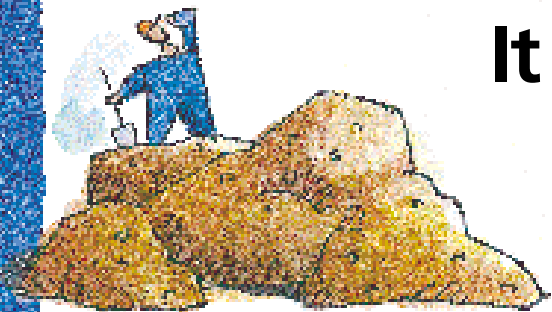


It all starts with dirt.



Alcoa at a Glance

The world's leading producer of aluminum and alumina, Alcoa serves customers in the packaging, automotive, aerospace, construction and other markets with a variety of fabricated and finished products. The company is organized into 21 business units, with 178 operating locations in 28 countries.

Alcoa's mission is to be the best aluminum company in the world, setting world standards in quality and creating value for customers, employees and shareholders through innovative technology and operating expertise.

Financial and Operating Highlights

(dollars in millions, except share amounts)

	1996	1995	%change
Sales	\$13,061.0	\$12,499.7	5
Income from operations*	721.0	1,024.3	(30)
Net income*	514.9	790.5	(35)
Per common share:			
Net income	2.94	4.43	(34)
Dividends paid	1.33	.90	48
Book value	25.54	24.89	3
Total assets	13,449.9	13,643.4	(1)
Capital expenditures	995.7	887.1	12
Cash flow from operations	1278.9	1,712.5	(25)
Return on average shareholders' equity†	11.6%	18.5%	(37)
Debt as a percent of invested capital	22%	17%	29
Interest coverage ratio	8.6	11.3	(24)
Current assets/liabilities ratio	1.8 to 1	1.8 to 1	-
Shipments of aluminum products (000 metric tons)	2,841	2,582	10
Number of shareholders	88,300	83,600	6
Average common shares outstanding (000)	174,334	178,018	(2)
Number of employees	76,800	72,000	7

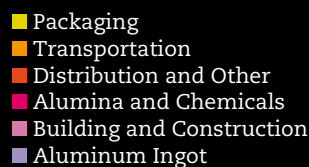
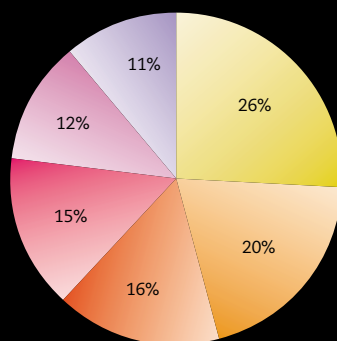
* Includes special charges of 122.3 or 70 cents per common share, in 1996, and \$10.1, or six cents per common share, in 1995.

† Without the special charges, the return on equity was 14.4% in 1996 and 18.8% in 1995.

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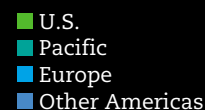
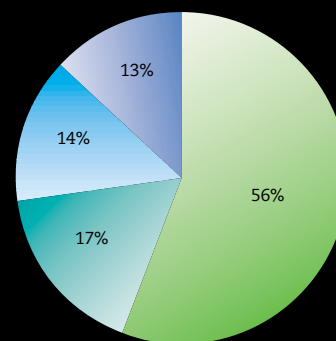
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1996 Revenues:
\$13.1 Billion

To Alcoa Shareholders

“My purpose this year is to give you...an account of our leadership intentions and accomplishments.”

Earnings in 1996 totaled \$514.9 million with revenues of \$13.1 billion and a return on equity of 11.6%. Before special charges, earnings were \$637 million for a return on equity of 14.4%.

Elsewhere in this report you will find the financial details for the year, facts on product volumes, historical information and news items. My purpose this year is to give you, more than I usually do, an account of our leadership intentions and accomplishments.

First, a general observation. Much of what we say about our business philosophy you will find in the majority of annual reports. All profess to do well and to do good. The dividing line among companies is the difference between professing and doing.

For example, all companies say, “People are our most important asset.” The question is, what does that mean?

First Things First

In our case, respect for the individuals who work in Alcoa begins at the most fundamental level. We believe that if an employee is injured and unable to work, the idea of being an “important asset” is a meaningless sentiment.

From this logic, ten years ago we made safety our most important internal priority, announcing the intent to achieve an injury-free workplace. The challenge was how to do it.

At the time, we had an enviable safety performance as compared with the average American company. Our lost workday rate was $\frac{1}{3}$ of the U.S. average. Many of our managers believed it was not possible to do a lot better. They cited our “dangerous workplace,” dominated by heavy equipment and electricity and hot metal. Others simply believed, “Accidents happen.” So one of our first needs was to convince the leaders of the company that better safety performance was possible.

We started this effort by sending our opinion leaders to visit DuPont factories and those of other companies that had a better safety experience than we did, and we began to ask ourselves why.

Cause and Effect

A second need was to begin a systematic effort to produce better results. This meant beginning a process of generating learning from our injury experience — looking for the common causes that were associated with injuries, creating better performance expectations for supervisors and individual employees, and eliminating excuses.

One such excuse is the misapplied idea from economic theory that perfect safety is unaffordable because of the law of diminishing returns — that is, it would cost too much to deliver on the idea that all employees should return home each night in the same good condition as when they came to work in the morning.



Paul H. O'Neill
Chairman and
Chief Executive Officer

“Our safety performance is important in its own right, but at Alcoa it has implications far beyond safety. In the process ...we have developed and integrated the ideas and tools that are necessary to superior achievement in all that we do: manufacturing, finance, logistics, environment.”

There is more to this story, but to cut to the results — in each of the last nine years we have improved our lost workday performance as compared with the previous year. Our incidence rate as compared with U.S. industry has moved from $\frac{1}{3}$ the U.S. rate to $\frac{1}{10}$ for all of 1996 and, at the end of 1996, we were operating close to $\frac{1}{20}$ the U.S. rate. (Our rates are, of course, worldwide rates.)

Wider Implications

Our safety performance is important in its own right, but at Alcoa it has implications far beyond safety. In the process of demonstrating that we have the ability to produce a team result such as this — that is directly relevant to each employee — we have developed and integrated the ideas and tools that are necessary to superior achievement in all that we do: manufacturing, finance, logistics, environment.

We have made progress in all of these areas, but we are far from finished; and we will never be through with our efforts to achieve and sustain zero injuries.

At root, this is a profound change in culture, a transformation from old habits of settling for the “inevitable” (accidents happen...costs go up...markets get glutted...strikes are a fact of life) to the belief that a company can seize the initiative and shape its own future.

This emphasis on creating our own fate has changed us as a company. If you go any place in Alcoa’s twenty-eight country universe you will find safety is the first internal commitment. And on this safety backbone we have been building excellence in all things we do.

Common Interests

Our focus on safety has been an important contributor to positive working relationships. Evidence of this contribution is the landmark contract we signed in 1996 with more than 10,000 U.S. employees represented by the Steelworkers union.

This is the longest duration contract we know of — six years — which means all of us can concentrate on producing great results for customers instead of suffering the usual twelve-month productivity slump as we approach the end of the traditional three-year contract.

Importantly, this new contract was negotiated by the Business Unit Presidents who have to live with the consequences, and it provides for a far-reaching partnership approach that can only succeed with their direct and continuing engagement. We believe the next stage of achievement in workplace relationships is an “evergreen” contract that leaves behind the outdated notion of hostility between employees and employers.

“This is a profound change in culture, a transformation from old habits of settling for the “inevitable” (accidents happen... costs go up...markets get glutted...strikes are a fact of life) to the belief that a company can seize the initiative and shape its own future.”

Frontline Leadership

The business unit concept which we implemented in 1991 has been a powerful force for aligning the interests of the customer, Alcoa employees, and shareholders. It has clarified responsibility and accountability and created a cadre of people who are charged with leading, not just managing, their businesses.

During the first five years of using this structure, we gave heavy emphasis to the independence of the 21 business units, and we will continue to do so. However, in 1996 we began the next stage of our quest for world-leading performance, as the business and resource support units worked together to identify \$300 million (25%) of combined savings in administrative costs.

In this process the joint teams have developed or elaborated concepts of shared services and centers of excellence which will save money while protecting or enhancing the quality and timeliness of the work we do.

The Power of Information

To leverage our human, physical, and technological assets around the world, we have been working on common data structures and seamless information connectivity. The early evidence of success in this area is visible every quarter, as we are the first major company to report earnings results for the previous three-month period. This notion of “seamlessness” in access to and availability of information is critical to our ability to add value as we expand geographically, which we have been doing at an accelerated pace.

Projecting our technological and product competence into all of the important markets of the world is a big part of our vision for Alcoa’s future.

In 1996 we completed the acquisition of Alumix, the largest Italian aluminum company; and we added significantly to our non-U.S. activities in Australia, Hungary, Norway and Brazil while completing a major 30-year alumina supply contract with the China National Nonferrous Metals Industry Corporation. We will continue this global thrust while looking for attractive opportunities to grow in the United States as well.

Underpinning our ability to entertain growth opportunities is a conservative financial structure, which we will maintain.

Together these elements will ensure that your company, Alcoa, remains the definition of excellence in our industry.



Paul H. O’Neill

Chairman and Chief Executive Officer

February 10, 1997

Adding Value, From the Ground Up

It all starts with dirt. This kind of dirt is called bauxite ore. If you looked at a four-ton truckload of it and someone asked, "What can you make out of that?" — you would think, "Not much. Maybe the base for a driveway."

But from four tons of bauxite, it's possible to refine about two tons of alumina —

a powdery oxide of aluminum. It's not easy. The technology is complex and the equipment is massive. But Alcoa has refined the refining process to an art.

And from those two tons of alumina, we can smelt a ton of aluminum. Smelting aluminum was the invention that launched Alcoa 110 years ago.

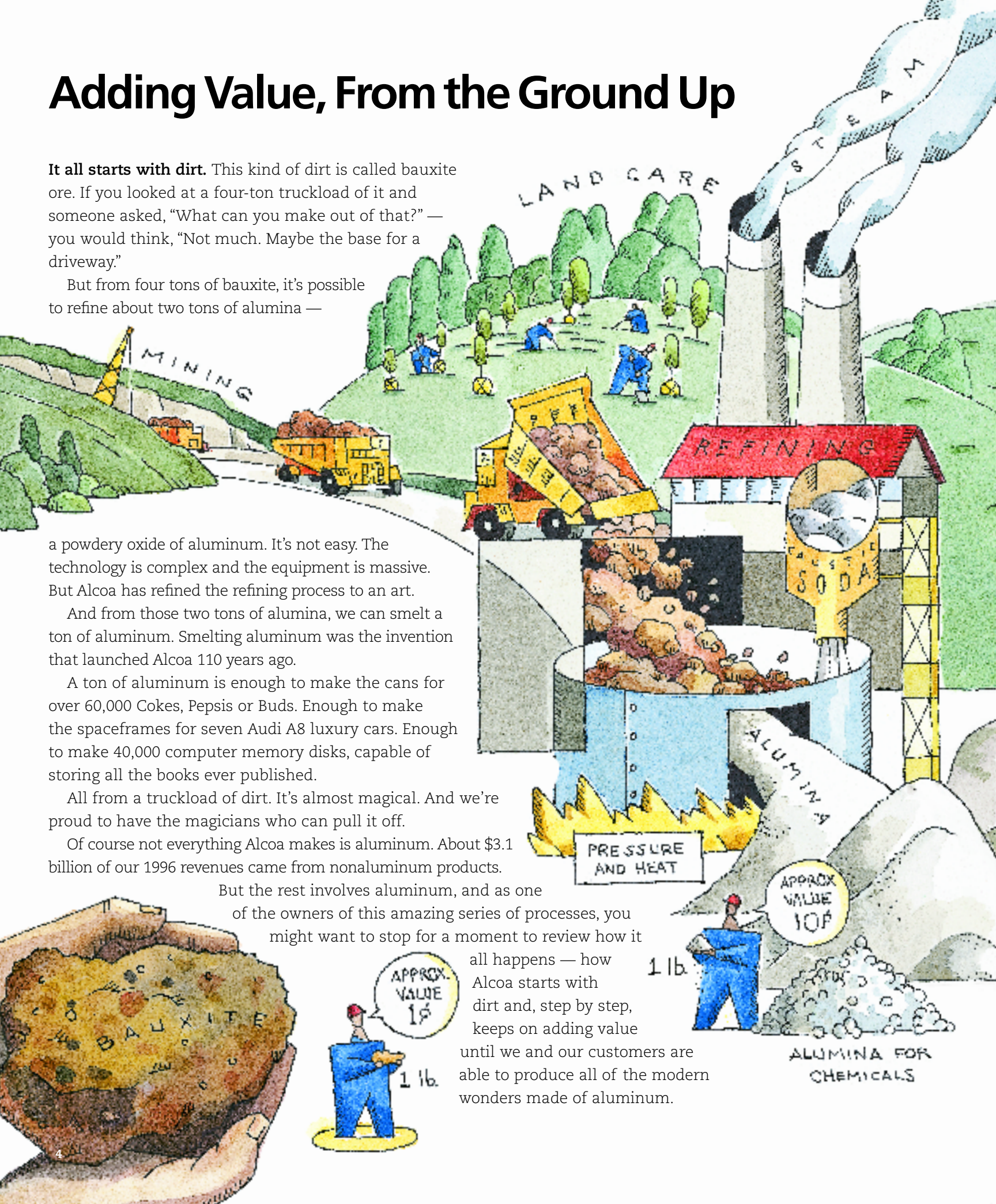
A ton of aluminum is enough to make the cans for over 60,000 Cokes, Pepsis or Buds. Enough to make the spaceframes for seven Audi A8 luxury cars. Enough to make 40,000 computer memory disks, capable of storing all the books ever published.

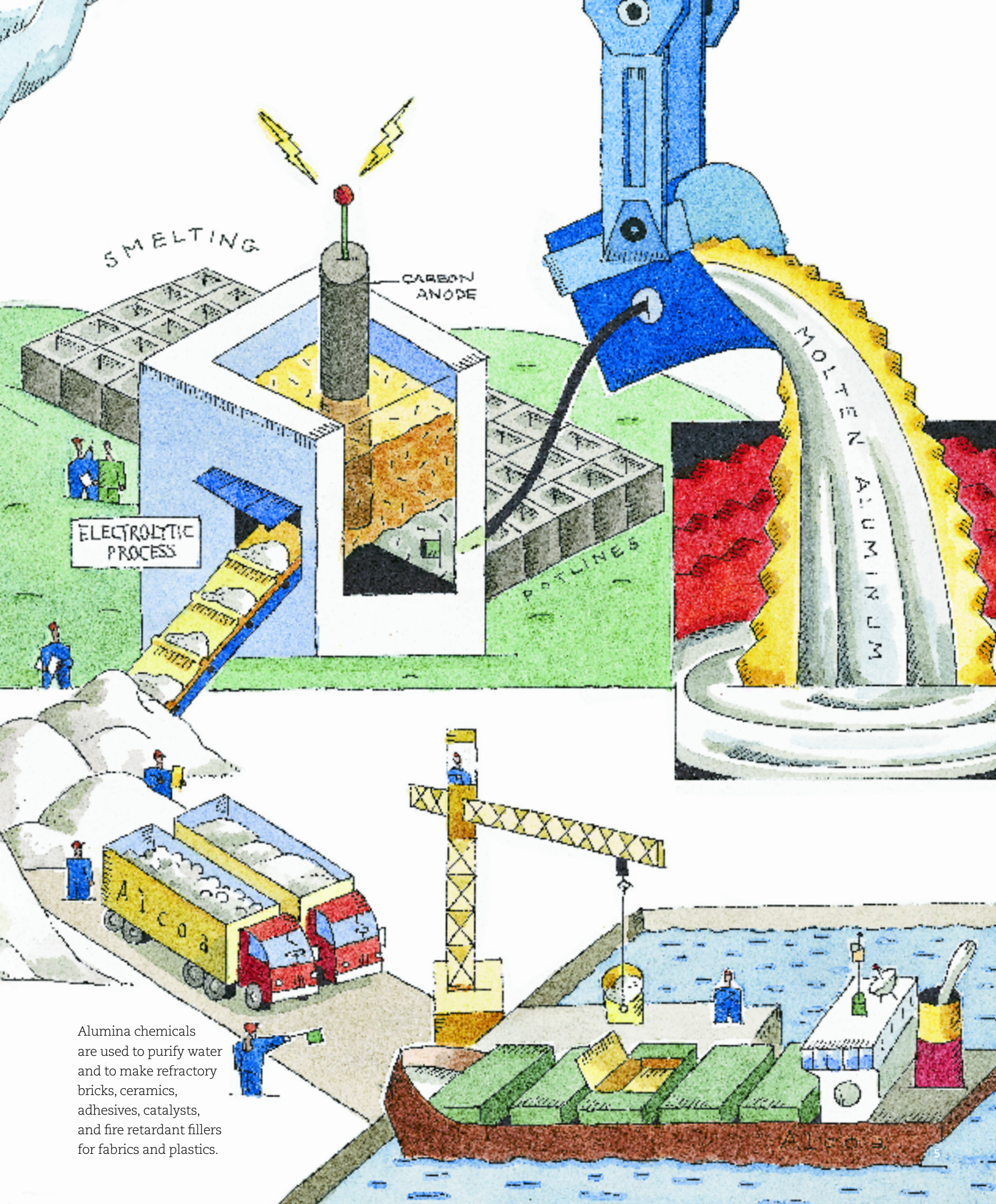
All from a truckload of dirt. It's almost magical. And we're proud to have the magicians who can pull it off.

Of course not everything Alcoa makes is aluminum. About \$3.1 billion of our 1996 revenues came from nonaluminum products.

But the rest involves aluminum, and as one of the owners of this amazing series of processes, you might want to stop for a moment to review how it

all happens — how Alcoa starts with dirt and, step by step, keeps on adding value until we and our customers are able to produce all of the modern wonders made of aluminum.





Alumina chemicals are used to purify water and to make refractory bricks, ceramics, adhesives, catalysts, and fire retardant fillers for fabrics and plastics.

There is no other material quite like aluminum.

- It is light in weight ■ highly resistant to corrosion
- strong in alloys ■ an excellent conductor of electricity and heat
 - an excellent reflector of heat and light ■ nonmagnetic
- nontoxic ■ outstanding in cryogenic properties
 - highly workable ■ easy to assemble
- and naturally-good looking.



Aluminum —

from cans, from cars, from anything — leads in recycling. The most valuable material in the waste stream, it pays its own way through the recycling loop. And aluminum made from scrap requires only 5% of the energy it takes to produce the same metal from bauxite.







New Labor Agreements. In May, Alcoa reached six-year labor agreements with the United Steelworkers of America union and the Aluminum, Brick and Glass Workers International Union. The com-

A-CMI Is Off and Running.

It's been a busy year for A-CMI, the partnership formed by Alcoa and CMI International, Inc. of Michigan:

■ The company built a new plant in Hawesville, Ky. There, A-CMI will produce forged aluminum automotive components, including suspension system control arms for the all-activity vehicle that Mercedes-Benz will build at its new U.S. plant in Alabama. The control arms weigh up to 11 pounds and will consume



A Landmark Transaction. Alcoa Aluminio issued \$400 million of secured export notes,

The business unit is developing high-resolution graphics capability for the two-piece can industry and state-of-the-art printing technology through teaming efforts with can industry customers and printing industry suppliers.

Prowler Stirs Excitement.

Chrysler's Plymouth Prowler has riveted the attention of car enthusiasts and automotive media. A hot rod with an attitude — harken-

NewsBriefs '96

pany and unions also agreed to an unprecedented partnership providing that Alcoa and the unions work cooperatively on



customer requirements, business

objectives and shareholder and union interests. This contract covers approximately 10,000 employees in 11 locations. On September 30, following a three-week strike, Alcoa and the United Auto Workers union ratified a new five-year agreement covering 1,100 employees of the company's Forged Products business in Cleveland, Ohio.

some 2.5 million pounds of metal a year.

■ A-CMI announced it will produce a first-of-its-kind aluminum undercarriage cross-member for the redesigned 1997 Corvette sports car. The Corvette will be the first car in North America to use both front and rear aluminum crossmembers. These components will also be produced at Hawesville.

■ In 1996 A-CMI broke ground for its first plant outside North America, in Lista, Norway. Called A-CMI Scandinavian Casting Center ANS, the facility will produce cast aluminum parts for the European automotive industry.

representing the largest-ever, longest-term, and most aggressively priced transaction of its kind for a Brazilian corporation. The issue carries a 7.50% coupon, a 12-year final maturity, and an average life of 8.1 years. It was priced at only 140 basis points over the U.S. Treasury bond due November 2004. The notes were rated BBB by Standard & Poor's as well as by Duff & Phelps.

High-Tech Designs on Can Sheet. During 1996, the Alcoa Packaging Equipment business unit designed and manufactured a registered embossing machine for a major customer and developed a process of printing photographic images on two-piece aluminum cans.

ing back to the classic street rods — the two-seat roadster is



nearing production and will appear in dealer showrooms by late spring. Already, Plymouth has received well over 100,000 inquiries from interested car buyers through auto shows, telephone calls, letters, and

Internet activity on the Plymouth Web site. The Prowler's aluminum body and closure panels are made from Alcoa sheet and extrusions and are attached to an aluminum frame manufactured at Alcoa's new Northwood, Ohio plant.

New Headquarters Going Up.

Construction is under way for Alcoa's new corporate center on Pittsburgh's North Shore. Foundation and garage are complete. By late spring, the main structure will be in place and work will be starting to create a riverfront park facing downtown Pittsburgh. Anticipated completion date of the six-story building is June 1998.

Old Headquarters Recycled.

Alcoa has offered its present corporate headquarters building in Pittsburgh to the community, as a center for



economic development. The 44-year-old landmark will house government, private, and academic agencies involved in all aspects of regional planning and growth.

Aerospace A Well-Timed Expansion



Three years ago, aircraft build rates were stuck in a downcycle, well off their 1991 peaks. Writing in Alcoa's 1993 annual report, L. Patrick Hassey, president of Aerospace/Commercial Rolled Products, forecast that airplane deliveries would be picking up starting in 1996 and strengthening still further over the next several years. He also noted a longer term growth trend in revenue passenger miles, averaging 5% to 6% a year.

So far, the forecasts are proving, if anything, conservative. Build rates are on course for a 44% increase in 1997 and further gains next year. In the meantime, having anticipated the turnaround, Alcoa's aerospace business unit has dramatically expanded heat-treating capacity for sheet and plate.

Ready for the Turnaround

- In April of 1996, Davenport (Iowa) Works started up the largest vertical heat-treating furnace in North America, tripling the plant's capacity for wide fuselage applications.
- A new horizontal plate heat-treating furnace will begin production next month, raising the plant's aerospace heat-treating capacity by 50% and total heat-treated plate capacity by 30%.
- Hassey characterizes this \$75 million expansion as giving Alcoa's aerospace customers "the most sophisticated, comprehensive heat-treat facilities and the broadest capabilities in the world."
- Also in 1996, a fuselage sheet polishing and processing center was opened in Hutchinson, Kansas, offering aerospace customers just-in-time, cut-to-size, and electronic interface capabilities on a 24-hour basis.

All Clear at Vancouver. The Environmental Protection Agency (EPA) deleted the Alcoa Vancouver Potliner Superfund site from the National Priorities List, which identifies the most serious hazardous waste sites. The EPA and Washington state Department of Ecology (DOE) said the Alcoa site was assigned “No Further Action Required” status. This de-listing clears the way for redevelopment of some prime industrial property. An EPA official said, “Cleanup work at Vancouver was handled entirely by Alcoa, with oversight by the DOE. We commend Alcoa’s job of cleaning this site.”

\$600 a month in cost savings because they last longer. For additional savings and cleaner gloves, team members decided to wash the gloves in-house instead of sending them out for cleaning.



Mining and Environment.

Alcoa of Australia won special recognition for a computer-based system that integrates mining with environmental management. Their Geological Information System (GIS) helps engineers and scientists to produce accurate mine plans that consider biological diversity, land use value, and water quality. The system also safeguards against the spread of dieback



disease, a fungal infestation that attacks a number of plants in the jarrah forest, including the jarrah trees themselves. Development of GIS earned the 1996 Minerals Operations Sector Award from the Western Australia Department of Minerals and Energy.



Cut Costs, Not Hands. A safety project team chose Kevlar gloves for the Slit and Pack Department at Tennessee Operations to help eliminate the hand cuts that sometime occur when using cotton gloves. Though they cost five times more than cotton, the Kevlar gloves are generating

Alcoa Scientists Help Looking for ‘Lady Lindy’



Amelia Earhart was a military nurse during World War I and a social worker for six years after the war. And then, over the objections of her family, she learned to fly.

Newspapers dubbed her “Lady Lindy” when she made a solo crossing of the Atlantic in 1932. Five years later, accompanied by Lt. Comdr. Fred Noonan, she began a round-the-world trip in a twin-engine Lockheed Electra. After completing two-thirds of the journey, the plane vanished somewhere near Howland Island in the South Pacific.

Still a Mystery

Thirty-five books, five films, and uncounted articles have speculated about where and how Amelia’s plane went down.

Now, investigator Richard Gillespie and 14 others from The International Group for Historic Aircraft Recovery — along with a PBS film crew — are searching an uninhabited atoll called Nikumaroro Island in the Phoenix group, 2,000 miles from Honolulu.

The Right Kind of Metal

Gillespie has found aluminum fragments there on three previous trips. Recently he brought several of those pieces to scientists at Alcoa Technical Center, asking if they could identify the type of metal — and whether it could have been part of the plane.

Results of their tests: the specimens appear to be Alcoa Alclad aluminum, the same type of metal used in construction of the Electra in the 1930s. Stay tuned.



Global

Information. Alcoa was named by *Chief Information Officer (CIO)* magazine to its CIO-100 list for global expertise and leadership in 1996. Focus of the award was on the role of information technology in transforming organizations into single global entities. Voting was in two rounds. In the first, judges nominated 250 organizations with reputations for excellence in multinational businesses. In the second, judges evaluated each as a global leader, weighing the business and information technology practices contributing to success.

Reaffirming Values.

Recognizing a strong linkage between environmental, health and safety performance, Alcoa has adopted a single value — along with related policies and principles — covering all three issues. The new EHS value states: “We will work safely in a manner that promotes the health and well-being of the individual and the environment.” In announcing the change, Chairman Paul O’Neill reaffirmed Alcoa’s commitment to its value structure. “When that is correct,” he said, “everything else will follow.” He added that the unified EHS value is also in keeping with the effort to simplify multiple processes whenever possible.

GE Picks Alcoa Sheet Product. Alcoa aluminum will be used in the exterior door panels of General Electric’s new dishwashers. The differentiated 3004 H26 product from Aerospace/Commercial Rolled Products was chosen over powder-coated steel for this application based on superior aesthetics, weight savings, equivalent dent resistance, and cost savings. GE estimates sales of two million units per year, resulting in more than five million pounds per year of new business for Alcoa.

Standards for Education. At the request of Pennsylvania Governor Tom Ridge, Alcoa Chairman Paul O’Neill headed a commission empaneled to develop statewide academic standards. In three months, the commission drafted public school standards for math, science, reading and writing.

Brazil’s Best. The Poços de Caldas plant of Alcoa Alumínio won the Brazilian National

Brazil’s President Cardoso (r) with Alumínio’s Fausto Moreira



Quality Award — the nation’s highest honor for industry. The Brazilian National Quality

Foundation uses the Malcolm Baldrige Quality Award criteria for its audit process. The award recognizes that Poços de Caldas attained world’s-best standards in leadership, management information systems, strategic planning, human resources management, process management, focus on customer satisfaction, and business results. Brazilian President Fernando Henrique Cardoso presented the award to Alcoa Alumínio on November 20, 1996.

A Safer Workplace. Liberty Mutual Insurance Company presented its Gold Award to the Stuarts Draft, Va., facility of Alcoa Building Products. The citation recognizes the achievement of two million work hours with an injury rate less than one-half the construction industry average. The Gold Award is the highest form of recognition Liberty Mutual awards to its policyholders in the area of loss prevention.

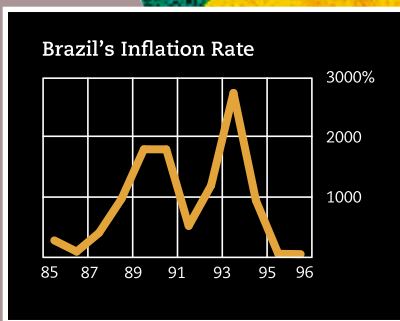


Welcome to Safety Town. The city of Fort Meade, Fla., home to an Alcoa industrial chemicals facility, and the Alcoa Foundation collaborated to create Safety Town, a program designed to teach children the fundamentals of traffic safety while walking or riding bicycles around the small city.

No Exceptions. In early 1996, Alcoans at an industrial chemicals plant asked a ceramic chemicals customer to improve safety practices in loading and transport. When no action was taken, Alcoans refused to load the company’s trucks until safe practices were adopted. The customer took the business to a competitor. Recently, the same customer returned to Alcoa with an order — and new safety protocols for handling and transporting the chemicals.

Aluminio's Home Turf

Brazil's Economy Shows Hopeful Signs



The old stereotype, in the words of a 1940s song, was, "They've got an awful lot of coffee in Brazil." For most of the time since then, the image has been that they've had an awful lot of inflation.

Now, the nation where Alcoa Aluminio does 90% of its business has become a diversified, developing economy — and its inflation rate just dipped into single-digit figures. GDP growth, estimated at 3% for 1996, was nearly double that rate in the fourth quarter.

"That's the good news," said Fausto Moreira, Aluminio's president. "The news we're still waiting for is the passage of economic reforms in the Congress."

Cautious Optimism

But Moreira is basically hopeful. The inflation rate for 1996 was under 10%, and the prevailing forecast for 1997 is 7%. Lower inflation foreshadows lower interest rates (now around 16% for commercial and industrial borrowers) and restoration of credit to finance consumption.

Among Aluminio's major markets, prospects appear strong in flat-rolled products — because rising food production expands the use of packaging foils — and in extrusions, which benefit from gains in construction activity.

As for beverage packaging, it's weather rather than the economy that impacts consumption. "A rainy month," Moreira sighs, "can reduce beverage sales by 30%."

Rising Real Income

As inflation has declined, Brazilian workers have seen their incomes rise by 64% in nominal terms — 30% in real terms — over the past two years.

This, too, provides economic stimulus, but it also means rising labor costs for the company. To meet the challenge, Alcoa Aluminio has pushed hard for new efficiencies, scoring gains in productivity of approximately 30% in flat-rolled products and 40% in extrusions over the same period.



Scoring in Lacrosse. High technology has come to the ancient game of lacrosse. STX Lacrosse of Baltimore is producing high-performance lacrosse sticks using Alcoa's patented alloys, CU31 and C405 aluminum. The oldest organized game in North America, lacrosse was played by the Six Nations of the Iroquois long before Columbus landed. Currently, there are more than 250,000 registered lacrosse players in the U.S. Their sticks average half a pound in weight and consume roughly 300,000 pounds of aluminum annually. By designing the handles to take advantage of Alcoa's patented alloys, manufacturers have been able to reduce weight while increasing strength, longevity, and performance.

equipment, these materials take the form of extruded, tubular, wire, rod and bar products from Alcoa's Engineered Products business unit. These help to make the Olympic equipment light, strong, and durable. Alcoa customers use the alloys to make archery equipment, baseball and softball bats, mountain



bikes, discs, spring diving boards, horseshoes, gun sights, and javelins. Alcoa

also was a sponsor of the Volvo/Cannondale mountain bike racing team at the Olympics. Alison Sydor, riding for Canada on an Alcoa Alcalyte Cannondale CAAD3™ front suspension F3000 mountain bike, pedaled her way to a Silver Medal in the first-ever Women's Olympic Mountain Bike Race.



Gold, Silver and Aluminum. From bats to bikes, diving boards and javelins, Alcoa's Alcalyte™ aluminum alloys had a field day at the 1996 Summer Olympics in Atlanta. Alcalyte is derived from a series of alloys developed by Alcoa for the aerospace industry. For sporting

Inroads in France. Alcoa received its first production order from Ford-Bordeaux for a patented 4032 alloy product. Supplied as bar stock from Massena, this material will be machined to form a sleeve for the transmission of the Ford Explorer. This is Alcoa's first

transmission component order for Europe in 4032 product. It represents new business of 50,000 pounds per year.

Hold the Phone. When Alcoa-Köfém installed a new telephone switchboard system in its offices in Hungary, the old equipment was still workable. Rather than scrap it, Köfém Alcoans gave the equipment to Viktoria Fund, an organization that helps the disabled in the Székesfehérvár area, where Alcoa-Köfém is located. The telephone system has now been installed in a home for handicapped people.

Super Service for Carmakers. Alcoa's Aerospace/Commercial Rolled Products business unit is building a \$48 million auto-sheet facility in Danville, Ill., including heat-treating and finishing equipment. The new plant is designed to provide automotive customers with new levels of responsive ser-



vice, supported by customer-driven information technology. It will supply aluminum sheet products for such models as the Ford F-150 truck, Ford

Crown Victoria, and Plymouth Prowler. Production is expected to begin in late 1997.

A Boost for Aircraft Plate. Alcoa and AMI, an Alcoa distributor, were successful in extending and expanding a cut-to-size plate program at Boeing, Wichita. This \$84 million contract will support increased metal requirements for the Boeing 737 and 747 programs over the next three years.

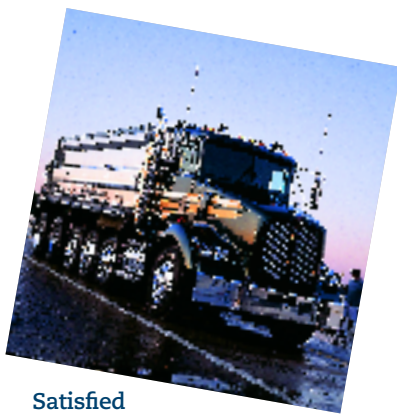


Getting Kids to Read. Alcoa's Davenport (Iowa) Works sponsored "Reading Adventures in the Park," a day designed to encourage reading for children and their families. More than 2,000 residents attended, and 500 books were distributed to children. Reading Adventures is tied in with Alcoa's sponsorship of Newspapers in Education in partnership with the Quad City Times, Davenport's leading newspaper. In this program, Alcoa will supply more than 25,000 newspapers to area classrooms during the 1996-97 school year.

Automotive Wiring. Alcoa Fujikura Ltd. (AFL) was selected by Ford Motor as the full-service electrical system supplier for the 1997 Expedition, which will replace the Bronco as Ford's full-size sports utility vehicle. AFL is also a major supplier for the 1999 Subaru Legacy, providing over one-half of the electrical distribution system and incorporating design ideas that will lower system costs and improve reliability.

Alcoa Rates 'Most Admired.' In *Fortune* magazine's just-completed survey, Alcoa was rated the most admired company in the Metals category. Criteria include innovation, financial soundness, caliber of management, and value to investors over the long term. Some 13,000 senior executives, directors, and analysts ranked companies in their own industries.

Soest Starts Work for Mercedes. At the Soest, Germany plant, Alcoa began limited production on the front crush module for the new Mercedes-Benz A-Class car. The crush module is the front-end structure of the car, an assembly of 11 aluminum components. Alcoa Automotive Structures, which designed and engineered this assembly under contract with Mercedes-Benz, is now manufacturing it using robotic welding. This is the second major aluminum body structure program at Soest — the first being spaceframe components for the Audi A8 — and it moves Alcoa into the secondary structure business in Europe.



Satisfied Customer. Alcoa Wheel Products International, a part of Alcoa's Forged Products business unit, was the recipient of the Paccar Certified Supplier Award, in recognition of achievement in design, development, quality assurance, manufacturing, and technical support. Paccar, a maker of quality heavy-duty trucks, is Wheel Products' largest customer for commercial vehicle wheels.

Forged Wheels: Ups and Downs. Alcoa Forged Products' wheel business shipped over a million aluminum truck wheels in 1996 for the second year in a row, but 1996 shipments were 10.6% lower than in 1995. It was the first yearly decline since 1991, following four years of growth averaging 30% a year. The problem: a 20% decline in Class 8 or heavy-duty truck build rates. In auto wheels, shipments were close to 800,000. This is a 38% drop from 1995 levels, due to the end of the Ford F-150 wheel program. Shipping levels in 1997 are expected to approach 1.4 million pieces, with several new Chrysler light truck programs under way.

Two Firsts in Auto Wheels. Alcoa Wheel Products International received its first

contract with the Ford luxury car group in 1996 when it was awarded an order to supply the aluminum wheels for the 1998 Ford Lincoln Continental. Separately, the first Alcoa aftermarket auto wheel was sold in Japan when WEDS, the largest aftermarket wheel company in Japan, began purchasing forged wheels for Japanese 4x4 sports utility vehicles.



Closures in Russia. Alcoa Closures Systems International Europe now supplies plastic closures to about 85% of all Coca-Cola and Pepsi-Cola bottlers in Russia. Counting all brands of soft drinks, Alcoa holds almost half of the Russian market for closures on plastic soft drink bottles and leads the market in the CIS

region. Starting in late 1997, Alcoa will begin production of closures at an order fulfillment center in Lubuchany, near Moscow.

Packaging Units Join Forces. The capping equipment and bottle control business of Alcoa Closure Systems International (CSI) will relocate to Alcoa Packaging Equipment's (APE) facility in Randolph, New York. The alliance is expected to provide superior value for customers of both units. It leverages CSI's application expertise and knowledge of customer requirements with APE's extensive equipment design and manufacturing capabilities. The Indianapolis-Lynchburg facility was closed, and machine assembly in Richmond, Ind., has been phased out.

Shaping the Organization. A number of salaried employees at 11 U.S. locations accepted a voluntary separation offer made by the company last summer. The offer was part of Alcoa's goal to reduce worldwide administrative costs by \$300 million, or 25%. About 13% of eligible employees accepted the program, which included a severance payment of two weeks' pay for each year of service and pension payments based on age and service.



Beverage Cans Take to TV.

Television advertising co-sponsored by Alcoa and other aluminum companies through the U.S. Aluminum Association promoted the advantages of aluminum beverage cans over other packages. The campaign — “You Get More Out of a Can” — reminds consumers

of the aluminum can’s convenience, ability to keep products fresher, and unrivaled recycling record.

New Consumer Package. Alcoa Aluminio has developed a special package — a rectangular one-liter plastic bottle and customized plastic closure — for CPC Company, the large distributor of Mazola corn oil in the Brazilian market. The bottle’s unusual shape was designed not only for market appeal but also for functional reasons. Its rectangular cross section improves rigidity and allows more compact stacking, for efficient transportation and display. The closure, a flip-top version, was designed for oil flow control and drop control when serving.



Alumar Celebrates the Environment. Alcoa Aluminio’s Alumar refinery and smelter complex at São Luis, Brazil has opened an environmental park with 4,500 acres of native forest and more than 200 species of flora, insects, birds and animals. The first park in the Maranhão region to be built inside a plant site, this environmental center is open to employees and their families, students, scientists, and the community. There are two buildings for ecological information and activities, an amphitheater, accommodations for scientists, a nursery, and composting and earth-worm areas. Two educational paths through the native forest and its ecosystems are the park’s main attraction. Alumar produces 1.3 million mt of alumina and 362,000 mt of aluminum annually.

Environmental Research. The U.S. Department of Energy has awarded Alcoa a three-year, \$440,300 contract to study soil remediation. Focus of the study will be naturally occurring processes that biodegrade PCBs in soils, sludges, and sediments — and ways to accelerate these processes. Alcoa will part-

ner with the State University of New York at Buffalo. The award recognizes Alcoa’s leading edge research in effective treatment of PCB contamination through the use of biological processes.



‘Paws to Recycle.’ Alcoa, along with Friskies PetCare and the American Humane Association, sponsored the third annual “Paws to Recycle” campaign in 1996. This program rewards the used aluminum beverage can recycling efforts of local animal shelters with cash prizes and free pet food. In the first three years of the collection drive, animal shelters in 46 states raised more than a million dollars in operating funds and recycled over three million pounds of aluminum cans.

Progress Report

How Aluminum Cuts Auto Emissions

Alcoa’s push toward the age of the aluminum car is a drive for growth in an enormous market. And it’s more than that.

By designing with aluminum, carmakers reduce the weight of their vehicles. Lighter cars burn less fuel. And that means lower emissions — less carbon dioxide, nitrogen compounds, sulfuric acid, and particulates coming from the tailpipe.

For the 1996 model year, new cars and trucks built in North America used about 3.6 billion pounds of aluminum. Resulting reductions in vehicle weight will save enough fuel over the life of these vehicles to eliminate 50 billion pounds of auto-related emissions. For the 1997 model year, increased aluminum usage in cars will mean even greater reductions in emissions.

If the trend to aluminum continues — if, for example, all of the world’s fleet of 450 million cars were eventually to shed 20% of their weight through aluminum-intensive design — the world could run 55 million more cars without adding to fuel consumption or emissions.

The Alumina Business

Major Contract in China Fits Long-Term Strategy

In late 1996, Alcoa World Alumina and Chemicals (AWAC) surprised the industry by announcing a 30-year contract with the government-owned aluminum company in China. The agreement covers the purchase of 400,000 metric tons (mt) of alumina a year by China National Nonferrous Metals Industry Corporation (CNNC). The latter will pay an advance lump-sum payment of \$240 million to AWAC related to the agreement and per-ton payments as shipments are made. CNNC also has the option to increase its alumina purchases.

AWAC is a global alliance between Alcoa and WMC Limited. It's the world's leading alumina producer, currently shipping some 10.6 million mt per year. Nine-tenths of that is sold to aluminum smelters, some in Alcoa but a majority to third parties.

An Important Step

Commenting on the contract in China, Alcoa World Alumina President Robert F. Slagle said, "This new relationship with CNNC represents an important step for AWAC in growing our global business and confirms our commitment to the Chinese alumina market and to CNNC."

He said the contract is consistent with AWAC's strategy of selling most of its alumina under term contracts. These minimize the exposure of buyer and seller alike to the sometimes severe price volatility of the spot market.

Responding to Demand

In addition to taking the long view, the strategy calls for making production decisions based on market demand. AWAC curtailed 350,000 mt of production in 1996 and has additional capacity on the sidelines in St. Croix, Brazil, and Point Comfort, Texas.

As aluminum production grows worldwide — as it's growing now in China — AWAC will be able to activate additional supplies of smelter-grade alumina and, in fact, has plans for further expansion of refining capacity when the demand emerges.

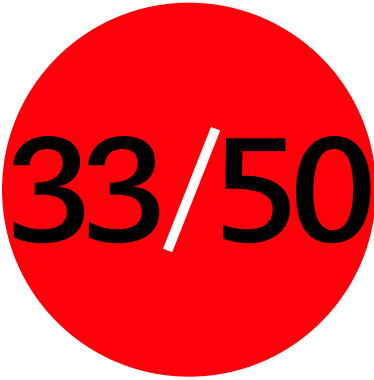
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Acquisition in Brazil. In March of 1996, Alcoa Alumínio purchased Alcan's soft-alloy extrusion and distribution business in Brazil, adding a nominal production capacity of some 60,000 mt per year. The acquisition represented a one-time, cost-effective opportunity to consolidate Alumínio's leading position in extrusions for the Brazilian market. Eight months after the purchase, one of the plants involved received ISO certification, and another earned a three-year renewal of its ISO 9002 certification.

Sinval Lizardo making fiber-optic cable.



French Connections. Alcoa Alumínio and Alcatel of France formed a joint venture to manufacture and sell telecommunication cables and related accessories in South America. The venture, called Alcatel Cabos Brazil, is owned 60% by Alcatel and 40% by Alcoa Alumínio. It will provide a complete line of fiber-optic and copper telecommunication cables from a manufacturing facility in São Paulo.



One Less Pollutant. Alcoa Fujikura's Spartanburg, S.C., telecommunications facility was recognized by the EPA for its 33/50 pollution prevention efforts. The 33/50 initiative began in 1990, with the EPA asking U.S. industries to reduce the release of 17 chemicals 33% by 1992 and 50% by 1995. Spartanburg eliminated trichloroethylene as a cleaning solution and was honored at the EPA's national conference called "Putting Pollution Prevention Into Action."

Truck Bodies for Eastern Europe. In 1996 Alcoa-Köfém began delivery of its first aluminum truck bodies to major beverage companies in Russia and Poland — nearly 100 truck bodies delivered in a three-month period. An additional 675 truck bodies were ordered by beverage companies in Hungary and Israel, for delivery in early 1997. Total value of these orders: \$17 million.

Leaner, Cleaner Cars. "Ten percent of the cars and light trucks produced in North America in 1996 have at least one aluminum outer body panel," reports Dick Schultz, president of Alcoa Automotive Structures – North America and Asia. Speaking at an

aluminum conference, Schultz said, "Every 10% reduction in weight brings about a 7% gain in fuel economy and even greater reductions in emissions. Alcoa's goal and the goal of the entire aluminum industry is to lightweight as quickly and efficiently as possible the world's entire automotive fleet."

Acuna Honors Alcoa. The city of Acuna, Mexico, awarded Alcoa Fujikura Ltd. the Manuel Acuna sculpture, first in a series of annual awards. This citation is presented to the company, organization, or individual whose actions and involvement have made a significant positive impact on the community. Manuel Acuna was the famed Mexican poet for whom the city was named.

Build a Better Container. Alcoa Technical Center and the Aerospace/Commercial Rolled Products business unit, in partnership with two customers, have developed a dry bulk intermodal container made of aluminum. The project was completed in 90 days. This container replaces dry bulk bags, which are used once or twice, then discarded to a landfill. The aluminum container can be used for decades, then recycled into a new container. Several other Alcoa business units are interested in using the new shipper because it offers the lowest-cost and most environment-friendly method of moving dry products around the world. It also addresses

two safety problems: it cuts down on dusting problems and incidents of back strain from handling bags.

Australia's New Board. Alcoa of Australia (AofA) has restructured its board of directors to reflect the formation in 1995 of Alcoa World Alumina and Chemicals (AWAC). The

and WMC. The chairman is Roger A. G. Vines, AofA managing director. Other members are H. M. Morgan, managing director, WMC; D. M. Morely, director of finance, WMC; J. M. Sibly, executive director—Western Australia Operations, AofA; and Phil Spry-Bailey, executive director—finance and administration, AofA.



Samuel William de Sales installs an AFL wire harness.

world's leading alumina producer, AWAC is 60% owned by Alcoa and 40% by WMC Limited. Its strategic and policy direction is determined by a five-member Strategic Council including representatives of both companies. In this context, responsibilities of the board of AofA will be carried out by officers directly involved in managing the alumina business, under the direction of the Strategic Council. Chairman Sir Arvi Parbo and directors Sir Laurence Muir, Adrienne Clarke, and M. J. Phillips have retired. The new board is composed of executives of AofA

Wire Harnesses for Ford. Ford Motor selected Alcoa Fujikura Ltd. (AFL) of Brazil to provide the electrical distribution systems, or wire harnesses, for the new



Ford Fiesta being built in that country. AFL is producing the wiring systems at its

new Itajubá plant. The plant is also manufacturing wire harnesses for the new KA passenger auto and will soon begin production for the Fiesta pickup truck.

Rave Reviews Audi A8 Is a Smash Hit with U.S. Auto Editors

Already a major success in Europe, the Audi A8 — the world's first all-aluminum spaceframe production car — entered American showrooms in October to near-unanimous acclaim from automotive writers across the country. Audi and Alcoa collaborated to develop the spaceframe that contributes to the extraordinary ride, handling, and passenger safety of the A8. Alcoa produces spaceframe components for the A8 in Soest, Germany.



■ **Car & Driver** "...It will be celebrated as a milestone in automotive technology decades from now."

■ **Motor Trend** "The heart of the A8's design is its aluminum space frame, a masterpiece of structural engineering that was developed in conjunction with aluminum supergod Alcoa."

■ **Autoweek** "METALLURGICAL MARVEL...All that aluminum lightens the load so the engine can propel this sleek package...from 0 to 60 mph in less than seven seconds."

■ **Cleveland Plain Dealer** "The Audi A8 is challenging traditional luxury-car gods...with the highest-tech luxury car ever sold by Audi — or perhaps anyone else."

■ **The New York Times** "An aluminum sculpture on wheels, the A8...is a technological tour de force. An innovative space frame borrows from aerospace design and relies on 40 new patents and 7 new aluminum alloys."

■ **Cincinnati Enquirer** "Audi A8 employs a revolutionary aluminum space frame...that delivers extraordinary weight savings with best-in-class safety, performance, and comfort."

■ **Road & Track** "...The Audi Space Frame is 40 percent sturdier than conventional unit-body structures. Credit here goes to the chassis engineers, who worked side-by-side with Alcoa..."

■ **Motor Trend** "Aluminum: Considerably lighter than steel...the earth-friendly recyclable material that can be remolded into something as stunning as the framework, bodyshell, engine componentry, and even suspension parts of a fabulous luxo-sport sedan. Meet the new king of the alloys: the high-tech Audi A8."

■ **Fort Worth Star-Telegram** "Audi has developed a line of cars for the latter '90s that is among the best on the planet."

■ **Chicago Tribune** "The 1997 Audi A8 rides and handles like a charm...and comes with lightweight aluminum frame and body panels to keep poundage down while offering rust-free peace of mind."

■ **The Washington Times** "All the major breakthroughs...made their debuts on premium-priced automobiles. This was proven once again when Audi introduced its groundbreaking...aluminum spaceframe..."

Cast Wheels Rolling Out.

Alcoa and Superior Industries International teamed up in 1996 to form a new company offering cast aluminum wheels for commercial trucks and buses. Developed jointly, the new wheels have now gone into limited production at Superior's plant in Van Nuys, Calif. and

Innovation Wins a Contract.

Alcoa Aluminio won a contract in Brazil from French carmaker Peugeot to furnish a foundry wheel alloy specifically developed for Peugeot's application. It's the first alloy that Aluminio has invented for an end user. Anticipated 1997 shipments: 2,800 metric tons.



Alcoflon roofing tops the Maracan soccer stadium in Rio de Janeiro.

are being tested by several truck fleets. They'll be marketed by Alcoa's existing wheel sales organization, including introduction at several trade shows in early 1997.

Wheels for Light Trucks.

A new \$20 million forged wheel facility is nearing completion at Alcoa's Cleveland, Ohio plant site. Designed to a capacity of 900,000 wheels a year, the plant will make aluminum wheels for Chrysler's Dodge Ram pickup trucks. It's the first step in a multiphase plan to increase production of forged aluminum wheels for the U.S. light truck market.

New Brand Names in Brazil.

In 1996 the flat-rolled products division of Alcoa Aluminio launched two proprietary aluminum roofing products — Habitat and Alcoflon — for residential and industrial buildings. Now, two more brands are rolling out, named Pantanal and Agrotelha. These are sheet roofing products for grain storage and chicken farm buildings. It was a timely launch because Brazil is emerging as the world's largest producer of



Historical Note Charles Dickens on Aluminum

What are your favorite words from Charles Dickens? Ours are not to be found in the copper of David Copperfield nor the nickel of Nicholas Nickleby but rather the aluminum of an essay titled, simply, "Aluminum." This appeared in March, 1857 in Dickens' weekly publication, *Household Words*.

■
"But within the course of the last two years...a treasure has been divined, unearthed, and brought to light...What do you think of a metal as white as silver, as unalterable as gold, as easily melted as copper, as tough as iron; which is malleable, ductile, and with the singular quality of being lighter than glass? Such a metal does exist, and that in considerable quantities on the surface of the globe.

■
"The advantages to be derived from a metal endowed with such qualities are easy to be understood. Its future place as a raw material in all sorts of industrial applications is undoubted, and we may expect soon to see it, in some shape or other, in the hands of the civilized world at large."

grain, notably soy beans, and the largest producer and exporter of chickens.

Plastic in China. Asian-American Container Manufacturing Co., a 1996 start-up in China by Alcoa Closure Systems International, is up and running and has now received its first order for PET plastic beverage bottles. First customer is Tianjin Coke, which ordered seven million 1.25-liter straight-wall bottles.

Promising By-Products.

Alcoa's Northwest Alloys facility in Addy, Washington is building a new plant to supply calcium and magnesium lime and fertilizer products to the Northwest region of the U.S. Crops such as corn and potatoes often need magnesium fertilizer, and calcium silicates

are useful in treating acidic soils. Feedstocks for these products are materials generated during the production of magnesium, which is Northwest's principal product line. Field testing was completed in 1996, and market acceptance was described as very encouraging. Shipments will begin in the first half of 1997.

Recordbreakers. A 1996 year-end review at Alcoa Fujikura's Spartanburg, S.C. telecommunications facility identified 30 new records set for productivity, output, and scrap reduction. This performance was achieved despite the fact that many of the employees involved were new to the company. Since the operation was in a high growth mode in 1996, roughly a third of the employees had less than one year of service.



Kaal Australia Expands.

Alcoa and Kobe Steel of Japan acquired Alcoa of Australia's Pt. Henry rolling mill for A\$100 million (US\$83 million), adding it to their Kaal Australia Pty. joint venture. This 50/50 venture was formed in late 1995 when Alcoa and Kobe bought Comalco Ltd.'s rolling mill at



Yennora in New South Wales. The two mills supply high quality aluminum can stock to Australian and Asian canmakers and general sheet and foil products to Australian markets. Their combined cold-rolling capacity exceeds 200,000 mt a year, the largest in the South Asia-Pacific region.

Down with Waste and Pollution.

Alcoa Technical Center (ATC) earned Pennsylvania's Environmental Excellence Award for its commitment to environmental compliance and for programs that saved more than \$7.1 million since 1991 by reducing waste and preventing pollution. In 1991 ATC Alcoans established a yearly goal of 10%

waste reduction. They've surpassed that target with reductions of 66% in solid waste and 91% in hazardous waste shipped off-site.

Composite Structures Sold.

Alcoa sold its Composite Structures unit in Monrovia, Calif., to an investment group formed by Quarterdeck Equity Partners Inc. of Los Angeles and interests of the Pritzker family in Chicago. Composite Structures has annual revenues of about \$40 million from the sale of composite materials and structures for aerospace applications. The sale coincides with

a general consolidation of aerospace composite suppliers throughout the industry.

Yale Teams Up with Alcoa.

Alcoa and Yale University School of Medicine will work together on issues of occupational and environmental health. In this innovative arrangement, the school's Occupational and Environmental Medical Program, directed by Mark R. Cullen, M.D., will work with Alcoa's medical and occupational health staff to provide services that heretofore have been delivered by internal personnel. Dr. Cullen is professor of medicine and epidemiology. His team will develop and evaluate medical protocols and work with Alcoa staff on companywide health programs.

A Fast-Growing Product Line.

AFL's most profitable product for the year was ADSS fiber-optic cable for the electric utility, telecommunications, and cable television industries. ADSS

stands for All-Dielectric-Self-Supporting. All-dielectric (no metal) construction allows installation and maintenance on energized electrical circuits (hot wires) of transmission lines. And the cable's small diameter and light weight minimize ice and wind load on transmission towers, poles, and hardware. Based on its success in manufacturing and marketing ADSS cable, AFL plans to expand capacity in 1997.

New Patent for a Lead-Free Alloy.

Alcoa received a patent for UltrAlloy X6020, the first lead-free aluminum alloy with "A" rated machinability — the industry's highest rating. UltrAlloy X6020 is the first free-machining aluminum alloy developed without using lead additions to enhance machining characteristics and surface finish.

Knowing the Business.

Knowledge is power, and workers who understand the business basis of what they do tend to be more focused and effective. That's the impetus behind new business education programs at several Alcoa business units. In a joint effort by Rigid Packaging and Primary Metals, managers conduct six sessions, exploring the structure of the business, customers and competition, profits and their measurement, and the role of the individual in building success. In the Packaging Equipment business unit, a new course centers on the "why" of business and the story told by financial reports. ■ ■ ■

The Long View

A Perspective on Risk

"If we had no liquid capital markets that enable savers to diversify their risks, if investors were limited to owning just one stock (as they were in the early days of capitalism), the great innovative enterprises that define our age — companies like Microsoft, Merck, DuPont, Alcoa, Boeing, and McDonald's — might never have come into being. The capacity to manage risk, and with it the appetite to take risk and make forward-looking choices, are key elements of the energy that drives the economic system forward."

Peter L. Bernstein in the introduction to his new book, *Against The Gods: The Remarkable Story of Risk*