was to make a fair deal on its patents in exchange for the government closing its anti-trust case. Clark said no. Alcoa's second offer was to make a fair deal on the patents in exchange for equal rights to bid on the government's wartime aluminum properties. Symington said no. Alcoa's third offer was to finance their own expansion with their own funds. Wendell Berge, chief of the government's anti-trust division, explained that Alcoa would be taking a risk since it would be up to the court and the Justice Department to decide if the company's expansion programs continued to give it a monopoly in the aluminum market. Davis grew angry and argued that a person should be able to invest his own money in his own business. Davis also argued that if three or four boarding houses existed in an area and one served the best meals, then that one should get all the business. Clark pointed out that to his knowledge, the

boarding house in question had not violated the Sherman Anti-Trust Act, as Alcoa had. Symington added that if only one boarding house existed, there was no way to tell if it served the best food. As the meeting deteriorated, Symington remarked that perhaps the government should just sell the Hurricane Creek plant to Reynolds and leave it up to Alcoa to protect its patent license on its own. Hickman replied, "Now you're getting pugnacious again." Symington replied, "Not at all. What is a patent, anyway, but a right to sue?" [71]

The next day, Jan. 9, 1946, Alcoa made a new offer – Reynolds, or another company, could operate the Hurricane Creek alumina refinery license-free up to 25% of its capacity. Above that, a royalty of $1 per ton would have to be paid to Alcoa. Reynolds had expected to only use the facility up to 25% capacity, but the government wanted the plant operated at a higher capacity so it could sell alumina to other competitors in the industry, according to Fortune. The $1 per ton royalty would hinder the plant's effectiveness in promoting competition. Later that same day, Symington voiced these objections to the Alcoa officials with a new twist – he praised Alcoa's new proposal as being in the public interest, and then asked that the company go further and just drop the royalty issue altogether. Symington suggested that the move would give Alcoa much needed publicity as a patriotic gesture, and would help in their relations with Symington at his new job as Assistant Secretary of War for Air. An hour later, the Alcoa officials returned with their final offer – the patents used at the Hurricane Creek refinery for producing alumina from low-grade bauxite were offered up to the government license-free. The next day, Jan. 10, 1946, Symington appeared in public praising Alcoa and essentially eating his own words from four days earlier. As predicted by the people at the Surplus Property Administration, the breakthrough over the disposal of the Hurricane Creek plant started a rush by others for the government's aluminum plants. [72]

Royalty-free licenses for the patented processes used by Alcoa at the Hurricane Creek refinery were necessary for its successful operation, Judge Knox noted in 1950. Alcoa made "its first positive contribution to the creation of post-war competition" when Davis tendered an offer for the patents that included a "grant-back" provision, Knox said. The provision stated that Alcoa would gain non-exclusive royalty-free licenses for any improvements made by the government or any other operator at Hurricane Creek. "Thereafter, Alcoa was showered with encomium by Symington, by Sen. Joseph O'Mahoney, and by the then Attorney General," Judge Knox said. The government leased the Hurricane Creek refinery to Reynolds in April 1946, and the government agreed to indemnify Reynolds against any claims Alcoa might make for patent infringement. In August 1946, Alcoa tendered a similar grant-back offer for the Baton Rouge refinery, and Kaiser became the new lease-holder. Both Reynolds and Kaiser assumed the government would carry the burden of obtaining from Alcoa any patents

needed to operate the plants. The War Assets Administration estimated that the royalty costs for certain Alcoa patents – particularly the direct-chill process, the fluoride process used at Hurricane Creek and patents on certain alloys – would have the practical effect of forcing the government to abandon its investment in its aluminum plants. Negotiations carried on between the War Assets Administration and Alcoa with mixed results, and in November 1947, Kaiser signed license agreements with Alcoa effective Dec. 1, 1947. The government later claimed that Kaiser's licenses were unfair and restrictive. [73]

In the summer of 1948, Jess Larson, head of the War Assets Administration, made an attempt to reach a compromise with Alcoa on the grounds of national defense and the need for competition in the U.S. aluminum industry. Larson's agency met with Alcoa in Washington, D.C. culminating in a 10-point agreement on Oct. 29, 1948. Point one called for the sale of the St. Lawrence reduction plant to Alcoa. Point two called for the sale of equipment at the Burlington, N.J., carbon plant to Alcoa. The remaining eight points related to patents. The War Assets Administration had estimated a fair value for the St. Lawrence plant was $13 million and then offered to sell the plant for $8.1 million. Alcoa offered only $5 million in cash. The War Assets Administration sought advice from the Justice Department about the sale of the St. Lawrence plant to Alcoa in June 1948 and was told there were anti-trust concerns. [74]

After consulting with the Munitions Board and the National Security Resources Board on the nation's aluminum supply and being told of a critical shortage, Larson decided to accept Alcoa's offer of $5 million for the St. Lawrence plant. In November 1948, Alcoa took possession of the plant but, at the request of the Attorney General, the War Assets Administration declined to receive payment for the purchase price. Judge Knox ruled in 1950 that the sale of the St. Lawrence plant would only marginally increase Alcoa's competitive advantage, but in terms of national security the sale should be accepted. Regarding the patents issue, Alcoa agreed to remove most of the restraints that the government claimed were unfair to Kaiser but retained grant-back provisions. In 1950, Judge Knox ruled that the grant-back provisions "constitute a potential restraint on the restoration of lawful competitive conditions to such an extent as to require appropriate remedial action." [75]

The Big 3 aluminum producers

The future of competition in the U.S. aluminum industry was not settled for several years after World War II ended. Confusion over the status of the war-surplus aluminum plants was partially to blame for a decline in aluminum production in the U.S. from 1945 to 1946. Ingot production fell 36% below the 1944 level to only 495,000 tons in 1945.

Production in the first half of 1946 was also held back by labor strikes, shortages of soda ash used in alumina refineries and insufficient power supplies. Production fell to 410,000 tons in 1946 – the lowest since before 1941. [76] As the economy straightened out, the aluminum industry found itself in the grips of an oligopoly instead of a monopoly, what came to be known as the Big 3 – Alcoa, Reynolds and Kaiser. The Reynolds Metals Co. had been in the aluminum industry for a long time as a foil manufacturer, where it became the domestic leader, and had become an aluminum producer in 1941 with the Listerhill and Longview smelters on opposite shores of the continent. But what Reynolds didn't own were bauxite mines and an alumina smelter, and it needed more fabricating plants. The Kaiser Aluminum Co. emerged out of a construction company that was the prime contractor for the Hoover, Bonneville and Grand Coulee dams and went on to produce Liberty Ships at the rate of one every 45 days on average at Kaiser's shipyard in Richmond, Calif., during World War II. [77]

In 1946, Reynolds acquired several wartime aluminum plants owned by the government. In addition to purchasing the Hurricane Creek alumina refinery, Reynolds leased a $44 million sheet mill in Chicago, leased an extrusion plant in Grand Rapids, Mich., and paid $7 million for the $20 million sheet, rod and bar mill Reynolds had run during the war at Listerhill. Reynolds lost money producing ingot aluminum during the war, but in 1940 through 1945 the company made a net profit of $18 million after taxes, twice its earnings for the six years prior, according to Fortune. By 1946, Reynolds also owed $34 million for Reconstruction Finance Corporation loans needed to build the Listerhill and Longview smelter plants. Reynolds had begun scouting for new bauxite deposits in Haiti and Jamaica, where it claimed to have found a hundred-year supply. [78] Reynolds also bought the Jones Mills and Troutdale smelters and led the way with innovative product development and marketing strategies – in 1947, the company introduced Reynolds Wrap for household use. [79] In 1946, Reynolds Metals signed a 20-year power contract with the Bonneville Power Administration for the Troutdale plant, and by 1950, the plant had four 50,000-amp potlines running and employed 775 workers. Alumina was transported to Troutdale by rail from the Hurricane Creek refinery. [80] Then in 1947, Reynolds cut back production at its Longview plant because of an oversupply of aluminum – a quick introduction to the ups and downs of the global aluminum commodity market. [81]

Kaiser became a player in the U.S. aluminum industry in April 1946 when a division of Kaiser called Kaiser-Cargo Inc. took a five-year lease on the $22 million Mead aluminum smelter in Spokane. Another division of Kaiser, the Kaiser-Frazer Corporation, took a lease on the nearby $48 million Trentwood sheet-rolling mill. [82] The investment began small, as Henry Kaiser and three partners in the privately-held Permanente Metals Corp. leased the smelter and rolling mill as well as the Baton Rouge alumina refinery. The

company went public in 1948 to raise capital to expand its business and changed its name to the Kaiser Aluminum & Chemical Corporation in 1949. [83] Kaiser signed a 17-year power contract with the BPA in 1946, and by 1950 the Mead smelter had six 50,000-amp prebake potlines running with a capacity of 108,000 tons per year, about 15% of the total U.S. capacity, and employed about 1,100 workers. Kaiser also took over the Tacoma smelter in 1946 and signed a 21-year power contract with the BPA. By 1950, the Tacoma plant had three 25,000-amp Soderberg potlines running with a capacity of 24,000 tons per year, about 3% of the total U.S. capacity, and employed about 300 workers. Alumina was transported by rail to the two Washington plants from Kaiser's alumina refinery in Baton Rouge. [84]

Henry John Kaiser was born in Sprout Brook, N.Y., on May 9, 1882, the son of ethnic Germans – his father was a shoemaker. [85] In 1895, Kaiser left school at 13 to work in a dry-goods store. Three years later, he told the owner of a photography studio in Sprout Brook that he could triple the store's profits in two months by providing a one-day photo service. He later bought out the owner and opened three photographic studios and supply stores on the East Coast. Kaiser moved out West in 1906 and worked in the hardware business until 1914 and then got into road construction. [86] He used his savings to start a construction company in Washington State that handled government contracts. In 1914, he formed a paving company that was one of the first to use heavy machinery. By 1927, he received a $20 million contract to build roads in Cuba. [87] During the 1930s, he helped found Six Companies Inc., a loose grouping of builders and earth-movers that built the Grand Coulee, Bonneville, Boulder and Hoover dams and the Bay Bridge between San Francisco and Oakland. His speedy work on the Hoover Dam got Kaiser in trouble with Interior Secretary Harold Ickes, and Six Companies was charged with violating the eight-hour-per-day work law. Six Companies was fined $350,000, but Kaiser made a dramatic appeal that not only reduced the fines to $100,000 but made him known to the public as a force to be reckoned with. [88]

Kaiser also started a shipbuilding business in Seattle and Tacoma that used mass production techniques and welding instead of riveting. [89] During World War II, Six Companies moved into the manufacture of ships, aircraft, steel and magnesium. Kaiser was responsible for producing 1,440 cargo ships and 50 aircraft carriers, with the establishment of Todd Shipbuilding Corp. in northern California in 1940. [90] In 1940, Kaiser served as chairman of a relief organization that assisted victims of Nazi aggression in Europe. Unlike Henry Ford and other U.S. industrialists, Kaiser was concerned about U.S. isolation. Kaiser opened a field hospital for workers at a Kaiser shipyard opened on Aug. 10, 1942 that later became Kaiser Permanente, a large nationwide health provider. [91] Kaiser joined Joseph Frazer in 1945 to create the Kaiser-Frazer Corp. to manufacture automobiles. When they had trouble getting steel, they turned to the idea of making

aluminum automobiles, but the idea was too advanced at the time, and the company never got going. [92] Kaiser also got into real estate development in Hawaii. In his later years, Kaiser settled in Honolulu, where he dabbled in planning and real estate and convinced Warner Brothers to produce a new TV show based on "77 Sunset Strip" that was called "Hawaiian Eye." [93] Henry J. Kaiser died in 1967 and left his son Edgar J. Kaiser as chairman of the board. [94]

When the U.S. government first invited several private companies to take over the Mead smelter near Spokane, the metals market did not look promising, with 2 billion tons of aluminum in strategic stockpiles and thousands of war planes destined for the scrap heap. [95] Bauxite was hard to obtain in 1946, but Alcoa had discharged hundreds of workers knowledgeable about aluminum production, and Henry Kaiser hired them for his foray into the aluminum industry under the name Permanente Metals Corp. [96] When Kaiser signed a lease for the plant in 1946, Fortune magazine called it "Henry's folly," but Kaiser paid $458,000 the first year and netted a $5.9 million profit. By 1950, he owned the facility outright, and Fortune magazine had changed its opinion, saying, "Not since the rise of Henry Ford has an industrial figure come so far in so short a time." [97] To get started, Permanente Metals focused on consumer demand for aluminum cooking utensils and the international need for building materials, and the company reached a five-year bauxite supply agreement with Alcoa. To raise capital, the company went public in July 1948. Permanente Metals acquired an aluminum foil mill in Germany in 1949, which it dismantled and moved to the U.S. It also acquired a wire, bar and cable mill in Newark, Ohio, in 1949, and got into the electrical conductor business. The company changed its name to Kaiser Aluminum and Chemical Corp. in November 1949. [98] In a setback during the immediate post-war years, Kaiser was unable meet its obligations on a $105 million Reconstruction Finance Corporation loan it took out to build a steel plant in Fontana, Calif. On Aug. 11, 1947, Leo Nielson, RFC's acting secretary, wrote to Henry Kaiser in response to Kaiser's request that RFC forgive $85.3 million of the steel plant loan. Nielson told Kaiser that RFC would not support Kaiser's request. [99]

The Big 3 were not alone on the North American continent. By 1950, Aluminium Ltd. was the largest aluminum producer in the world. Most of its production facilities were located in Canada, but it also owned plants in Norway, Sweden, Italy and India. In the time since its inception in 1928, Aluminium Ltd. had improved its facilities and operations. In 1948, despite water shortages causing electrical shortages, Aluminium Ltd.'s Canadian plants produced 367,000 tons of primary aluminum. Nathaniel V. Davis, president of the company, estimated the total capacity of the company at 496,000 tons per year. Unlike Alcoa, Reynolds and Kaiser, Aluminium Ltd. was essentially a supplier of ingot aluminum, not fabricated products. By 1950, its production costs had dropped to

the point that its aluminum was cheaper than Reynolds' or Kaiser's despite a 2-cent per pound tariff. The Canadian plants enjoyed both cheap electric power and cheap transportation costs. Out of 400,000 tons of aluminum produced by Aluminium Ltd.'s Canadian plants, about 55,000 tons were consumed in Canada and 80,000 tons were shipped to the U.S., mostly to Alcoa. Aluminium Ltd. and Alcoa signed a contract for 150,000 tons to be purchased by Alcoa between April 1, 1948 and March 31, 1950. Alcoa explained that anticipated rapid growth in demand would outstrip Alcoa's production capacity, so the company had sought a contract with Aluminium Ltd. In turn, Aluminium Ltd. needed an outlet for its primary aluminum, and neither Reynolds nor Kaiser was in a strong enough financial condition to enter into such a large contract. On the other hand, the U.S. government believed Alcoa actually controlled the distribution of Canadian aluminum. [100]

Aluminium Ltd. was in a strong financial condition, but the concentration of stock ownership discovered in the 1937 anti-trust case continued to exist by 1950. Arthur V. Davis, Edward K. Davis, Roy A. Hunt and six members of the Mellon family owned 46.43% of Alcoa's common stock and 44.65% of Aluminium Ltd.'s common stock. With the addition of Doris Duke and the trustees of the Duke Endowment, 11 stockholders held a majority of the shares in both Alcoa and Aluminium Ltd. Therefore it could be said that three families held total control over the two largest aluminum producing companies in the world – the Davis, Hunt and Mellon families. In his 1950 ruling in the Alcoa anti-trust case, Judge Knox wrote, "To permit this potential power to continue where it now resides, and thus supplement Alcoa's relatively large resources, may constitute a hazard of the utmost danger to the competitive efforts of Reynolds and Kaiser." Judge Knox questioned the degree of control by Alcoa, but he did take note of the familial connections between Alcoa and Aluminium Ltd., where Nathaniel Davis, at 34 years old and at the helm of Aluminium Ltd. only two years, was the nephew of Arthur Davis, Alcoa's board chairman. Nathaniel Davis only owned 275 shares in his company, while his uncle owned 10 times more shares than even Nathaniel's father, Edward K. Davis. Judge Knox stated that "it is easy, and even natural, to suppose that family influences played some part in (Nathaniel Davis's) elevation to office. Now that Limited is a vital competitive factor in the domestic market, some cognizance of these family ties must be taken into account." [101]

Alcoa stays on top

In 1947, Alcoa produced 88% of the aluminum bought by independent fabricators in the U.S. Reynolds produced 9%, and Kaiser produced 3%. In 1948, the figures changed to Alcoa 85%; Reynolds 10%; and Kaiser 5%. The figures were skewed in favor of Alcoa because both Reynolds and Kaiser used much of their primary aluminum production to

supply their own fabricating plants. In 1947, Alcoa produced 55.8% of the primary aluminum made in the U.S., Reynolds produced 28%, and Kaiser produced 16.2%. By 1948, the figures had changed to Alcoa 52.3%; Reynolds 27.1%; and Kaiser 20.6%. A major difference between Alcoa and the other two companies was the amount of primary and secondary, or scrap, aluminum purchased by Alcoa. In 1947, Alcoa purchased 57,000 tons of primary and 45,500 tons of secondary aluminum, while Reynolds and Kaiser together purchased only 9,500 tons of primary and 12,000 tons of secondary aluminum. In 1948, Alcoa purchased 73,000 tons of primary and 18,500 tons of secondary aluminum, while Reynolds and Kaiser together purchased only 21,000 tons of primary and 14,500 tons of secondary aluminum. The primary and secondary aluminum purchased by these companies could be used in their fabrication plants. Alcoa held a commanding position in the pig and ingot trade, as well as all fabricated products with the exception of sheet. [102]

In the big picture, Alcoa held 50% of the overall market in aluminum while Reynolds and Kaiser together held about 35% – the rest being independent fabricators and imports. Alcoa also benefited from a greater diversification in fabricated products, while both Reynolds and Kaiser focused their efforts on sheet-rolling equipment. Furthermore, Alcoa's production costs were lower than those for Reynolds and Kaiser. Alcoa's lower average power costs resulted mostly from its ownership of power generating facilities, despite the use of government-supplied power by Reynolds and Kaiser. Alcoa's shipping costs between smelters and fabricating plants were somewhat lower, too, reflecting better geographic positioning of its facilities. Alcoa produced more 99.7% purity ingot than either Reynolds or Kaiser, and that was the quality demanded by the U.S. government for national security stockpiling. Overall, Alcoa's mill costs were 5% lower than Reynold's and 10% lower than Kaiser's. Financially, Alcoa held the higher ground, with six times the net worth of Reynolds and nine times the net worth of Kaiser. The financial situation was compounded by the debt incurred by both Reynolds and Kaiser in purchasing their aluminum plants. The interest rates on Alcoa's debts were much lower than those for Reynolds and Kaiser. Alcoa's ratio of net worth to long-term debt and its ratio of total assets to long-term debt were better than those for Reynolds or Kaiser. [103]

Temporary declines in orders for aluminum in 1946, 1947 and 1949 demonstrated the vulnerability of Reynolds' and Kaiser's finances, a point Judge Knox noted in 1950. Referring to his company's fight to stay afloat in 1947, R.S. Reynolds Jr. said, "We just got whipsawed that year." Alcoa also spent $7 million per year on research and development, more than 10 times the amount spent by Reynolds and Kaiser together. This expenditure put Alcoa in a position to become even more efficient and to develop new processes or products that would give the company more patent control. Judge Knox weighed this evidence, along with the enormous costs of building smelter facilities

from scratch and the shortage of new hydroelectric sites, and concluded that "there is no likelihood of domestic competition arising in the aluminum industry, as now constituted, to challenge the present three producers." As for the prospect of divesting Alcoa of aluminum producing facilities to create a new producer, Judge Knox said, "The vertical divestiture of an integrated concern so as to create, at a minimum, another fully integrated and effective competitor would be, in its nature, a highly speculative – and even hazardous – venture." The main threat to the success of Reynolds and Kaiser in the American aluminum industry, Knox thought, came from Aluminium Ltd. [104]

As of Sept. 30, 1949, Alcoa owned 775 patents, was the exclusive licensee of 57 additional patents, and was a non-exclusive licensee of more than 125 additional patents. Alcoa was obligated by contract to license all but two of these patents to Reynolds and Kaiser. More than 500 companies paid royalties to Alcoa for its patents. Eleven of Alcoa's patents were considered competitively significant. Two involved the lime-soda sinter process used in refining low-grade bauxite into alumina. Alcoa spent considerable efforts developing this process, and the patents were set to expire on May 8, 1962. A third patent described a continuous, as opposed to a batch, digestion process used in alumina refineries and was set to expire on Feb. 8, 1955. A fourth patent, called the starch patent, improved the removal rate of red mud in alumina refineries and was set to expire on April 28, 1957. A fifth patent improved the production of aluminum fluoride and was set to expire on Dec. 5, 1950. A sixth patent described direct-chill casting, also called the D.C. process, which made it possible to cool ingot metal quickly without separating the alloying metals from the aluminum as the metal was cast. The resulting ingots made rolling mills possible. The patent was set to expire on Nov. 3, 1959. A seventh patent helped stabilize aluminum-magnesium alloys for cold rolling and was set to expire on Nov. 22, 1955. An eighth patent described the manufacture of aluminum alloy-clad products and was set to expire on April 9, 1952. There was a large market for clad products that protected aluminum sheeting from corrosion. Two more patents, known as the 11S and R-317 patents, described the production of free-cutting alloys, which were more easily machined. These patents were set to expire on Jan. 7, 1953 and July 14, 1953. An eleventh patent described a method to create alloys of aluminum and magnesium without oxidation by the addition of beryllium. Judge Knox concluded that Alcoa's patents did not contribute to an anti-competitive business climate, but he expressed concern about Alcoa's influence in the future resulting from its large investment in research and development. [105]

The final rounds in court

With the division of the World War II plants between Alcoa, Reynolds and Kaiser and the 1928 split of Alcoa into Alcoa and Aluminium Ltd., North America was left with an

oligopoly of four major aluminum companies. Substantial changes had occurred in the American aluminum industry immediately following World War II. On March 31, 1947, Alcoa sought a court decree stating that it no longer monopolized the production of primary aluminum ingot, and that competitive conditions prevailed in the industry. The Justice Department responded by filing a petition on Sept. 24, 1948, requiring Alcoa to divest itself of certain properties in order to restore competitive conditions. [106] On June 2, 1950, Judge Knox ruled that although Alcoa was not a monopoly, the company possessed "monopoly potential." Knox ordered shareholders in Alcoa and Aluminum Ltd. to dispose of their holdings in one or the other of the two companies within 10 years. To ensure that Alcoa acted fairly, the company's every move was scrutinized by the Justice Department and Congress. [107] Judge Knox handed down his lengthy and novel decision in the continuing U.S. v. Alcoa anti-trust case on June 2, 1950. Ironies between the Judge Hand decision and the new ruling were obvious. Judge Knox was concerned about what effect the emerging Korean Conflict would have on the case – the aluminum industry's strategic importance had been well established. [108]

Judge Knox first disposed of the government's charges of monopolization – Alcoa had 51% of the U.S. market while Reynolds had 31% and Kaiser had 18%. Furthermore, with the addition of the secondary scrap market and competition by materials outside the aluminum industry, Judge Knox believed Alcoa was incapable of controlling aluminum prices. He also believed that divestiture of a vertically-integrated company would be unwise in light of the strategic needs of the nation. Overall, Judge Knox ruled that Alcoa possessed "impressive industrial power" with "monopoly potential" and that the key to that potential was its ties to Aluminium Ltd. The Canadian company produced the lowest-cost primary aluminum in the world and was capable of flooding the U.S. market. Judge Knox ordered the stockholders to divest their holdings – marking the first time in history that American stockholders were ordered to relinquish control over a foreign company. Judge Knox realized he was potentially creating a new problem – the possibility that Aluminium Ltd. would be free from anti-trust concerns to harm the U.S. market with a glut of cheap aluminum ingot. He set a five-year period for review of the case and instructed Alcoa to assist Reynolds and Kaiser, the newcomers in the aluminum industry, so competition would be maintained. [109]

Among the rulings made by Judge Knox: 1) the evidence presented by the government or found by the court's own research was insufficient to require that Alcoa be divested of certain properties; 2) the court would retain jurisdiction of the case for another five years; 3) the grant-back provisions of certain patent licenses executed by Alcoa were invalid; 4) the agreement for the sale of the St. Lawrence smelter by the War Assets Administration to Alcoa should be fully executed; and 5) shareholders of Alcoa should be required to dispose of their stock interests in either Alcoa or in Aluminium Ltd. Judge

Knox also expanded on Judge Hand's interpretation of monopoly control and came up with four relevant factors to consider: 1) the number and strength of competing companies in an industry; 2) the effectiveness of these companies in terms of technological expertise and foreign trade; 3) national security interests in maintaining strong productive facilities and maximum scientific research; and 4) the public interest in lowered cost and uninterrupted production of aluminum. [110]

In June 1957, after the Justice Department's request for an extension of judicial jurisdiction over Alcoa was dismissed, the government's long anti-trust effort basically came to an end. [111] Judge John M. Cashin refused a request from the Justice Department to extend the court's jurisdiction over Alcoa for another five years. The government had argued that the Korean War and defense build-ups for the Cold War had modified the free market, and it was still too soon to know for sure if Alcoa posed a monopolistic threat. To some, according to Smith, it appeared that the government was just going through the motions. [112]

Officially, the anti-trust case was over, but economic factors and the entry of new companies in the aluminum industry drove competition. By 1956, Alcoa's share of North American aluminum capacity had dropped to 33%, leaving 27% for Aluminium Ltd., by then renamed Alcan, and 40% for Kaiser and Reynolds. [113] Economic growth in the 1950s helped Alcoa more than the loss of its monopoly hurt it, according to Smith. Between 1947 and 1958, real gross national product grew from $470 billion to $700 billion. Competition between the vertically-integrated Big 3 – Alcoa, Reynolds and Kaiser – as well as Alcan and a few independents had led not only to expansion of well-established markets but the aggressive development of new markets. Per capita consumption of aluminum doubled during this time period. Contributing to this growth was another major war – in Korea – and an on-going Cold War military build-up, but in the long-run it was growth in the civilian market that established the future of the industry. [114]

Judge Cashin's ruling in 1957 was not the end of litigation over war-surplus aluminum plants. On Dec. 8, 1958, the General Services Administration began its defense in the U.S. Court of Claims in a $5.5 million damage lawsuit brought by the Kaiser Aluminum and Chemical Corp. Kaiser argued that the government had given more favorable terms to the Reynolds Metals Co. when the government sold its aluminum plants at the end of the war. In July 1949, Kaiser had purchased three plants from the General Services Administration for $36 million, while Reynolds had bought four similar plants in December 1949 for $48.4 million. Although government rules set the sale price of the plants at 39.39% of the government's acquisition price, Kaiser alleged the government arranged more favorable terms for Reynolds. [115]

New anti-trust allegations were levied against Alcoa nearly two decades after the end of World War II. On Jan. 28, 1963, a federal district court in New York ruled in favor of Alcoa after the Justice Department claimed that Alcoa's acquisition of wire and cable manufacturer Rome Cable lessened competition in the aluminum wire and cable market. Alcoa was credited with pioneering the use of aluminum as an electrical conductor, and prior to World War II Alcoa was practically the sole producer in the U.S. of aluminum cable for transmission purposes. Among Alcoa's products was the aluminum-covered steel reinforced ACSR cable used in transmission lines. By 1963, however, Alcoa faced serious competition in the marketing of aluminum wire and cable. Incorporated in 1936, Rome Cable was primarily engaged in the manufacture of copper wire and cable products. Alcoa had begun a tolling agreement with Rome Cable in 1952, whereby Alcoa supplied bare aluminum wire and Rome encapsulated the wire with various types of insulation. Also in 1952, Rome Cable began manufacturing aluminum rod from ingot purchased from primary aluminum producers. After 1953, Rome Cable began selling aluminum wire and cable along with copper. On March 31, 1959, Alcoa acquired all of Rome Cable's assets through an exchange of stock, and Rome Cable became a subsidiary of Alcoa. [116]

The U.S. aluminum industry was quite different by the end of the 1950s – the major aluminum producing companies were positioning themselves to create new markets for their smelters. In 1957, both Olin Mathieson, a one-half owner of aluminum producer Ormet Inc., and Kaiser Aluminum acquired companies which manufactured wire or insulation for wire. Following Alcoa's acquisition of Rome Cable, the Reynolds Metals Co. acquired a wire and cable fabricator in 1961, and Alcan acquired another cable manufacturer in 1963. Alcoa was the leading producer of insulated aluminum conductors in 1958, with 27.8% of the insulated wire market, and 32.5% of the bare wire market. Together, Alcoa and Kaiser controlled 50% of the insulated aluminum conductor market. On June 1, 1964, the U.S. Supreme Court overturned an earlier court decision and ruled that Alcoa had violated Section 7 of the Clayton Act by creating an anti-competitive effect on the marketplace. In the course of deciding the case, 500 documentary exhibits were received in evidence, 50 witnesses were heard, and the record came to 3,500 pages. [117]

Key to the Court's decision was its belief that the existence of any competition at all in the U.S. aluminum industry was due to federal intervention, beginning with its anti-trust ruling against Alcoa in 1945 and its disposal of World War II aluminum plants to Kaiser and Reynolds. The court noted that by 1963, as many as 200 fabricators were involved in the manufacture of copper and aluminum wire and cable in the U.S., and vigorous competition existed between the integrated aluminum companies and the fabricators. Furthermore, the court found that competition did exist in the market for primary

aluminum between the integrated aluminum companies in the U.S., non-integrated companies in the U.S. such as Anaconda, and aluminum companies in Canada and Europe. In 1948, Alcoa produced 52% of all the primary aluminum in the U.S. By 1956, that figure had declined to 45%, and by 1960 it had declined to 36%. [118]

"The history of the aluminum industry in this country from its beginning to World War II is for all practical purposes a history of Alcoa itself," Chief Judge William Brennan had stated in the U.S. District Court ruling. Following World War II, primarily as a result of government action, several companies gained a place as fully integrated aluminum producers, including Reynolds and Kaiser. "Undoubtedly Alcoa is large in size, both physically and financially," Judge Brennan concluded. "Its activities are varied and extensive. Care however must be taken not to exaggerate its influence because of its size alone, especially in the absence of evidence of the abuse of the power which goes with size." [119] The U.S. Supreme Court, however, disagreed. Alcoa's acquisition of Rome Cable only added 1.3% to Alcoa's control of the aluminum conductor market, but "in this setting that seems to us reasonably likely to produce a substantial lessening of competition within the meaning of Section 7," the Supreme Court stated in its ruling. In a dissenting opinion, Justice Potter Stewart wrote, "The Government has not claimed that any of these findings of fact are clearly erroneous, nor does the Court today hold them to be. Nevertheless, the Court reverses the judgment. I find it difficult to understand the Court's conclusion, and impossible to agree with it." [120]

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