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# Forget Revolution. More Like Renovation.

*At many U.S. manufacturing plants, the winds of change have barely caused a ripple*

By JAMES R. HAGERTY

CLEVELAND—As part of reparations exacted after World War II, U.S. authorities confiscated a metal-forging press made in Germany during the 1930s. The 62-foot-tall machine was taken apart, shipped across the Atlantic and reassembled at a plant operated here by [Alcoa](#) Inc.

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More than 60 years later, Alcoa is still using that press to squeeze hot aluminum alloys into dies for aircraft wheels and brakes.

Computerized controls have been added and many parts updated, but the basic iron structure and other original parts remain. "It was very well-designed by the Germans," says Eric Roegner, a senior Alcoa executive whose duties include overseeing the plant

Alcoa's cavernous Cleveland Works forging plant is a reminder that manufacturers often choose to make do with equipment that is decades old, instead of rushing to buy the latest technology. They find it can make more economic sense to renovate old machinery than risk investing in something entirely new—especially in a slow-growing market like the U.S.

"In manufacturing, people won't spend money unless there's a guaranteed return on investment," says Craig Resnick, a vice president at ARC Advisory Group, a Dedham, Mass., consulting firm that specializes in industrial automation. Often, he says, it is difficult to know precisely how much will be gained by installing new equipment. And there is a nagging worry: What if the new stuff doesn't work?

### *Focus Is Overseas*

That doesn't mean U.S. factories are stuck in the Iron Age. Most large plants today contain sophisticated electronics, and many are brighter and cleaner than most people imagine. But some still use machinery that could qualify for inclusion in a museum. Alongside another Alcoa forging press still in daily use at the Cleveland plant is a plaque noting that it was declared a historical "landmark" by the American Society of Mechanical Engineers—in 1981. The press was refurbished

beginning in 2009 to meet Alcoa's present needs.



Alcoa

OLDIE BUT GOODIE | Alcoa's 50,000-ton forging press in Cleveland dates to the 1950s and was recognized as a landmark in 1981.

It is a different story, however, at Alcoa plants in Mexico and Hungary, where new presses have been installed in the past decade.

Indeed, some of the most state-of-the-art machinery can be found in fast-growing markets such as Asia and Latin America. While global manufacturers often have excess capacity at their older plants in the U.S. and Western Europe, they are still expanding in places with better long-term growth prospects. Just as Japan and Germany gained an advantage after World War II because they were forced to rebuild shattered industries from scratch, emerging markets now are getting an edge from heavy investment in new equipment.

"When you build a greenfield plant, you're going to put modern equipment into it," says Dan Meckstroth, chief economist for the Manufacturers Alliance for

Productivity and Innovation, a research group based in Arlington, Va.

By contrast, U.S.-based multinational manufacturers have become less willing to invest heavily in older plants in their home market. Their capital spending in the U.S. totaled \$152 billion in 2010, the latest year for which data are available, down 22% from 10 years earlier. Capital spending outside the U.S. over the same period jumped 64% to \$107.3 billion.



As a result, many factories in the U.S. are making do with less-than-optimal equipment. Some still use electronic controls dating to the 1970s or 1980s to run their factories. ARC estimates it would cost \$40 billion to replace all of the outmoded electronic control systems being used in North American factories.

### *Built to Last*

"In many cases these systems were designed to last forever, and in many cases they do," says ARC's Mr. Resnick. But the companies clinging to them are missing out on opportunities to run their plants more efficiently, he says. Newer computers, electronic controls and software could help them adapt products

more quickly to changes in customer preferences, analyze more data from the factory floor, and save energy by slowing motors when full power isn't needed, he says.

Such arguments are unlikely to sway Dennis Doyle, the owner of B&D Thread Rolling Inc., a Taylor, Mich., maker of bolts for vehicles and construction equipment. Some of his company's production equipment dates from the 1940s. "They're just old clunkers that keep on running," says Mr. Doyle, who typically buys used equipment, though he did recently purchase a new automated packaging line.

At an [International Paper](#) Co. mill in Ticonderoga, N.Y., the steam age—which peaked in the 19th century—isn't entirely over. Some of the pumps are directly powered by steam-driven turbines rather than more efficient electric motors. To regulate the speed of these steam-driven pumps, a worker twists a knob regulating air pressure to pneumatically controlled valves. (More modern machines use electronic controls.) One of the mill's two papermaking machines, a hulk of cast iron the length of a football field, dates from the 1950s.

Because the maker of the machine is now defunct, it can be hard to find parts for it. Recently, the plant needed a new gear. "The best delivery we could get was, like, 14 weeks," says Steven Braun, a business-unit manager at International Paper.

### *'Not Enough Return'*

The plant has some very modern features, including computers that control much of the machinery and software that makes it easier for managers to analyze the performance of the equipment. So why hasn't International Paper brought the mill entirely up to today's standards? "There's not enough return to justify that kind of investment," says Tommy Joseph, a senior vice president in charge of manufacturing and technology.

Paper demand in the U.S. is shrinking, and some of today's plants may not be needed in 20 or 30 years. At its newer plants in Russia, Brazil and China, where demand is still growing fast, International Paper generally uses state-of-the-art equipment.

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