

## Jeffrey's Manufacturing History in Columbus

**Robert H. ("Tad") Jeffrey**

This address was given to the Columbus Historical Society on September 26, 2002 in the facilities of the State Library of Ohio and the Ohioana Library. These libraries are now located in Jeffrey's former factory buildings between First and Second Avenues just off Fourth Street in Columbus. The speaker was president of Jeffrey Mining Machinery Co. (1968-73) and chairman of The Jeffrey Co. (1974-99). In the audience were a number of former Jeffrey employees as well as several members of the Jeffrey family.

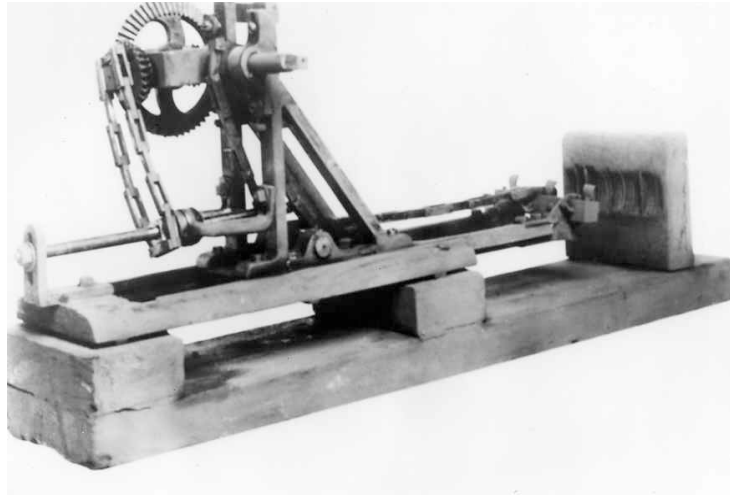
Thomas Wolfe wrote that "you can't go home again," but for a few of us here tonight, that isn't quite true. For 111 years, from 1888 to 1999, Jeffrey mining machinery and various industrial products were manufactured on this site, both right here where we sit, and on the other side of First Avenue in the big empty lot to the south. Peak employment was right after World War I when about 5000 people held what are now termed "good jobs." At one time the operation took up 36 acres, including the 10 or so we're on here tonight and the rest across the street. We read in the paper that that huge vacant area may be developed into an attractive residential addition to the Italian Village community. We join Mayor Coleman in hoping that will happen.

But what makes this place so special for Jeffrey "alumni" is the memorabilia on the walls around us. The credit for this goes to Mike Hayes, a second generation Jeffrey foreman, who is now the absentee landlord's on-site representative. As Jeffrey's manufacturing activities here were winding down, Mike was making sure that the artifacts weren't being thrown away. And thanks to the enthusiastic cooperation of Mike's tenants, Linda Hengst of the Ohioana Library and Mike Lucas of the State Library of Ohio, much of this memorabilia now decorates the walls of these drab old factory buildings. If the Columbus Historical Society gives "preservationist" awards, be sure to put Mike Hayes high on your list, and give the libraries an important assist.

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In 1876 my great-grandfather, Joseph Andrew Jeffrey, aged 40, was a junior partner in the Sessions Bank, which was located on Long Street just off High. The bank had been founded by Francis Sessions, a prominent Columbus businessman whose father-in-law and financial backer was Orange Johnson, whose home in Worthington is now an important historical site. The Sessions Bank was one of the major antecedents of the City National Bank & Trust Co., which eventually became Bank One. The Sessions home was on Broad Street on the present site of the Columbus Museum of Art, and their summer residence was the unusual octagonal house just east of what is now Sessions Village in Bexley.

On his lunch hour one day, Mr. Jeffrey saw in a store front window on High Street a crude model of a machine that purported to mechanically undercut coal. The inventor was Francis Lechner, a south-ender of German descent who was seeking financial backing to exploit his invention. [This model or one very much like it is on display at the Ohio Historical Society museum.]



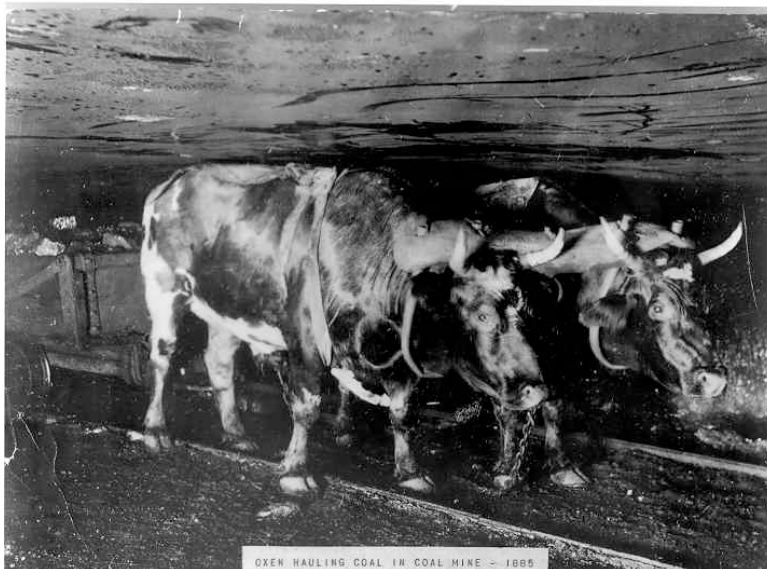
We know that Jeffrey had a modest financial interest in a coal mine in Perry County, and we can assume from this that he knew that the undercutting operation was the most labor intensive aspect of underground coal mining. (Incidentally, in 1876 and until fairly recently, most coal was mined underground rather than stripped.) Let me try now to explain briefly how coal was mined in this pre-mechanization era.

Visualize, if you can, a blind tunnel about 12 feet wide and 5 feet high, the latter being the thickness of the coal seam, and the former being how much roof you could leave unsupported without its falling in, this being then and today the big “no-no” in underground mining. To advance the coal face, i.e., the blind end of the tunnel, the miner first used a breast auger to bore perhaps a dozen holes 4 feet deep in the face, into which he would later put explosives stuffed in with packing and attach long fuses with which to later “shoot down” the coal. But because coal that’s been “shot down” comes out in pieces that take up more room than when it was solid, the miner first had to create space for this expansion to take place lest the explosion tear up the floor or, worse yet, the roof. He did this by cutting out a hole or “kerf” along the bottom of the seam about 6 inches thick , 4 feet deep, and 12 feet wide .

This was the under-cutting operation, and the only tools the miner had was a pick, a hoe-like device with which to pull out the picked-out coal, and a hand shovel. So for four hours or more, working by the light of an oil lamp, the miner would lie on his side using his shovel as a sort of pillow while he “picked out” the undercut, all the while hoping that it wouldn’t collapse on his tools or, worse yet, his arms. And when he was finally finished, he would then fill the augured out holes with the explosives, light the long fuse, and run back in the tunnel yelling “*fire in the hole*” to warn his buddies of the impending explosion.



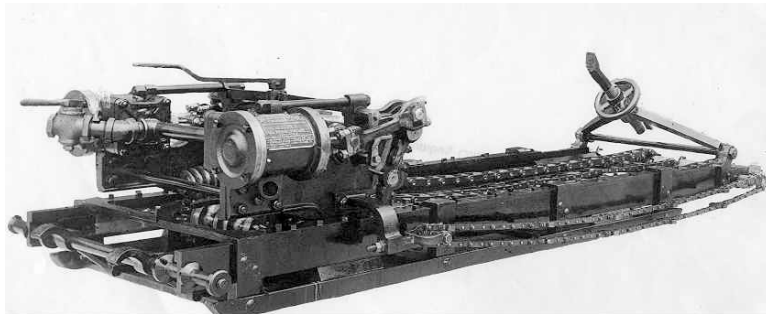
After the coal was shot down and the smoke had cleared, the miner's next job was to shovel the chunks of coal into little rail cars that would later be pulled out of the mine by mules or oxen [see picture below]. Needless to say, there was nothing about coal mining in 1876 that was either easy or safe, but the under-cutting operation was, far and away, the most time consuming and the most dangerous.



Mr. Jeffrey apparently understood this and realized that if the Lechner machine would really work, it would be a hugely important invention. Having limited financial resources himself, he told his boss, Mr. Sessions, about what he'd seen, and Sessions was apparently impressed. While there's uncertainty as to the exact sources of the original financing of the Lechner Mining Machine Co. (as the business was originally known), it's assumed that Sessions provided most of the money, some of which he may have put in in Jeffrey's name. And he detailed Jeffrey to spend half his time away from the bank to help Lechner make this venture a success.

But, as is so often the case with new inventions, achieving success was by no means easy. Here are some recollections from many years later of old Charlie Welch, who was the demonstrator of that first machine:

“Mr. Lechner had a dream that he could build a machine that would cut 6 to 8 hundred tons of coal a day. His machine weighed 1350 lbs. [and was powered by a compressed air motor because the electric motor hadn't yet been invented]. When it was finished, the local shop in Columbus couldn't furnish enough air pressure to test it, but Mr. Lechner shipped it to New Straitsville anyway.” [This was the mine, incidentally, in which Jeffrey had a financial interest.]



“We got it on a rail truck,” says Welch, “and moved it into the mine close to the air compressor. I pumped the pressure to 50 lbs., then to 80 lbs., and finally to 115 lbs. The machine made one revolution, and then flipped off the truck landing upside down. We shipped it back to Columbus, and that's the last I ever saw of it.

“I think it's safe to say that Mr. Lechner had not less than fifty different men at various times working on his experimental machines: mechanical, marine, steamboat, locomotive, saw mill, and threshing machine engineers and machinists..., and every change made it worse instead of better. I think I'm also safe in saying that every ton of coal mined cost Mr. Jeffrey at least \$100, and he began to get discouraged....”

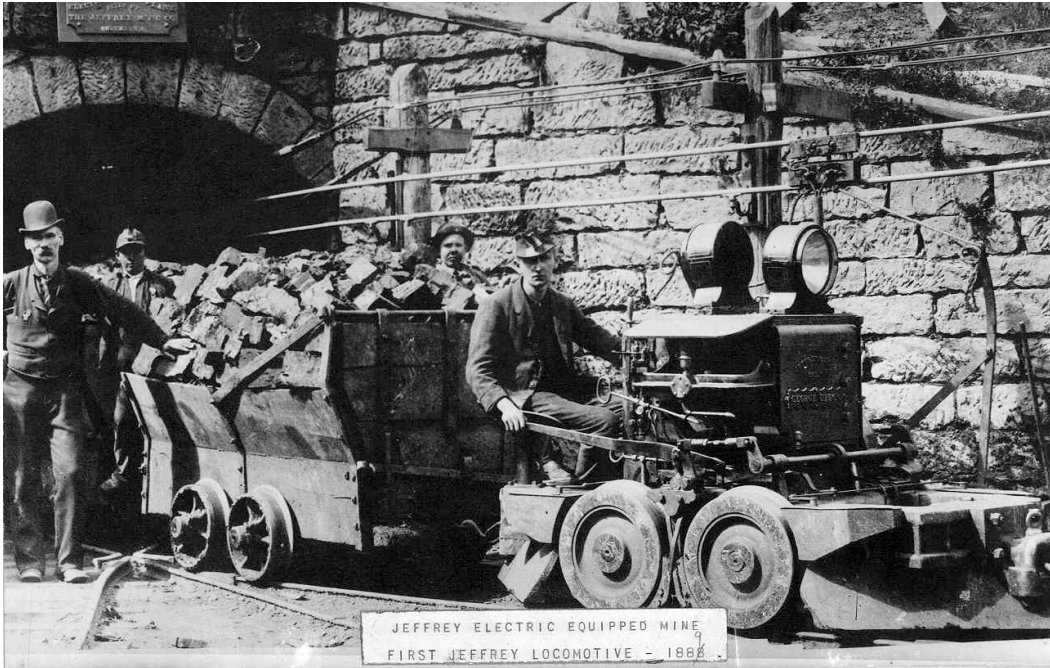
Welch's old-age recollections are probably exaggerated, and he was probably also being too critical of Mr. Lechner, but then practical mine mechanics rarely get along well with inventors and engineers anyway, as a few of us here tonight can personally attest. But Welch was undoubtedly correct about Mr. Jeffrey's concern about the financial health of the young business.

But they persevered, and by the early 1880s under-cutting machines were being produced that did work and that coal mines were buying. One of these early air-motor machines was at the old Center of Science & Industry in Columbus and is now on display at the Ohio Historical Center.

In 1882 Lechner resigned as general manager, probably because Jeffrey (who'd succeeded Sessions as president) finally drew the line on how much money the company could afford to spend to support his inventive mind.

By 1887, eleven years after the mining machine venture was started, the operation was finally making good profits. Jeffrey resigned his part-time position with the bank, bought out the minority shareholders, including Sessions and Lechner, increased his own salary to \$5,000 per year, and changed the firm's name to The Jeffrey Manufacturing Co. A year later, the business moved to this First Avenue site.

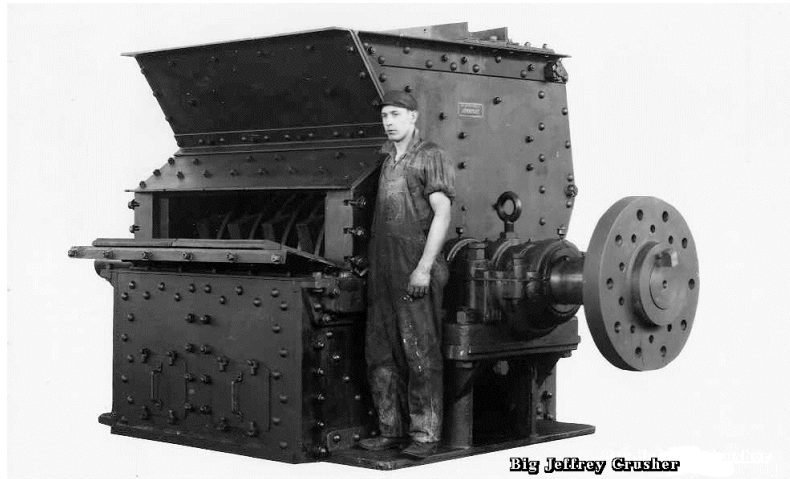
By 1888 the electric motor had been invented, which Jeffrey was quick to adopt, and the company soon began manufacturing its own spark-proof motors for underground service. One of the early electric cutting machines is on display at the Smithsonian in Washington. And with the advent of the electric motor, Jeffrey became an industry leader in manufacturing underground electric mine locomotives.



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One of the biggest maintenance problems with the early under-cutting machines was that they were chain driven, but the only available drive chains in those days were designed for farm equipment and the like, and not for driving machines cutting into virgin mother earth. So Jeffrey designed and patented its own drive chains, which were soon being sold in many non-mining applications, and still are to this day. While I've never done the numbers, my guess is that over the years the Company made more money on its chain sales than it did on the mining machinery for which the chains were originally designed.

By the early part of the 20th century, the Company's non-mining products represented close to half of total sales, but most of these products, like chain, had their origins in Jeffrey's involvement with coal. For instance, when coal was shot down from the face, the pieces were often too big to fit into fireplaces and furnaces, so Jeffrey got into the crusher business, and before long it was selling more crushers for wood pulp, sugar cane, limestone, and eventually municipal waste, than for coal.



Likewise, when Akron invented rubber belting that could be used to convey bulk materials, Jeffrey began making the idlers and pulleys on which the conveyor belts ride, and it soon began designing entire conveyor systems. Again, the early customers were the coal mines, who had and still have enormous bulk material handling needs, but soon the sales to other industries like steel and concrete and automotive were much larger.



By the 1890s, the Company was beginning to look abroad for new markets. Jeffrey displayed equipment at an exhibition in England, and cutting machines and locomotives were being sold to mines in South Africa and Australia. Mr. Jeffrey's eldest son, Robert, who was my grandfather, was in New Zealand in 1898 seeking a new sales agent when the Spanish-American War broke out. After Admiral Dewey's victory over the Spanish

fleet in Manila Bay, he would abandon his efforts to obtain passage home on a neutral ship.

By the turn of the century, The Jeffrey Manufacturing Co. was a recognized leader in its industry and an important factor in the Columbus economy. But in spite of this success, or perhaps because of it, at least a part of the community still considered the Jeffreys a bit nouveau, which I suppose indeed they were. When my grandfather, Robert, asked Colonel James Kilbourne for his daughter Alice's hand in 1900, the Kilbournes weren't enthusiastic. Alice's great grandfather had founded Worthington in 1803 as well as the first Episcopal church west of the Alleghenies. And her grandfather had started Kilbourne & Jacobs in the 1850s, a baggage cart and wheelbarrow manufacturing concern whose plant was just south of the Jeffrey factory on Fourth Street. By 1900 K&J may have been the largest private employer in Columbus, and Colonel Kilbourne, himself a Civil War hero, apparently thought Alice could do better. Fortunately for my branch of the family, the marriage did occur, and unfortunately for the Kilbournes, K&J went bankrupt about twenty years later and was ultimately acquired by Jeffrey. "Shirtsleeves to shirtsleeves in three generations," as the saying goes.

While Jeffrey Manufacturing continued to prosper during the first two decades of the 20th century, it was also becoming known for its progressive employee relations, a policy inspired by Washington Gladden, the long-time pastor of the First Congregational church, who had a great influence on Mr. Jeffrey and especially his wife Celia. In 1889 Jeffrey opened one of the earliest on-site infirmaries to deal with industrial accidents. In 1905 a cooperative store was established offering employees quality goods at fair prices. (The store, incidentally, was located on the site of the parking lot just to the west of here until it was closed in the late '50s.) In 1912 an employee cafeteria was established, and in the same year the Jeffrey Building & Loan Association was formed to assist employees in buying their own homes.

I suppose this was paternalism, but it was paternalism at its best. Employee morale was generally high, and with the exception of a brief strike in the early 1900s, there were no strikes at Jeffrey until the 1960s and no union until 1953. The word around Columbus was, and continued to be for many years, that "Jeffrey's a good place to work."

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Having now covered less than half of Jeffrey's history, but having used up more than half my time, we need to fast forward through the next eighty years.

In the 1920s, Jeffrey subsidiaries were established in Canada, England and South Africa. But what turned out to be the most important event for the owners (which was the Jeffrey family) was the acquisition in 1929 of the Galion Iron Works & Mfg. Co. in Galion, Ohio. Taking advantage of the rapidly growing need for highways, Galion eventually became the largest manufacturer in the world of road rollers, and second to Caterpillar in motor graders.

During the Great Depression of the early '30s, when the Jeffrey plant in Columbus was working just one or two days a week, Galion was operating full bore, because more

highways were needed, and also because building highways was a good way to provide employment for people who would otherwise be out of work. Jeffrey paid two million

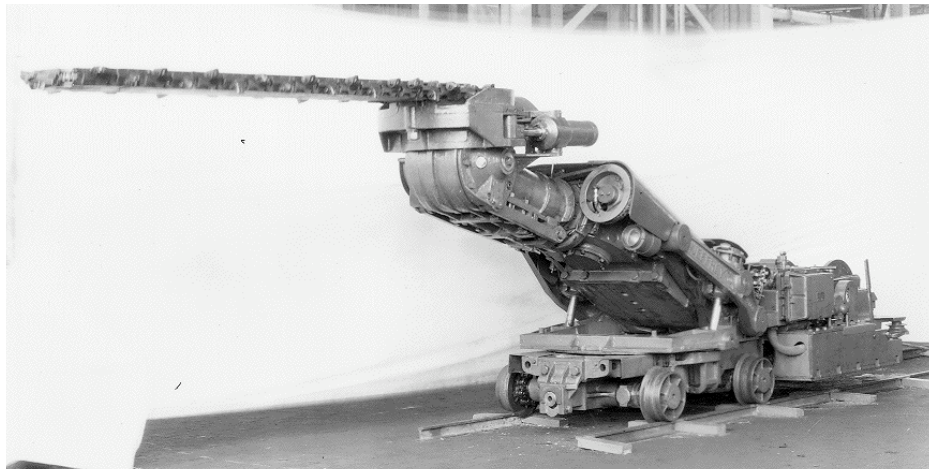


dollars in 1929 for Galion, which was twice its book value, but by 1940 all that and more had come back in Galion dividends, and that was only the beginning. Eventually the Company's sales of construction machinery would be more than three times the sales of mining machinery, and far more profitable.



The Depression began to ease in the late '30s as the country started preparing for the possibility of war, and Jeffrey's employment picked up accordingly, and so did profits. The building we came through tonight as we entered was built in 1941 to manufacture chain driven ammunition hoists for most of the U.S. Navy's World War II cruisers and about half the destroyers. But most of the war-time production here was coal related, because it was coal that was largely fueling the country's engine.

An important contributing factor to the profit improvement in the late '30s and '40s was the introduction in 1935 of the Jeffrey 29-U. This was the first so-called universal cutting machine, which could cut not only on the bottom of the seam, but also on the top and on the sides of the entry being driven. The machine was a great success, and the patent on the "universal" feature was issued in my father's name. Though I was an only child, my mother always said she had two children: Tad and the 29-U. For many years my hope was to make as much money for the company as had the 29-U.



Jeffrey had been number one in the underground coal mining machinery industry for most of fifty years, but between the late '40s and early '50s Joy Manufacturing of Pittsburgh had become the industry leader, while Jeffrey was slipping to fourth or fifth as a result of two unfortunate mistakes in judgement.

Continuous miners (machines that combined all the functions of cutting, drilling, and loading) were just coming into play, but Jeffrey unfortunately bet on a tank-like design that was much less flexible than the Joy machine, and thus served a much narrower market. The Jeffrey COLMOL was king in one or two coal fields where the conditions were just right, but Joy and another competitor owned most of the other markets with their more versatile machines.



But the much more serious mistake in judgement was Jeffrey's failure to realize that rail-mounted underground mining machines would soon lose out to machines that ran instead on crawlers or tires, thereby eliminating the need to advance the underground railroad every time you advanced the face. And the irony is that Jeffrey's decision not to go "off track" was made in the late '40s, when the senior management could look out on North Fourth Street from the office building to the west of us and see the street car tracks being torn up to make way for rubber tired trolley buses. This was a huge costly mistake, and Jeffrey's mining machinery operation would spend most of the next twenty years climbing back.

A further irony is that Joe Joy, who founded Joy Manufacturing, had worked for Jeffrey during the teens, and eventually left because Jeffrey showed no interest in his ideas for off-track machines.

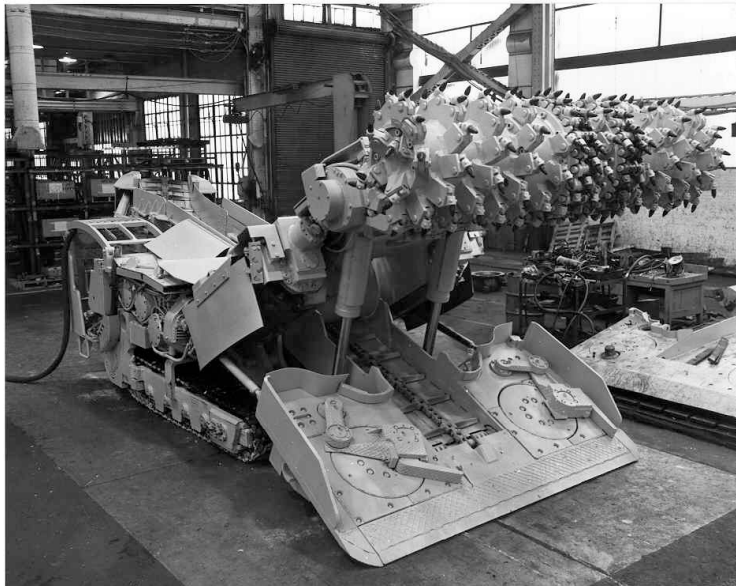
The classic problem with being very successful, be it in football, restaurants, clothing design, or whatever, is the tendency to stop challenging the status quo, which is what Jeffrey had done. In 1949, when I first worked here on summer vacation from college, I asked my grandfather if we shouldn't be worried about the developments that Joy was making. His answer was, "Son (meaning grandson), we've got more business than we know what to do with." That was true, but it wouldn't be true for long.

In part to compensate for the mining division's red ink, most of Jeffrey's non-mining products (chain, conveyors, crushers, etc.) were moved in the early '60s to three highly efficient, specialized plants in the south. And about this time, for tax reasons I won't

confuse you with, Jeffrey Manufacturing and Galion were merged into an entity called Jeffrey-Galion, but the managements of the two operations remained largely separate.

A few years later, to focus more clearly on product line profitability, the Jeffrey Manufacturing operations worldwide were split into two semi-autonomous groups: the Industrial Group, which Chet Hawley (who's here tonight) ran, and the Mining Machinery Group, which was my responsibility from 1968 to 1973. What had been Jeffrey Manufacturing's Mining Division was now the Jeffrey Mining Machinery Co.

Thanks in large part to the Jeffrey Heliminer, a new breed of continuous miner that was introduced in the late '60s, Jeffrey Mining Machinery did come back. We never overtook Joy, but we got back to a respectable second place in the industry. The Heliminer was big; it was tough; it was versatile, and it worked. And eventually it's design became more or less the standard in the industry for continuous miners. Unfortunately our patent protection on the design didn't hold up in court, but enough machines were sold that Jeffrey Mining once again became profitable.



These machines, incidentally, weighed as much as fifty tons, and sold for a half to three-quarters of a million dollars in today's money. In addition to coal, Heliminers worked in trona, potash, and even iron ore. I think we shipped about a hundred of these big machines in one year in my time, and perhaps even more later.

While mining machinery was still the smallest of Jeffrey-Galion's three worldwide groups, both in sales and profits, it was the reason that Dresser Industries of Dallas, Texas, was interested in talking to the parent Jeffrey Company about a possible acquisition of its operating subsidiary, Jeffrey-Galion.

Dresser had grown up serving the "oil patch," and was therefore in tune with the energy picture when the first oil crisis hit in 1973. The conventional wisdom was that coal would be the answer to any energy shortage that the mid-east oil cartel might create. Dresser's

chairman had previously been CEO of Joy, and was thus aware of Jeffrey's now improved standing in the industry.

At more or less the same time, the parent Jeffrey Company (of which I had become president) was quietly beginning to wonder if it was in the family's best interest to still have most of its eggs tied up in the capital goods industries that Jeffrey-Galion was serving. Virtually all the stock in the company was in a trust that the founder had created in 1914, and thus individual family members weren't free to sell out if they so desired. And as the family grew and became more geographically spread, the ties to the Company and to Columbus necessarily became weaker.

Suffice it to say that the family leadership in 1973 decided that it would be in The Jeffrey Company's and the Jeffrey family's best interest if Jeffrey-Galion were sold, preferably to a buyer that would be a good step-parent to our almost hundred year-old businesses, and also *preferably for cash*. Dresser would understandably have preferred to do the deal with stock, but we wanted cash. In our negotiations, Jack James, Dresser's CEO said, "Tad, I don't understand why you're so damned insistent on cash. Dresser's a fine company, and its stock is going to do well." I replied, "Jack, if Dresser weren't a fine company, we wouldn't be talking to you. But what you don't understand is that today we've got all our eggs in one basket, but we own the basket! If we take your stock, we've still got all our eggs in one basket, but you'd own the basket, and that's an enormous difference!"

On May 31, 1974 The Jeffrey Co. got cash and some Dresser stock that we secondaried a year later, all of which went into a diversified portfolio of stock and bonds, the management of which has been The Jeffrey Co.'s sole business ever since.

My personal involvement with Jeffrey-Galion, Jeffrey Mining, and Dresser Industries ceased at this point, May 1974, so my knowledge of the more recent history is sketchy at best. If I get things too far wrong, hopefully someone in the audience will speak up later. It's my understanding that Dresser did quite well with its acquisition of Jeffrey-Galion's businesses for at least the first five years or so, even though some of our folk might suggest that they didn't understand our businesses as well as they might—a comment often made—sometimes with justification—by acquirees about acquirors !

But by the early '80s Dresser was apparently having second thoughts about the extent of its diversification, and in 1985 or so they off-loaded most of their non-oil-related operations, like Jeffrey and Marion Power Shovel (which they'd acquired a year after acquiring us) in a spin-off called Indresco, which later changed it's name to Global Industrial Technologies.

In 1995 Global sold the Jeffrey Mining Machinery part of their business, which by then had shrunk considerably in size and employment, and was now located only on this side of First Avenue, to a limited partnership out of Cleveland called Jeffrey Mining Products. A few big Jeffrey Heliminer-type continuous miners and some Ramcars were still being manufactured here and sold as far away as China, but apparently not quite enough to make the business viable. In 1999 the last Jeffrey mining machine to be built in Columbus—a Ramcar—was shipped, and I have a picture of it taken in the building just

to the south of us signed by the 36 remaining Jeffrey employees along with their dates of hire.

Shortly thereafter what was left of Jeffrey Mining was sold to Long-Airdox, a one-time competitor now located in Tennessee, which itself has recently been acquired by a German company. The dozen or so remaining former Jeffrey Mining employees—I gather mostly engineering people—have moved to an office out near the airport, from which I understand they're still selling a few machines, that are manufactured elsewhere by sub-contractors.

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In my fifty year career with various Jeffrey entities including the last twenty-five or so managing The Jeffrey Company's investment portfolio, the hardest job I ever had was getting Jeffrey Mining Machinery turned around. But it was also the most gratifying, and it's the experience that I will remember the longest. Perhaps next to getting married and the birth of our first child, I think the greatest thrill I've ever had was standing beside one of our first Heliminers in a Peabody Coal Co. mine in Illinois watching it chew out ten tons of coal a minute without a quiver. This was the successful payoff from thousands of hours of work by dedicated people in every part of the company, not to mention a significant financial investment.

We had some great people here who all helped make that turnaround happen. I'm eternally grateful to them, and I'm sad for their sake that the later years after we sold out didn't turn out quite as well as we'd all hoped. If there's a moral to the story, I guess it's just that trees don't grow to the sky, and good things don't last forever.