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An Old Door Gets a Second Chance

Schlepping and restoring a 20-ton vintage vault door

A Palatial Escape

Manor's maze of doors and locks makes for an extraordinary jobsite

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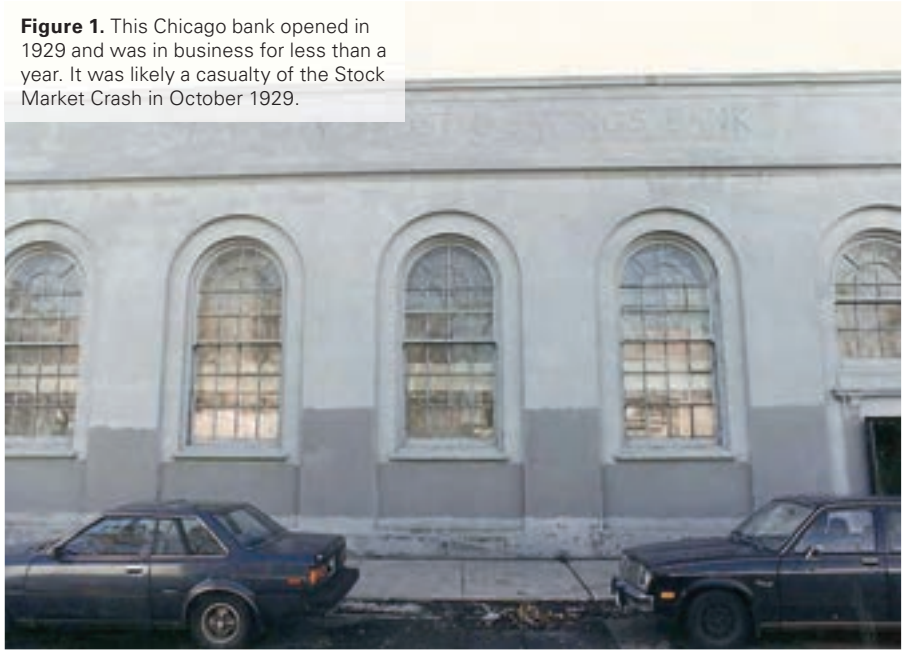

Figure 1. This Chicago bank opened in 1929 and was in business for less than a year. It was likely a casualty of the Stock Market Crash in October 1929.

An Old Door Gets a Second Chance

A safe and vault technician schleps a 20-ton vintage vault door from a defunct bank in Chicago, restores it in St. Louis, and returns it to its new home in Chicago. In the process, he preserves rich, Great Depression-era history.

By Brian P. Smith

I am going to tell you about a vault door. But not just any vault door. This door is an 84-year-old, 16-inch-thick, Diebold circular vault door. I've mentioned the restoration of this door in previous articles. This, however, is a much different story.

On the back of a flatbed trailer this door weighed-in at a little more than 20 tons. I know because I had it weighed myself. This door remains in service today, in its second home, where I left it 27 years ago.

I still search my home on occasions like this, looking for part of a newspaper that I found on the job. Besides the photos and few witnesses, it's my only evidence of being there. Yet my search is to no avail.

The paper included the first several pages of the *Chicago Daily News* from August 1929. The door's original installers had used the paper as packing to keep the grout from seeping out before setting. The pages were stuffed in between the architrave and the vault wall the year the bank was built. The door stood at 2422 N. Cicero Ave., in Chicago *(see Figure 1)*.

The pages I found were a twisted wad. I could only read a few lines of text at first. I packed them away the day I found them and began to revive them at my motel room that night. I dampened the pages and spread them out on a glass table to dry. Once the wrinkles were gone, I could see the print, which told of the visit of the Graf Zeppelin — the hydrogen airship — to Chicago.

The door's new owner, Harvey Cleven, told me he had done some research and learned that the original bank where the door was installed was open for business less than a year *(Figure 2)*.

Formative Years

My part in this story started in 1986, just four years after I had begun working in bank equipment. I had acquired experience in handling heavy equipment over the previous 12 years — four moving safes and vault doors; six in a tool-and-die shop, loading and unloading trucks, setting up and working on tooling equipment; and two years in a sheet-metal fabrication shop, handling pallet loads of steel and aluminum, and feeding the machines.

I spent those first four years in bank equipment adapting my knowledge to the business of moving safes, removing and re-installing vault doors, and rebuilding depositories, straightening and re-wiring drive-up win-

dows and point-to-point systems.

This particular door job started as another one of those slightly shocking moments when the service manager showed up at the end of a long day with news that I had been chosen to spend the next week, or however long it would take, in Chicago. I would go by airplane, my first such trip, alone. There, I was to meet a local safe and vault business owner, Bob McGowan, who contracted with Mr. Cleven to handle the restoration of the old door, which had been found in the abandoned bank building *(Figure 3)*.

My manager explained that our part in the deal was to remove the door from its place at the old building, bring it back to our shop, restore and modify it, and re-install it in a new bank. The new place is only a few blocks north, on the same street as the door's original location *(Figures 4 and 5)*.

My first task onsite was to assess the situation and plan the process. As the dutiful employee, I accepted the challenge. I announced the news to my wife when I arrived home that evening. She was not at all thrilled at the prospect of being left alone for an undetermined length of time. We had an 18-month-old baby then. But we resolved to make the best of the situation and put it behind us as soon as possible.

On my return to work the next day, our company secretary had already made my flight and lodging arrangements. I was graced with two day's expense funding of $15 a day, then shuffled off to the airport.

Little House on the Bank Property

The short flight from the Lambert, St. Louis, Airport to O'Hare in Chicago took more time in preparation than it did to carry out. The flight itself ended in about an hour. Bob met me at O'Hare and dropped me at the nearest Holiday Inn. He promised to

Figure 2. This 20-ton vault door was covered in rust after five and a half decades of sitting idly in the old bank, which, at the time of the restoration, was being used as a school for homebuilders.

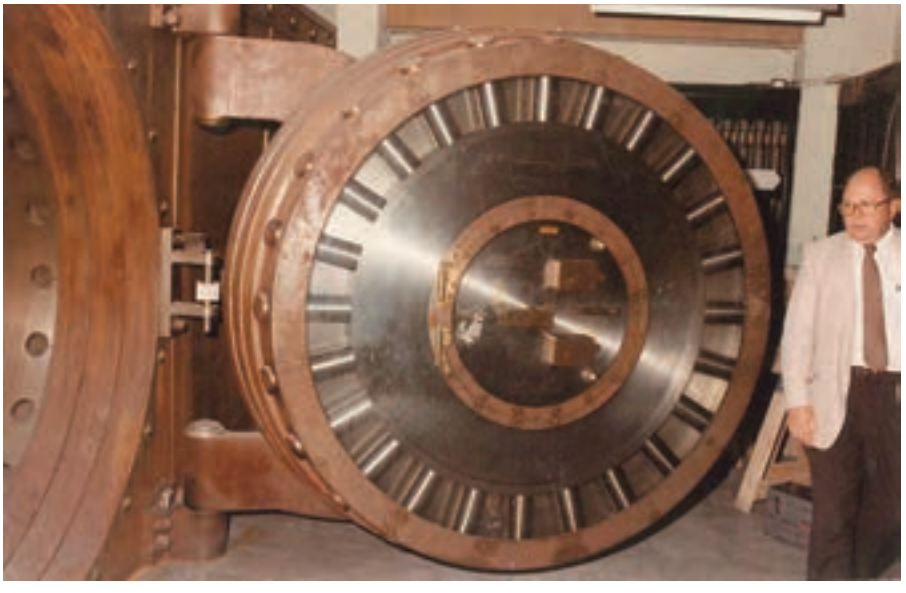

Figure 3. Harvey Cleven, the vault door's owner, commissioned its restoration.

Figures 4 and 5. The door, which, again, was covered in rust, faced the bank's lobby. The job was to remove the door from the building in Chicago; take it to the shop in St. Louis for restoration; and re-install it in a new bank.

Figure 6. Under the lobby where the vault door was located was a basement, which had to be reinforced before the door could be moved.

retrieve me in the morning to get a look at the door.

The next day, he arrived as promised. I was whisked away for a day tour. First, I was taken for a short visit to Bob's employer, the Fink Safe and Lock Co. I met the staff and got a look at their equipment, then rode across town to the jobsite.

I was amazed as I entered the building. The first thing to see was a complete, quarter-scale house inside. It had been built right in the middle of the main lobby. The bank's interior was the classic design of the day. It was a 2-story building in which the ground floor lobby was open the full two stories. On both sides, teller stations lined the first floor. The second floor was open with railings so the inhabitants could look down on all the activity below. At the end, facing everything, was the vault door. A large clock was built into the wall above it. This must have been a grand sight so many years ago. But when I got there it had been converted into a school for homebuilders.

Upstairs behind the railings were various stages of interior construction projects. Plumbing was one, electrical wiring was another, heating and cooling yet another. The house in the middle was where they taught framing, roofing, windows, guttering and so on. I asked if this would all be gone when the job of removing the door began. The answer was no. They would slide it to one side.

Challenges Ahead

Inspection of the door revealed a lot of restoration challenges. The first thing I noticed, of course, was the heavy rust overall. A closer look revealed an interesting ½-inch wide groove from rust that came from a leak in the roof directly above the clock. The water had run down from the clock, over the front of the top architrave, over the front of the frame, down through the opening and around the jamb to the bottom. The rust trail ran back out and down the lower face of the frame.

Too bad they had not kept the door closed, I thought. After all, these doors were built specifically to keep out liquids, although nitroglycerin was the liquid of most concern. The door must have been open and the roof must have leaked most of those many years. The pitting from the stream was at least 10-thousandths of an inch (0.010 inch) deep.

As for parts, the door was complete outside. But inside there was no day-gate or grillwork. I took notes, measurements, and photos that day. My major concern was the removal process to be done with the doors. After measuring the exit doors, the sidewalk, and the phone wires that were strung above the sidewalk outside, I believed I had seen the worst. Then I was invited to the basement. I would like to say it's unusual to find a basement under the path through which a vault door is to be removed. It just wouldn't be true.

The lobby, the only way out of the building with the door, was at least 50 feet long from the vault to the exit door. There was basement space the entire distance *(Figure 6)*. (Sorry about photo quality, Folks. We forget in this digital age that Polaroid was about convenience, not quality.) I took a note specifically reminding me to bring enough wood to brace the floor after seeing this.

Bob drove me back to his home that evening. He and his wife graciously shared a home-cooked meal with me, and he took me back to the hotel that night. The next morning, he drove me to the airport and saw me off. I headed home that day, just a little uneasy about the whole thing. It was going to be my first out-of-town project on my own. I hated flying. It makes me feel like my head might explode.

Highway 55

Upon my return to St. Louis, I got back to work. We had a meeting or two on the subject over the next few weeks and worked out the plans. I listed the things we would need: come-along, chain, rollers, jacks, cribbing, welder, welding rod, torches, torch gas, packing blankets, crates, pry bars, timbers, runner plates, enough straps to tie it all down, and a turntable. We would need to arrange for a jackhammer in Chicago, and to update maintenance on the truck to make sure it was ready for the trip to Chicago. I would drive there with the equipment, and a couple of our installers would meet me there by plane after I was settled.

The day before leaving, I loaded up the truck. It was so full, mostly with lumber, that I was doubtful about weight limits. My license is a Missouri Class E, which only allows for 26,000 pounds gross weight. I took the truck to the local landscaping material seller. They had a scale there to weigh trucks. The gross weight came in at 24,000 pounds, so I felt cautiously secure. Going home that evening, I considered myself ready for the trip. I slept well and returned the next day, bags packed. I hopped into the truck and headed out for the 6-hour drive.

If you have never driven from St. Louis to Chicago on Highway 55, you wouldn't know that three out of five exits marked "fuel" are pointless detours dotted with abandoned buildings or empty lots. The remaining two are not opened yet, closed early, or having problems either with their pumps or their restrooms.

Losing Weight

One mandatory stop, which was always open, was the welcoming weigh station. I entered the first one shortly before noon at Litchfield, Ill. I waited in line only a few minutes, pulled onto the scale, and stopped at the red light. My wait seemed unusually long. They asked over the intercom where I was headed. An officer came out and looked over my logbook. He handed it back, and went back to his shack. Without further ado the light turned green and I continued my journey.

"This particular door job started as another one of those slightly shocking moments when the service manager showed up at the end of a long day with news that I had been chosen to spend the next week, or however long it would take, in Chicago."

With all the bum stops, the six-hour drive turned into seven hours by the time I reached the next weigh station near Joliet. It was about 7 p.m., and there was no traffic. I rolled onto the scale and stopped at the red light. I waited. I looked through the shack window and saw no one. I waited. It was dark and the light didn't change for several minutes. I wondered if I should drive on but continued to wait. Trucks started lining up behind me when a voice came over the intercom. "Pull off," was all he said, and I wasn't sure if I heard correctly. The light stayed red and I waited. "Pull off up ahead," he repeated, so I did.

An officer appeared at my window and wanted to see inside the back. I got out and opened up the padlock and rolled up the door. He looked in for a minute and said, "You're heavy on the rear axle. You're going to have to call somebody to reduce your load."

My heart started pounding. I asked him why they let me go earlier at Litchfield if I was overweight. "You're not overweight," he said. "You're heavy on the rear axle. I don't know why they let you come this far, but you can't go on."

Knowing no one was going to come help me at that distance, much less that time of night, I asked the man, "What if I move enough to the front. Will you let me go?" He shrugged. "Sure," he replied and walked back to the shack. I spent the next two hours pulling heavy, fresh cut, oak 6x6's and 4x6's to the front of the truck box. When I couldn't do any more, I went knocking on the shack door. My hands and clothes were stained black. Oak does that to you, like fresh walnut shells. Exhausted, I pulled back around and got on the scale. Without a word, the light turned green and off I went.

I pulled into the hotel parking lot in Chicago about midnight. I got my key at the office and returned to the truck to move it closer to the room. The door was locked. I went for my keys. They were missing. I peered through the window and saw a glint of light reflecting off the keys hanging from the ignition.

That figures, I thought. A locksmith locking himself out of his own truck, miles from home. I went to my room for a coat hanger and returned to the truck. By 12:30 a.m., I


Figure 7


Figure 8


Figure 9

Figures 7-9. It took the crew seven days of taking turns with the jackhammer and the torch to cut through the wall. This was done through a cloud of thick dust and smoke. It was hard to breathe or see, even though fans were running all day to move the air outside.

Figure 10. Eventually, the door appeared to be free of the wall.

was in and had my bags. There was no time or place for dinner, so off to bed I went.

Meeting The Muppets' Aged Swedish Chef

The next day everything looked better. I went for breakfast at the motel restaurant and called Bob to announce my arrival. We met at the bank building and got started. We met the door's new owner, Mr. Harvey Cleven of Community Savings Bank, and took some more photos. The practice house was moved as promised. It did not look like there would be enough room to get the vault door past it, but then the vault door wasn't out of the wall yet. We spent the rest of the day there removing the rosettes and breakable items in anticipation of dust and falling concrete during the removal.

The next day, I was supposed to meet the subcontracted jackhammer crew. I showed up at the bank building first and let myself in. After about an hour, a stranger with a really bad limp wandered in. My first thought was that maybe he was a homeless fellow looking for a warm-up stop. He appeared to be easily three times my age. I was 25.

I asked him what he wanted but could not understand his response. I asked again. His response sounded foreign to me. I told him I didn't understand. He spoke again and waved toward the door through which he entered. The closer I listened the more he sounded like the Muppets' Swedish Chef. I still didn't understand, but another man walked in about the same time. Not happy with the odds, I looked at him and said I wasn't sure he should be in there. He responded in English but with a very thick German accent. "Jackhammer crew" waving his hand between himself and the other guy. "Oh," I said. "OK."

They got right to work, bringing in their scaffold and equipment. The two men set up in front of the door in record time. I was amazed at how this poor crippled man was able or would even consider doing this job. I said nothing about it as they hooked a 90-pound jackhammer from a chain that they attached to the wall above the door. As the old guy climbed up the scaffold and got

set to break concrete, it became clear why the limp. He had been breaking walls so long that the hammer fit perfectly against his bent leg.

My employer, Don Marston, and two crew men, Lowell Abney and George Simcox, flew in from home that day, rented a car, and met me at the bank. We began unloading the timbers from my truck and hauled them to the basement. As the day passed, we removed the knobs, handles and architraves, boxing them up as we went. That's when I found the newspaper.

Before the day was over, we made sure the door and jamb were oiled down. I checked the big rectangular door in back of the vault to be sure it was blocked open. I closed and locked the circular door. We headed for dinner and back to the room for the evening, leaving the truck on West Montana Street, on the north side of the building, overnight.

Moving the Door

We returned the next day to find the whole side of the truck tagged with spray paint, by a local "artist." The rest of that day was nothing but noise, dust and torch fire. As the concrete broke away, a mesh of reinforcement rod was revealed: 1-inch rebar was set every 4 inches, both vertically and horizontally throughout the 24-inch thick walls. We traded off turns at the jackhammer and the torch for the next seven days through thick dust and smoke. It was hard to breathe or see, even though we had fans running all day to move the air outside *(Figure 7-9)*.

"The closer I listened the more he sounded like the Muppets' Swedish Chef."

Between sessions, we took our lunches a few doors down at a Polish deli. Having been raised in the suburbs north of St. Louis, I had never seen a deli before. I was amazed at the hundreds of sausages hanging from the walls and ceiling. It smelled great. I swore to myself I'd bring some home to share when the job was done.

Eventually, the door appeared to be free of the wall *(Figure 10)*. I welded jacking lugs to the side of the frame and got out the new 10-ton hydraulic bottle jack, which was purchased just for this job. A few tries and angles were tested, and soon the frame broke free from the concrete with a bang. The lift continued until skid plates could be fit under the frame, parallel to the hallway, and toward the exit. We worked the turntable under the center and set the door down on it.

We took the jack out and replaced it with a cable and a come-along. With that, we turned the door and rolled it toward the exit. Then it was time to cut up angle and channel iron. We made a rolling support frame of the steel. We welded this to the front of the door. It kept the door from falling over the rest of the trip. We kept 1-inch-diameter rollers in close groups of three about three feet apart *(Figures 11 and 12)*. Except for the occasional binding, the hallway stretch went well. As we neared the exit doors, though, something just didn't look right.

Figures 11 and 12. We kept 1-inch-diameter rollers in close groups of three about three feet apart. Except for the occasional binding, the hallway stretch went well.

Figure 13. When the door was originally measured for height, it was before the frame had been fully exposed. Upon re-measurement, the center was noticeably taller.

Figures 14-15. The exit doors were already taken off, but now the frame had to come out too. That took some extra time, but everyone was focused on the lift outside.

Rush Hour

It dawned on me that when we measured the door for height, it was before the frame had been fully exposed. Upon re-measurement, the center was noticeably taller *(Figure 13)*. The exit doors were already taken off, but now the frame had to come out too. That took some extra time, but everyone was focused on the lift outside *(Figures 14-15)*. We would have to close the southbound lanes of Cicero in front of the building for the crane to park. From there we would lift the door onto the flatbed trailer bound for St. Louis *(Figures 16 and 17)*.

Telephone lines went parallel to the street on our side, right along the curb. The plan was to roll the door out just far enough to clear the building, then lift it and turn it between the lines and the building before raising it. That lift had to be 30 feet or so to pass over the lines with the door *(Figure 18)*.

For the lift, I had to weld four lifting lugs on top of the frame. Even though the time was running on the crane, I had to wait until the door was outside because of the fire and height restrictions. Besides the occasional snag, the whole thing went as planned. The door landed on the trailer, and the driver tied it down. We pulled out the shoring timbers from the basement, picked up the tools and runners, and loaded them on our truck. We said our goodbyes and the home crew headed for the airport. I ran to the deli and picked up a few sausages for the trip and headed for home myself. It was about 4:30 p.m. — rush hour.

Three hours later, I finally reached the southwestern edge of the Cook County limits. Traffic had been relentless and my bladder was ready to explode. With the summer heat, I had the windows up and the air conditioning running. By that time, the smell of the sausage was overpowering. I pulled off at yet another unoccupied service

Figures 16 and 17. The crew had to close the southbound lanes of Cicero in front of the building for the crane to park.

station, relieved myself behind a Dumpster, and threw the stinking sausage into it. I resumed driving.

Yearlong Restoration

The restoration took just shy of a year to complete. I stripped the door down, cleaned, cataloged, and sorted every part for its next destination. I fabricated the new grillwork, designing around a stray day-gate we had in the warehouse. I leaned heavily on my skills and connections from the tool and die business. Laying out and building this grillwork was no small task *(Figures 19 and 20)*. In fact, I had my old metal fabrication employer roll the ½-inch-by-1½-inch outer ring halves for us.

Doing the spacing calculations and determining the angles to cut the ends of the vertical bars was a real challenge. Each angle had to be different and rounded to meet the inside radius of the rolled frame. I drilled and tapped each point of attachment. I assembled the whole thing with screws to be sure everything went together properly. The first couple tries, of course, required some changes and adjustments. Finally, I tore it all back down, stamped each piece to identify it, and took it apart yet again to polish the raw steel pieces, one by one, so they could be nickel and brass plated.

Figure 18. The crane had to lift the vault door about 30 feet in order to clear the telephone lines.

Figures 19 and 20. The reinforcement rod grid supports the concrete vault walls, floor and ceiling. At right, the crew begins the concrete pour.

While I had the center plate of the back of the door removed, the idea to leave the tie bars exposed arose. They are the connecting bars between the cam plate and the locking bolts. They were made of hot, rolled, unfinished steel bar stock. That kind of steel has a hard scale exterior. This, of course, meant still more preparation. As the idea developed, it was decided they should be plated with brass. I ground down the rough finish, sanded them smooth in sequence from 36-grit, then to 60, 80, 100, 220 and 320. I then buffed them to a bright shine and sent them out to be plated brass along with all the rosettes, hinge tips and gate rod points. As you can see in the photos, this adds a dramatic visual effect.

As the parts returned from the various vendors, each one was unwrapped and arranged for re-assembly. We spread them all out on tables for ready access, then covered them all to protect them from dust and rust until the door was ready to be opened.

When connecting parts were available, each one was re-tested for fit. The plating process adds metal and can make close fits too tight for proper movement, especially on things like pressure systems, tie bars and gear housings. Each had to be ground or sanded to achieve the best fit. At times the build up of metal was even helpful. If old parts were worn and loose before being plated, this took up the slack. In every case, the fitting had to be done very carefully as the plating tended to peel if we weren't careful.

Timetables

In general, plating took about three months from send-out to return. Refitting took another month. Steel polishing of the face plates, back plates, locking bolts, architraves, and pressure bars took a good six months as it coincided with regular daily activities of business. The door was closed and clamped shut during that phase.

"Plating took about three months from send-out to return. Refitting took another month. Steel polishing of the face plates, back plates, locking bolts, architraves, and pressure bars took a good six months."

At the same time, the hinges were disassembled, cleaned and repaired. The lock spindles and handle arbors were taken out of the door to be cleaned, repaired, lubricated and re-installed. The faceplates were removed and re-grained. The hinge blocks were cleaned. The bolts that kept them on were removed, cleaned, oiled, and replaced and re-torqued, and the heads were re-grained as well. It all had to be done in time so when the parts arrived, the door could be re-assembled and re-opened. If something like a hinge block was to be plated, it was sometimes replaced with another bolt to stand in for the duration.

Once all the plated and re-grained parts were ready to go on, that's when the door was opened and the edge and frame jamb were cleaned up. The rust pits and trails were ground away with hard disk grinders. The dents, paper clip impressions, and grooves were hammered flat with ball-peen hammers. The entire surface area was filed with body files, then sanded with, again, first 36-grit, down to 60-grit. After that everything was wiped down with mineral oil and clean rags to remove the sanding grit and prevent rust. Even a slight brush of a sweaty arm against bare un-oiled steel in a hot shop in the middle of summer is "gonna leave a mark," as John Candy would say.

Within a year, everything was finally assembled, tested, shimmed and re-tested *(Figure 21)*. I made and supplied new installation drawings to the builder of the new bank and vault to show the required masonry opening. A new aluminum footbridge was made to ease passage into the vault over the threshold. Everything that could possibly rattle loose on the truck ride to the new location had to be removed and crated separately *(Figure 22)*.

When the door was returned to Chicago, my involvement was not as intensive, though I did make the trip once more during the final assembly stage. The vault door's original location is nothing more than an empty lot for sale today.

The Door's New Home

The vault door itself, however, is still in use at Community Savings Bank at 4801 West Belmont Ave. and N. Cicero Ave., just a few blocks north of its original home. In planning this story, I looked up the bank and found their online newsletter. I contacted them and was answered by Mr. Dane Cleven, Harvey's son. He told me Harvey had passed away in 1990. That's when Dane took over presidency of the bank *(Figure 23)*. As we continued to correspond by e-mail, it turned out that we had met once back in 1986 when he accompanied his father to our shop in St. Louis.

Figure 21. Harvey Cleven, the door's owner, took a look at it before it was installed in its new home, Chicago's Community Savings Bank, where he served as president.

Figure 22. Everything that could possibly rattle loose on the truck ride to the new location had to be removed and crated separately.

Figure 23. Harvey's son, Dane Cleven, took over as president of Community Savings Bank in Chicago after Harvey died in 1990.

He was extremely kind and helpful in my research. Most of the photos here are from his dad's scrapbook from the building of the bank. He told me, "The vault door was the centerpiece of our new addition back then, and it continues to be a centerpiece of our office today. And it works pretty well as a security door for our safe deposit vault also. Thanks for all your effort that went into restoring the door. I have seen some 'before' pictures and know it took a lot of work to bring it back into shape."

An interesting footnote: Upon discovery of the name of the original bank from a photo of the front of the old building, the West City Trust & Savings Bank, I made a search on the Internet to see if any more information on the bank was available. Among the hits, I found a list from the Library of Congress website.

There were photos from the *Chicago Daily News* on Sept. 26, 1924. They were concerning the robbery that took place on that day. Looking at the photos, however, something didn't look right. The bank was described as being at Fullerton and N. Cicero. That was the south end of the same block, not the north side. Further visual comparison of the building assured me. It was not the same building, but was on the same block, which seems to corroborate the story that the bank where my door came from was indeed built in 1929 when the paper was placed there.

You may have noticed that my interest in vault doors is rooted deeply, and not just in the mechanics and function. The history and longevity of these devices has always fascinated me. In this world where electronics has changed our lives immeasurably over the past 120 years, many vault doors remain unchanged and a part of our daily lives.

Brian Smith entered the banking equipment business in 1981. Working for Monday Security Corp., he recycled equipment — everything from change sorters to vault doors. In 2003, he started his own general contracting venture. Based in St. Louis, he does safe, security equipment and vault work.