CHAPTER

5

Right: The early tube department during the mid-1920s. Tubes for the carbon disks were insulated here.

'Radio Wave' Sweeps A-B Through Twenties

In the early 1920s, a "radio wave" swept the nation. In droves, Americans began building home receiver sets to tune in the vaudeville comedians' one liners, big city concert hall music and the thrilling mysteries of radio drama.

At the same time radio was dazzling the world, the automobile industry had replaced Tin Lizzie's external crank starter with a battery operated starting motor. It was necessary, however, to regulate the charging current of the auto's generator with some kind of a rheostat.

The Bradleys and Gus Wilms, chief engineer at the time, saw a new market if Allen-Bradley could develop a salable "miniature" graphite compression resistor. Up to this point, A-B's product line was a series of huge carbon-pile rheostat motor controllers used primarily in heavy industry. It was Wilms' idea to provide the control market with the "toy" rheostat so that it could be used not only by the auto industry for dashboard control of the generator's charging rate, but also in the small appliance industry just being launched.

It was more by accident than design, however, that the rheostat developed by Wilms' engineering team for the auto industry made its way into the living room of many Americans via the radio receiver set.

The new rheostat was called the Bradleystat, and the product's first mold was cast in 1920. By 1921, "an easily installed" dashboard device was being sold to automobile supply, service and repair shops.

The mating of Allen-Bradley with the soaring consumer radio sales market happened by chance in 1921 while a huge switchboard control panel was being installed at the new Union Station in Chicago.

Antol Galles, the Union Station engineer supervising the installation, was given several of the rheostats by Frank L. Gohl, A-B's Chicago district sales office manager. Galles was an amateur radio operator. He modified these rheostats and found his "miniature" Bradleystat to be "very satisfactory" for noiseless, stepless control adjustments of his radio set. Gohl reported this back to Milwaukee and work soon began on modifying the rheostat for use in radio sets.

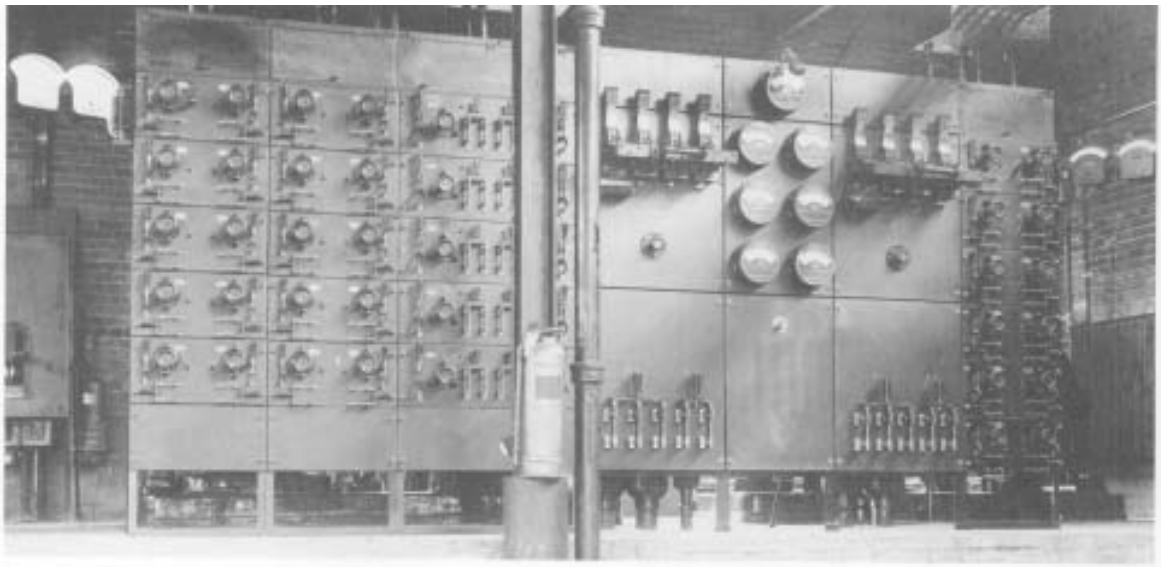
Rheostat Sales Soar

The dashboard rheostat was a long, tubular resistor. The radio modification utilized a short double column of small graphite disks enclosed in a porcelain container. It was used to regulate the vacuum tube in each circuit.

Advertised as the "Perfect Filament Control:' this Bradleystat had sales so explosive the company was caught by surprise.

"We cannot imagine anything more surprising than the good fortune that has come on ns with so little warning," Lynde wrote in a

Below: the coil department during the 1920s, left, and the testing of sewing machine treadle controllers for the Singer Co., right.



Sales for battery charging panels containing A-B rheostats and motor controllers were a major revenue source for the company during the 1920s. Left, batteries for delivery cars for the American Express Co., Detroit, were recharged in a car barn with the panel shown above.

Below: The first addition to the Allen-Bradley Co., facing W. Greenfield Avenue between S. First and S. Second Streets, 1919. Today, the building is part of the Milwaukee headquarters complex. The frame house (with stairway) was used for the chemistry, research and radio laboratories during the early 1920s.

company magazine in April 1922. "Not even the war or its immediate aftereffects brought ... such spontaneous results. While there will he readjustments and stabilization in the radio field, it is a permanent thing that will settle into one of the leading industries (of the nation)," he predicted.

Bradleystat meant growth, sales and profit for the Milwaukee firm. By **1924,** Bradleystat sales had reached the million dollar **mark —** $1,161,380. Shortly after the boom started, a Radio Department was organized, and hy 1923 five radio products were being sold hy Allen-Bradley. They were the Bradleystat, Bradleyometer, Bradleyadapter, Bradleyohm and Bradleyswitch. Later the Bradleyleak and Bradleydenser were added to this product line.

Prior to the Bradleystat boom, A-B had undergone some uncertain years. An expansion program had started in 1918. Late in 1919, office personnel and some production departments moved into the new three-story addition facing Greenfield Avenue.

Inventory Lesson Learned

The shaky economy following the war created a few recession potholes. During one of these lean business quarters, the Bradleys laid off employee$ reduced stock, and halted development. When orders began to flow in toward the end of 1919, the company was caught short. Customers and profits were lost. A lesson was learned that would aid the company 10 years later.

In the early 1920s, A-B introduced the Type J-1552 motor starter. It was designed to "throw" small squirrel cage motors "across the line." It was the predecessor to A-B's revolutionary Bulletin 709 Series A solenoid starter introduced nearly ten years later.

A-B also began manufacturing a treadle controller used by sewing machine companies. The largest buyer was the Singer Sewing Machine Company. For many years, the sales of the treadle controller warranted a separate A-B department appropriately named the Singer Department.

The radio craze demanded the most attention, however, and created the need for continued research and development of products. Several engineers were added during this period. George Megow was one of them.

A 1925 University of Wisconsin electrical engineering graduate, Megow would become a key inventor or co-inventor of various A-B products. He was hired for the Resistor Lab and worked side by side with Lynde Bradley. Megow retired in 1969 as an executive vice president and a year later resigned his position as an A-B director and trustee. He has been issued 16 U.S. patents.

Another University of Wisconsin graduate to come to A-B in 1925 was an affable Irish lad, Daniel Sheldon Wipple Kelly, who was the first radio sales engineer. One of his greatest sales pitches was made early in his career, and it landed A-B another key engineer.

Continued on page **33**

The top of a 1920s store point-of-sale display.

Phone Feud Prompts Entertaining Business

A special service for favorite telephone subscribers in Milwaukee during the 1890s let customers listen to musical acts appearing at Milwaukee's Schlitz Palm Garden. Thanks to a panel consisting of nine headsets designed by Lynde Bradley, the whole family simultaneously enjoyed the soupçons as they each held their own receiver.

Guglielmo Marconi's amazing wireless ship-to-shore broadcasts at the turn of the century spawned the age of radio.

Wireless communication progressed and by 1919 Frank Conrad, a Westinghouse engineer, delighted fellow amateur radio operators with a series of broadcasts from his garage in Pittsburgh, Pennsylvania. KDKA, the nation's first commercial radio station, was launched a year later in that city by an enterprising Westinghouse executive who envisioned a lucrative business in the wireless box.

When KDKA aired the Harding-Cox Presidential election returns in 1920, it was estimated that only 500 to 1,000 persons had receiver sets to hear the broadcast. Radio was still on the commercial horizon.

Readers of an Allen-Bradley employee magazine in June 1940, however, learned that for some Milwaukeeans those early broadcasts from Pittsburgh (although wireless) were not the first to bring music, news and speeches into the home.

Callow Youth Improvises

For if you lived in Milwaukee at the end of the 19th century, it was quite possible that your telephone was a fascinating source of such entertainment. Furthermore, if you were a "callow youth" interested in "stringing telegraph wires over housetops and devising various contraptions" in the cellar of your home, you even might have delighted the entire family with a telephone "broadcast;" as did Lynde Bradley just before the turn of the century.

A "Know Your Milwaukee" column published in The Milwaukee Journal's Green Sheet had turned Lynde's memory back to that time and he wrote about it in an employee magazine in 1940.

The setting of his story was Milwaukee about 1898 when "cigarettes were known as coffin nails and wasp-waisted women wore leg-0-mutton sleeves and lots of petticoats," he said.

A showcase of entertainment, plus a place for good food and spirits back then in Milwaukee was the Schlitz Palm Garden, located at the corner of Third Street and Grand Avenue (now Wisconsin Avenue), which today is the heart of Milwaukee's downtown.

Yet, not all was well in Milwaukee, Lynde wrote. According to his account, "The good burghers who ran this beautiful city were not altogether happy. In fact, some were sorely vexed because the Telephone Co. had been spoiling the beauties of the streets with poles and wires ... and digging up the magnficent cedar block pavement to place some wires underground."

Beer Garden's Music Tapped

To make matters worse, another company was trying to get its finger in the telephone communication pie. The competition and threat of another company caused a feud and the Telephone Co. knew it needed a good public relations ploy to keep its subscribers.

"So the wise men of the Telephone Co. went to the merry fellows who dispensed beer and refreshments at the Palm Garden and asked if the entertainment there could be broadcast via their telephones," he went on.

"Now, there were no microphones in the world., , as we know them today. So, these men ... built microphones using telephone transmitters and cardboard funnels ... and they faithfully transmitted over the wires all the sound that came within hearing. These microphones were placed on the Palm Garden stage and wires were led back to a small ornate temple of communication on Broadway known as 'Central: where the Telephone Building now stands. And these wires were so arranged that the young women at the switchboards, when they desired, could connect their customers with the Palm Garden microphones. Then these men said to the people of Milwaukee, 'We are going to bring to your homes entertainment, music and news ... and this is the first time in the history of the world that such a thing has ever been done,'" Lynde wrote.

Soon telephone subscribers were going to their phones and turning the crank "to ring up Central to ask for the Palm Garden," Lynde noted. A drawback to the service was that most families had only one telephone and the single-ear receiver had to be passed among the family members.

A young man who liked to tinker with electricity and such, Lynde saw an opportunity for his entire family to listen simultaneously providing he made a few modifications.

Homemade Headsets Help

He went to his cellar workshop and constructed nine "telephone headsets." In the family sitting room, he removed books from a bookcase shelf and installed a panel that had "suitable connectors so that the headsets were connected three in a series." Next, Lynde led the wires of the panel beneath the floors of the home on Prospect Avenue to incoming telephone lines. Using a switch, Lynde could connect the telphone lines to his headset panel or to the telephone, as he wished. The project completed, he gathered his family together "about the fireside and presented each with a headset." It was a great source of family entertainment for the Bradleys, as well as a few fortunate neighbors invited to listen, Lynde noted.

He got to know the operators by name and often chatted before asking for a Palm Garden connection. In return, the operators permitted the Bradleys to stay connected for an "entire evening or a Sunday afternoon instead of just two hours as was the general custom:' he said.

"It is absolutely fact that music, news and speeches were broadcast by wire throughout... Wisconsin by the Telephone Co. more than forty years ago, which was long before radio as we know it today had been invented. I am told it is the first time such a thing had been done on so large a scale. Our fair city has an event in its history... which I believe few people know and of which we can all be proud," Lynde concluded in his **1940** account of Milwaukee's earliest broadcast.

FIRST
ANNUAL OUTING
Allen-Bradley Co.
Sat. Aug. 14, 1920.
Grant Park, So. Milwaukee, Wis.
(County Park)
TICKETS . FIFTY CENTS

Good for One Ride
GRANT PARK (So. Milwaukee)
To
MILWAUKEE (Pub. Serv. Bldg.)
Cars Leave 6:30 . 7:30 P. M.

Good for One Ride
MILWAUKEE (Pub. Serv. Bldg.)
To
GRANT PARK (So. Milwaukee)
Cars Leave 8:30 - 9:00 A. M.

A three-legged race, top, during the first family picnic August 14, 1920. The most distinguished team here is Fred Loock and Harry Bradley, paired third from left. Left: This ticket was good for a ride to the picnic on the chartered streetcar, far left.

A-B's first Social Committee. From left: Lydia Wutke, Nick Steil, Bill Quast, Leo Retza, Jim Creakbaum and Rose Miller.

Continued from page 29

Matthias **Joins A-B**

Eighteen months after coming to Milwaukee, Kelly convinced an engineering classmate, Lynn H. Matthias, to join A-B's radio team instead of taking a job with the Bell Laboratories on the East Coast.

"I had my clothes and several of my belongings already shipped East when Dan Kelly talked me into coming to Allen-Bradley. I didn't know anything about the company, but Kelly insisted I come. They were going to make radios, he said. It was a young company and I'd be getting in on the ground floor, he told me. Radio had interested me as a child, when it was barely known, so I came.

"When I got here they (engineering) had a radio receiver set designed, but it was impossible and already outdated. It was built into a beautifully crafted walnut cabinet. But, had they put that on the market, there wouldn't be an Allen-Bradley Company today;' Matthias recollected. He suggested that plans for making the receiver sets be dropped, and company leaders agreed.

Although hired as "just one of the radio engineers," Matthias moved up in the company and eventually became vice president of Research and Development. For several years he served on the hoard of directors. He retired in 1969 and was a director until 1975.

Also joining Allen-Bradley in the **1920s** was a kindly man, I. Francis Herhes. He started as a manufacturing consultant and later became plant superintendent. In 1949, Herhes was appointed works manager, a position he held until his retirement in 1968.

He was well-known for both his manufacturing expertise and his ability to handle employee relations with great finesse and understanding. Herhes and Bob Whitmore worked side-by-side to develop

Allen-Bradley's first Sales Convention was held from August 11 through August 13, 1920, In Milwaukee. A number of salesmen stayed *for* the company picnic the following day. Standing from left H. **A.** Stevensen, H. **C.** Boswell, Frank Gohl, Walter Jaeckel, Gary Miller, Byron Drew, Walter Shackton. J. R. Boswell and Fred Loock. Seated from **left** Harry Bradley, Lynde Bradley. Walter Pfeifer and Carl N Calkins

By 1924, the sales force had expanded to include 23 employees, who are shown here at the Sales Convention picnic at Booth Lake, Wisconsin.

the factory's production and manufacturing areas during the early years.

The company's second major expansion program, construction of a seven-story addition facing S. Second Street, was started in October 1927. Four floors also were added to the 1919 three-story addition built facing Greenfield Avenue.

When the new buildings were opened in 1928, Lynde Bradley's office and the chemistry, radio and research laboratories were moved from an old frame house next door to the new seventh floor of the Greenfield Avenue addition.

The new additions meant the beginning of some employee services.

Concession Starts Cafeteria

The Allen-Bradley employee cafeteria got its start in 1928 when Walter F. "Whitey" Lehnboff, an assembly line worker with a flair for carnival hawking, convinced Lynde it would be a real service to employees if someone would sell candy bars and sundries at noon. It was agreed to let Whitey try it. With 18 candy bars and a string of hot dogs, the new vendor opened shop in new building's seventh floor stairwell landing. His business was popular. Soon a permanent counter was built and two employees aided Whitey in dispensing hot soup, sandwiches, beverages and sundries at noon.

Julia (Bizewski) Polczynski, A-B's first forelady in 1978

A First Aid Room was opened in 1929. It consisted of a few bandages, iodine and a bottle of aspirins, according to early employees From such humble beginnings, the service grew into Allen-Bradley's comprehensive Medical Department, which today is highly respected in the industrial medical field.

As the company's sales grew, so did its number of employees By October 1926, 658 people were employed at Allen-Bradley. There was a close bond among them, too. They often referred to themselves as part of the "Allen-Bradley Family,"

Family Picnic Held

The first company picnic for employees and their families was held in August 1920 at Grant Park, a large park on the outskirts of Milwaukee. A streetcar was chartered by the company, and employees and their family members were picked up at the plant and taken to the picnic grounds. An orchestra was hired, and the employees danced into the late evening on a portable dance floor made at the company,

Softball games between the married and single men were common during the summers of the 1920s, as were swimming, roller skating and card parties. Winter meant sleigh rides, toboggan parties and skating on the frozen Milwaukee River. The company's industrial league basketball and baseball teams were organized in the 1920s, as was its Tennis Club. The first employees' Children's Christmas Party was held at the Milwaukee Auditorium on December 27, 1924.

Flapper & Flask Era

For A-B and many other companies, the late 1920s were years of prosperity. Because Allen-Bradley was privately held, it plowed much of its profit back into expansion and research, incentive compensation programs and benefits for employees. "We could do this instead of paying out dividends to stockholders:' Harry Bradley once commented.

The decade also held a personal change for Harry. Late in 1925 he and his wife, Marion Becher Bradley, were divorced. The following spring, Harry married Margaret "Peg" Sullivan Blakney.

On the business side, Allen-Bradley bad experienced its greatest amount of net income in the history of the company by 1929, with sales reaching nearly **$3** million. The year 1930 wasn't as good, but it still was impressive. So much so, it hid the reality of the dark clouds of the Great Depression that were dropping lower and lower on the world and nation as well as on the company.

This photo appeared in an employee magaz ne in 1935 under the head ine "Th ngs You'll Never See." It features Whitey Lehnhoff Sr.. holding the soda bottle. and his assistant Ray Dietrich. The candy counter was the forerunner of the employee cafeteria at **A-6's** Milwaukee headquarters.

CHAPTER

6

Development Despite Depression

The longest and deepest setback to have scarred the world's economy was the Great Depression.

Scarcely a soul or industry escaped the strangling grip of the "Crash of '29." The following decade was a time of worldwide misery — an era of bread and soup lines, foreclosures, bank holidays, shantytowns and much personal tragedy.

Employment figures plunged to record lows. People learned to survive by "making do," a term that came to mean more than just stretching food or clothes. To those who experienced it, the Depression was a time of faith, hope and — thrift.

The Depression brought an end to the affluent economy of the 1920s when idle money went into

A new product that helped A-B rise from the depths of the Depression was the revolutionary Bul. 709 Series A starter. Below: A Bul. 709 assembly area in 1937.

By 1928, **Allen-Bradley's Milwaukee plant had expanded to a towering seven-and-a-half story complex. The original Pfeiffer 8 Smith building, which is visible at the far left, and a concrete facade garage structure, far right, also were part of the company's real estate.**

The 1928 addition included a new chemistry lab. Chief Chemist Laurence E. Power is seen at work, right, in July 1929.

heavy stock speculation. The economic boom's balloon finally burst on "Black Tuesday," October 29, 1929.

At Allen-Bradley, the year 1929 had closed on a prosperous note with sales peaking at a record $3 million. Despite the happenings of "Black Tuesday," General Manager Fred Loock was hopeful when he made the following report to A-B employees in January 1930 in a company magazine:

"The year has started out for **us** in very good fashion. We have no idea what is ahead of **us,** but we have every reason to be optimistic" Sales were still strong, he noted. Like many people, Loock didn't believe the poor business cycle could plummet much further.

25 Percent Unemployed

Yet, by 1933 nearly 12.8 million Americans were unemployed. The total U.S. wages paid dropped from a high of $11.6 billion in 1929 to $5.3 billion in 1933.

Meanwhile, activity at Allen-

Bradley centered on getting the company hack on a sound financial footing. Despite Loock's optimistic outlook early in 1930, by that year's end A-B's profit had fallen to less than half of 1929's record mark.

Even though sales were dropping, Lynde and Harry Bradley had adopted a plan that promoted additional research and development programs. It was Lynde's intention to "develop the company out of the Depression."

"By the end of 1930, we were spending more money in research and development so our sales representatives had more things to sell," Harry once explained.

Wages Cut

The depths of the Depression didn't start to erode Allen-Bradley's finances until late in 1931. Harry related that he and Lynde were able to hold off wage cuts until then because of the financial reserves they had built up with the radio boom sales of 1926 through 1930. But hy October 1931, things began to look bleak.

"We were up to our necks in trouble by the end of 1931," Harry said. "In October we had to reduce work hours and salaries. Despite our financial reserves ... our savings were exhausted and so was our credit with the hanks. By 1932, we had to severely cut wages again ... or close up. We were one of the last firms in Milwaukee to cut, but there was nothing else we could do.

"By August 1932, our business had dropped to a third of what it was in 1929, and the additional wage cuts were made based on a sliding scale of shipments per month. Poor shipments in a month meant less pay; good shipping meant we could pay our employees more. We also devised a plan where employees were issued preferred stock equal to the amount of cuts we had to make to the wage," said Harry.

"They were tough times, but one thing I remember about the Depression was that Lynde and Harry Bradley would talk to the employees directly. They always laid the cards on the table. If some of the guys just couldn't make it, they (the Bradleys) would buy back the stock immediately. They were just two fantastic individuals," one retired employee recalled.

It is said that every dark cloud has its silver lining. Homer Thomson holds that saying true for Allen-Bradley's Depression years. Although they were hard times, Thomson, one of A-B's research pioneers, noted that the "condition of the times brought several talented engineers and researchers to the company." The work of those individuals as a team was to become the foundation for many of the developments in the electric motor control and electronic components industries for the next 20 years.

Lynde and Harry Bradley remembered a lesson they had learned in the recession after World War I — that it was folly to cut hack research and development for short-term savings Their strategy was to use R & D as heavy artillery to combat the economic hard times. They believed that if several innovative quality products could he placed on the market, A-B's sales force could help turn the tide toward financial stability for the company.

During the early 1930s, A-B had 12 district sales offices, mostly concentrated in Eastern states and selling primarily to machine tool and radio industries.

Research focused mainly on electric motor control devices and a novel, much smaller carbon composition radio resistor. Changes in the radio industry were recalled by Matthias in 1978:

"The development of vacuum tubes with cathodes indirectly heated from alternating current instead of direct current from storage batteries eliminated the need for Bradleystats to control filament temperatures. (This was the volume control to many receivers.) The cathode tubes also made possible receivers (sets) operating directly from the power lines, which eliminated our market for Bradleyohms previously used in large quantities in 'B' eliminators. The new high-gain and multielement tubes introduced about this time demanded higher quality fixed resistors to provide correct operating voltages and proper impedance matching."

A-B came out with a coal tar pitch-clay filler graphite fixed re-

Lynde Bradley works in his new office on the top floor of **the 1928 addition. The windows gave him a view** of **Lake** Michigan.

The experimental test laboratory, September 1937.

George Vater enters the shielded cage room in the radio testing laboratory, as Clarence "Dick" Dickinson tests potentiometers.

sistor as early as **1925.** Shortly after, however, a resistor made of coal tar pitch-clay filler, hut with carbon resistance, was placed on the market.

"It was Lynde's idea to make a resistor with carbon because it had better characteristics than graphite," Thomson said. The re. search and development team came into focus as attempts were made to find the right kind of material to bind the carbon so it could be made into a disk, he added. The researchers were seeking high resistance, stability and the ability to calibrate the unit.

"The early resistors had very poor electrical characteristics and were not able to stand up under load. They were replaced by a cold-molded resistor developed by George Megow with Lynde Bradley's and Laurence Power's help. This unit utilized carbon black and phenolic resin. Lower resistance values used graphite in place of carbon black. The resistors were 'cured' in a 'Bakelizer,' (essentially an oven under pressure), that formed the resin into a stable body. Later, tube furnaces designed by George were used:' Matthias explained.

Women hand check the resistances of Type E hot-molded carbon composition resistors, about 1936.

Resistor Research Continued

"The resistors were then ground to a perfect cylinder and finally, after inserting them in a fiber tube and adding end caps, they were impregnated with a wax to minimize the effect of humidity. Many millions of these were sold to the radio industry. For a number of years, they were the highest quality of resistors available on the market," Matthias stated.

Research continued for an even better fixed resistor. The development work centered on a ceramic and the cold-molded, phenolic-bonded fixed resistors, with George Megow leading the research.

Thomson, who had a ceramics background from past employment, came to Allen-Bradley in **1933.** He retired in **1968.**

"I was hired to work with George (Megow) in the development of a ceramic resistor. We weren't having much success, however. The unit we had developed had excellent resistance value but it was difficult to calibrate," Thomson said. That difficulty made it a production liability. Too many units would have to **he** produced to get enough resistors that would qualify for sale, Thomson explained.

"A few months after I came, Laurence Perkins, chief engineer for Erie Resistor Company in Erie, Pennsylvania, joined Allen-Bradley. He brought Louis Parkhurst with him and a cold-molded type of composition resistor. Perkins' resistor was the pigtail resistor. It wasn't novel, but we sold this unit for ahont two years until the hot-molded carbon composition unit replaced it," Thomson said.

Type **E** Resistor **Bows**

The evolution of the hot-molded fixed carbon composition resistor began after a decision was reached in July **1933** to halt the ceramic research. Called the Type E resistor, it was introduced in **1935.**

The Type E resistor was not insulated. However, within a year, the EB unit, an insulated model, was introduced. Today—more than 50 years later—that research work is the basis for Allen-Bradley's Type HB-2 watt; GB-1 watt; CB-quarter watt and BB-eighth watt resistors.

Besides fixed resistors research, work was also being done to develop a hot-molded variable resistor and potentiometer. At the time, A-B had a 50-step Type A potentiometer that was becoming obsolete. Cheaper punched circles of painted plastic were on the market, though they were not of good quality.

Matthias, Gene Ragatz, and Barney Tellkamp worked late into the evening for many weeks to develop a hot-molded, thermoplastic, ring-type resistor. It was not successful, so they switched to using a thermosetting resin that was working well in fixed resistors. Ultimately, a compatible resin was found to be the best choice, and the company began production of the Type J potentiometer.

Path to Automation Begins

Simultaneous with development in the fixed resistor lab, research on a solenoid double-break starter and solenoid relay was going on at the plant. These two motor control products would be instrumental in the development of automated control of manufacturing machinery.

In **1931,** Matthias was placed in charge of the Industrial Control research and development area, which was working on the solenoid starter, among other products. While the starter was the idea of Gus Wilms, Matthias was instru-

Frank Fisher in 1979. He was in charge of the Industrial Control Division's application engineering department for many years.

Left: Allen K. Wolfe, the Milwaukee district sales manager from 1943 to 1972, was a yearling sales engineer when this photo was snapped in 1932. Wolfe is next to a clapper-style reduced voltage motor starter panel that was part of a promotional display.

These five "radio pioneers" got together at Allen-Bradley in March 1970. From left: Homer "Tommy" Thomson, Lynn Matthias, Daniel S. W. Kelly, Harold Zabel and Barney Tellkamp.

Murdoch Pryor in 1979. He was A-B's first safety director and an alleged leader of the legendary "Subcommittee."

mental in developing the silver cadmium alloy used in the Bulletin 709 (Series A). This starter employed a radically different approach to solenoid contact design and arc chute materials.

Gene Ragatz, a chemist and a metallurgist, also helped in that alloy development. Ragatz was hired as a research chemist in 1930. He was appointed chief chemist in 1947, technical director in 1955 and was elected a vice president in 1968. He died in an automobile crash in 1973.

Basically, the new solenoid 709 Series A motor starter provided rapid, consistent action through a vertical lift motion. It eliminated bearings, hinges, pivots and lubrication. The use of double-break silver alloy contacts eliminated cleaning and insured circuit operation reliability. It was a design that revolutionized the motor control industry. A-B introduced its new starter in October 1933.

Competitors Copy Starter

"The (solenoid) starter was an immediate success. In fact, it was so successful that competitors lost no time in coming out with their own versions of the same device," Harry Bradley once noted.

Barriers facing the developers included solving arc interruption problems; finding an insulating element that also was arc resistant; and coming up with reasonable production costs. A cured-molded combination that Wilms obtained from the General Electric Labs was the first insulating, yet arc-resistant material used.

During the late 1930s, however, another cold-molded material called Rosite, manufactured by a small firm in Lafayette, Indiana, proved to be a superior molding material. Rosite enabled Allen-Bradley to enlarge its Bulletin 709 Series A model from sizes four through seven. The small firm making the material was Rostone Inc., which would later become a part of Allen-Bradley.

"It was through Laurence Power, our chief chemist, that we found out ahout Rosite. He was a Purdue University alumnus and learned about a new product being manufactured by a group of Purdue graduates. He suggested we try it," Matthias recalled.

George Megow, a pioneer resistor researcher and eventually an executive vice president at A-B, is congratulated by Harry Bradley. right, for 25 years of service in 1950. Megow added another 20 years of Service before he resigned as a trustee and company director.

The Purdue alumni, who were supported by Lafayette industrialist David E. Ross, initially had formed Rostone Inc. to manufacture the material as a building stone. Paul Jones, who later became Rostone's president and chairman, and an A-B director and trustee, was one of the enterprising engineers.

Rosite Helps Rostone Grow

By 1935, Rostone's first two pilot plants had been destroyed by fire and the building stone was failing to gain consumer interest. Work on the potential uses for the product began. In 1937, Rostone, and its sister manufacturing firm, R. H. K. Corp., introduced Rosite, reinforced inorganic plastic which under extreme pressure could he molded into intricate shapes. The product proved very suitable as an electrical insulator, and items were sold in the form of contact mounting arc hoods for electrical switches.

It was about this time that A-B's interest in Rosite was initiated, Matthias recalled. The connection between A-B and what would eventually become the Rostone Corp. led to a long business relationship. In 1964, A-B purchased the capital stock of Rostone and in 1974, the company was made a division of Allen-Bradley. In February 1985, Rostone was sold to an employee management group.

While Rosite helped to improve the solenoid starter, there was another significant motor control development at Allen-Bradley in the early 1930s.

By 1934, A-B was the first company to introduce a solenoid double-break control relay — the Bul. 700 A relay. The Bul. 700 B relay was the second generation design of that product line. When production of the Bul. 700 B relay stopped in 1982, the longest running production period for a relay product line ended.

The Bul. 700 A relay is important, however, because of its role in the evolution of the automatic electrical control of machine tools. Prior to this automation, machines were belt-driven and very hazardous to employees.

The Bul. 700 A relay and the Bul. 709 Series A starter together made it possible to automate machines, and Allen-Bradley was the leader. "Our competitiors couldn't touch us," Matthias said.

The breakthrough came in 1935 when Brown & Sharpe, a major machine tool manufacturer, used A-B apparatus to build its B-12 milling machine that was completely electrically driven. The miller was unveiled that year in Cleveland at the Machine Tool Show, which today is the International Machine Tool Show.

CHAPTER

7

Happy Days, Pranks and Parties

While exciting research helped Allen-Bradley to financially survive the Depression, many employees relied on good fellowship to pull themselves through the hard times

The Bradleys had always emphasized that the company was really the "Allen-Bradley Family." The friendships and unity seeded in the 1920s with company sponsored picnics, programs and parties seemed to grow stronger in the 1930s

Although some of the company parties had to be curtailed because of costs during the Depression, other traditions — particularly the inexpensive practical joke — seemed to sprout.

Besides publishing a litany of corny jokes, the company magazine during the 1930s recorded the latest shop and office romance (or heartbreak), district office barbs and sales triumphs, and the shenanigans of numerous employee parties.

It was a time of boosting Allen-Bradley's championship industrial league baseball and basketball teams; winning the Tool Crib's annual Thanksgiving turkey raffle; toasting Prohibition's repeal at Curly's, Mary's or Louie's; and enjoying a variety of noontime activities, including horseshoes, chess, bean bag, dartball and table tennis tournaments. During the warmer mouths employees also would enjoy their lunch break by sunning themselves or dancing to a combo on A-B's rooftop, which was adjacent to the Recreation Room at the Milwaukee complex.

The Infamous 'Subcommittee'

It was during the early 1930s that the "Foremen and Assistant Foremen" parties became "Foremen and Ten Year Group" parties. The get-togethers became the chatter of the plant for several weeks following each event, the antics of the "Subcommittee" always among the choicest of the tales.

The Subcommittee was a legend by the mid-1930s. It included anonymous (but somewhat suspected) members, who always, in jest, attempted to undermine the work of the company's bona fide Social Committee. For example, a B-movie would mysteriously replace a scheduled travelogue at the men's Ten Year Group parties.

The women of Allen-Bradley had their parties, too. There was the annual Christmas parties and a legion of other seasonal get-togethers, not to mention bridal and baby showers held in the Recreation Room for co-workers. Costume parties were very popular among the women and their events usually followed a theme. These parties weren't without gags, either. The Recreation Room also was the site for a variety of department celebrations.

Pulling practical jokes on co-workers was common both in the office and shop. General Manager Fred Loock was noted for initiating much of the mischief. And Whitey Lehnhoff, who ran the Cafeteria, was often the victim of the pranks.

"One thing that really upset Whitey once was when we caught a pigeon, put it in a shoe box and left it on his desk:' Allen-Bradley's first safety director, Murdoch Pryor, recalled.

"This pigeon had a habit of coming through one of the shop windows and taking a drink from a bubbler (drinking fountain). One of the fellows in the shop crept up and grabbed the bird and we put it in that box. Then we put the box on Whitey's desk with a sign on it that read 'With this pigeon you should be able to make a million gallons of soup,'" said Pryor.

"Little did we know that Whitey had a lot of complaints that day on his soup. Pretty soon Whitey came sailing up to my department. He was fit to be tied. I claimed I didn't know a thing about it. Well, three-quarters of an hour must have passed and I got this call. It was someone in the office who said I'd better get down there right away because Whitey had just quit!

"I went down there and told Whitey I did it, but it was all in

Continued on page 46

A company chorus and dance troupe posed for a photo in 1934 just outside the company's reading room.

A 1930s Allen-Bradley Industrial League basketball team smiles for the record. The fourth, seventh and 11th man are not identified, but the other members, from left, are Wayne Fleishauer, Frank Calabresa, George Brown, Wayne Mackey, Arnold Bouchard, Galen Fleishauer, Woody De Smidt and John "Red" Werzenski.

The 1928 addition included the first in-house recreational areas for employees. This was the reading room on the addition's 7th floor where relaxing and kibitzing were both in order.

Whiskey and a Washfountain: Bits and Pieces of A-B's History

A half pint of 100 proof straight whiskey was among memorabilia left by the late Charles Benson. a retired manager of the Milwaukee Press Club. According to the bottle's label, the whiskey was distilled by the "Allen-Bradley Company" in 1917.

Did you know that an Allen-Bradley Company once distilled whiskey? Or that there was a very strong man living in Wisconsin named Allen Bradley? Where did the Bradley washfountain originate? Are you aware that an A-B switch once was impounded as criminal evidence during Prohibition? How did A-B's popular shop cap gain worldwide recognition? These are among the oddities that make up part of Allen-Bradley's history.

One of the most fascinating tales involved a pint of straight whiskey. The liquor had been distilled in the fall of 1917 and was 100 proof when bottled in 1934. Its seal has never been broken.

The pint of whiskey was brought to the company's attention by a retired City of Milwaukee employee who found a bottle of the liquor among family memorabilia. According to the label, the whiskey was distilled by the Allen-Bradley Company.

Was it a coincidence that the company's name was exactly like the firm in Milwaukee? Or did our company have its finger in the distilling business at one time?

It took some checking, but the firm responsible for distilling the elixir apparently was a distillery operating in Louisville, Kentucky, as early as 1899, according to county court records registered in Louisville. Further research with the U.S. Treasury Department's Alcohol, Tobacco and Firearms regional office in Cincinnati and the Pilsner Club of Louisville indicates the Allen-Bradley Company in question was one of the two trade names used by the Anderson Distillery Co., of Louisville.

Anderson Distillery later was associated with the American Medicinal Spirits (AMS) Company, the bottler of the whiskey, according to the label. Today, AMS is a subsidiary of the National Distillery Co. Inc., of New York and Louisville.

In 1978, Dick Wessling, then A-B's Chicago district manager, reminisced about the pints of whiskey. Wessling, who is retired now, owns a similar whiskey bottle with an Allen-Bradley Company label. He noted that according to the label on his bottle, the original liquor had been distilled in 1915 and bottled in the fall of 1933. (Prohibition was enacted in 1919 and repealed in late 1933.)

Each bottle carried an "Old McBrayer Brand Straight Bourbon Whiskey" label. In a column marked "Oddities," and with no further explanation, a 1936 employee magazine included a reprint of an "R. P Pepper Sour Mash Bourbon Whiskey" label that also listed the distillery as the Allen-Bradley Co.

After Wessling had received the empty bottle from an A-B distrihutor in 1960, he queried former company president, Fred Loock, about the elixir.

"Oh, that:' chuckled Loock as he was shown the bottle. "Harry Bradley got a chance to buy up a bonded government warehouse of whiskey in Louisville during the war." (Apparently Loock was referring to World War I.) According to Loock, the Bradleys wanted to remove the twin name from the market, Wessling said.

"The way I heard it was Harry found out about the distillery that used the same name as ours from one of our salesmen in the Louisville area. Harry bought some of the liquor. In fact, he bought a fair amount of it," recalled Lynn Matthias, retired vice president of research and development.

"He bought the stuff as a novelty. He didn't buy out the outfit. The distillery either went out of business or stopped using the (A-B) trade name just about the same time Harry bought the stuff," Matthias concluded.

* * *

Along with the reproduced whiskey label noting Allen-Bradley Company as distillers there also was a cartoon in the January 1936 employee magazine de-

Harry Bradley's famous washfountain. He designed the fixture in 1917 to help his employees clean up faster. He sold the patented invention lo Some friends in 1921, and they formed a Wisconsin plumbing supply company now known **as** the Bradley Corp.

picting a man carrying a barrel. The caption explained that there once lived a man named Allen Bradley and he was the strongest man in Wisconsin. He carried a barrel of flour weighing 415 pounds three miles without resting, according to the story.

* * *

While some of Allen-Bradley's products can claim renowned applications, such as going to the moon, one of the early Bul. 709 switches holds a rather infamous place in the company's product application history.

This oddity centers around an early 1928 clapper-style Bul. 709, the model that preceded the revolutionary solenoid Bul. 709 Series A switch. The December 1931 employee magazine recounted the fate of this small switch in a story headlined: "The Sad Fate of a 709."

The switch was used by the Anthracite Processing Company, Passaic. New Jersey. which claimed to manufacture"'coal briquets. The 'firm was actually in business to bootleg 10,000gallons of 192-proof alcohol a day. Because the bootlegging was well camouflaged, it took federal agents two years to uncover the Anthracite Processing Company's real enterprise. The still was concealed in huge coal hoppers and daily shipments of alcohol were made in coal trucks containing 500-gallon tanks covered by a three-inch layer of coal briquets. According to the employee magazine account: "Enough coal was processed to allay suspicion.?

Once on to the bootleggers, though, the federal agents staged a raid and the A-B 709 became part of the impounded evidence. A picture featured with the employee magazine article prominently showed the switch attached to one of the "coal" hoppers. That switch probably would have had a few more years of service had the sewers near the "coal" company not become clogged with mash — the clue that led the agents to the still's discovery.

* * *

It was a well-known fact that both Lynde and Harry Bradley enjoyed tinkering. One of Harry Bradley's inventions was a washfountain designed in 1917 for use by his employees. He made a few of the nnits—which discharged the water spray from the bottom of the bowl—for plant use, but never commercially sold the fixtures. He also patented the device.

In 1921the patent rights were sold to Louis Schlesinger, who formed a corporation called the Bradley Washfountam Company. The early units were sold not only as washfountains, but as decorative fountains, containing vegetation, rocks and aquariums. The units also were sold to fruit and vegetable markets for the display and preservation of the produce for sale. Today the firm is the Bradley Corp., a Wisconsin enterprise manufacturing plumbing fixtures worldwide. It still produces washfountains.

* * *

Early photos of Allen-Bradley employees often show them sporting a black, visored "shop cap" as they worked. The shop cap became so popular that the cap was used as an advertising give-away for more than 40 years. Every box of motor starters shipped from the Milwaukee plant carried a pre-stamped postcard offering a"free shop cap" if the card were returned in the mail to Allen-Bradley.

Although this practice was halted in 1972,the caps were still mailed as a give-away through 1975, explained Jim Hasbek, supervisor of Catalog Services. "As many as 400,000 caps a year were sent out in the past and we still receive the cards," he noted.

In 1979, one of these returned postcards had an old Allen-Bradley logo printed on the return address and a printed note to the Postmaster that the "three-cent postage due" would be paid by **A-B.** As late as 1986, these cards were being returned to Allen-Bradley. How come the cards, especially such dated ones, still are returned to the company?

Donald Wolferd, service manager for Carmen Machinery in Paramount, California, had a simple e x planation why his "dated" card was received in Milwaukee so many years later:

"I buy a lot of your equipment at auction sales. I've been using Allen-Bradley equipment for years. One of the boxes from an auction had the card in it, so I decided to mail it in and see if I got one (a cap)." And it was a similar reason why a half-dozen cards from employees of Western Fluid Power of Portland, Oregon, also arrived.

The cards were mailed after Keith Jacobson, a Western supervisor, cleaned out his tool box. "I found a dozen or so of the cards at the bottom of the tool box and just banded them out to a couple of the people working that day," noted Jacobson. "We just wanted to see if we'd get a cap. I used to order 'em years ago."

A noontime combo, above, that entertained employees in 1945 eventually evolved into Allen-Bradley's famous Orchestra and Chorus **led** by Tony Werth. From left: Gerhard Legel, Tony Werth. Arthur Burkart. Bob Wanasek, Wally Pallert, Joe Koski, Obie Germanson and Elmer Kroening The vocalist was not identified

There are two noontime divers ons at the Milwaukee plant that apparently haven t been licked nor trumped. In 1937 several stamping department mates played cards while two onlookers enjoyed' ice cream cones from A-B's Cafeteria. The card players, seated clockwise from top, were Mervin Seymer. Chet Kaczmarek, Casimir Garstecki and Edward Swiderski. Standing, from left, were Bob "Ducks" Drewicz, Benny Groskiewicz Sr.. Ben Glembin. unknown. Art Baerman and George Tanger.

Continued from **page 42**

fun. Then he told me about his bad day over the soup. Well, it had a sobering effect. It was a lot of fun for awhile, but a lesson was learned. On a given day, we don't all feel the same way, even if something is meant in fun. Whitey laughed about it much later, but he didn't think it so funny then," Pryor recounted.

Other practical jokes included getting "buzzed" by Milferd Meddaugh, former Receiving Department foreman, if you happened to exchange handshakes; mild electrical shock tricks (such as rigging a chair seat); and hiding Limburger cheese in your department the day you left for vacation.

New Employees "Get The Bird"

The granddaddy of all practical jokes was the Tool Crib's annual turkey raffle. Nobody knows who started it or when the tradition ended, but beginning in the 1930s, this holiday hoax caught a number of victims.

It was the crib's tradition that near quitting time on the last day of work before Thanksgiving, several (usually new) employees from various departments would be informed that they had won the annual employee "turkey raffle." The

In 1944, cabinet department foreman Cesare Vincenzi, center, distributes payroll checks to his staff in the original Pfeiffer and Smith building in Milwaukee. The photo was taken just before the aging machine shop was razed for an expansion project.

For many summers in Milwaukee, the rooftop of the 1928 addition was a popular place for employees to sun themselves or while away their lunch break on wooden swings. The area was located adjacent to the first reading room. During the 1940s the area was enclosed and made part of the current gymnasium and recreation rooms.

winners were told to report to the crib before they left work to pick up their prize.

When the winners arrived, they were handed an impressive bulky bundle and heartily congratulated. Obviously the prize was a free turkey because the hird's legs and head were sticking out of the otherwise wrapped package that was still cold from being in the cafeteria freezer.

Each year, as the "lucky" winners left the area with a free turkey tucked under an arm, a muffled chorus of laughter could be heard from the Tool Crib.

Once home, the employees would unwrap their package and see the trick, for inside was a bundle of crumpled rags and paper, weighted down with scrap iron.

"We had to be real careful to keep things from rattling:' recalled Ohie Germanson, one of the tricksters. "We found new suckers every year. One kid called his folks in Iowa and told them not to buy a turkey because he won one. He drove all the way out there and discovered it was just a hunch of bolts and junk!" The joke was an annual event from about 1938 into the late 1950s.

Sports **Important Pastime**

Sports also were prominent in the leisure and social life of Allen-Bradley employees Both recreational and competitive sports were encouraged by the Bradleys. In fact, it was a plant joke during the 1930s that the first sign of spring was when the Plating Department was swamped with golf clubs brought in for cleaning and general polishing.

Baseball and basketball were among the favorite team sports. The company's teams often captured city industrial league titles. In 1939, A-B's basketball team took its first state Amateur Athletic Union (A.A.U.) title and went on to the national tournament in Denver, losing in the second round to a Chicago team.

Werth **Leads Orchestra**

Tony Werth, one of the original Tuesday noon hand members, soon became director of the orchestra. After the chorus disbanded for a few years in the 1940s, Werth started a choral group within the orchestra. Following the lead of the first joint concert, the Allen-Bradley Orchestra and Chorus soon became famous for its annual spring musical **revue** and employee dance. Werth was named full time music director in 1957, a position he held until he retired and the Orchestra and Chorus was disbanded Jan. 1, 1982.

Strike Splits Company

One event at the plant at the end of the 1930s had a sobering effect on each and every employee from President Lynde Bradley to office clerk and shop assembler.

It was the strike of 1939, which occurred two years after the United Electrical, Radio and Machine Workers of America (UE) Local 1111 was chartered at A-B. The reason for striking is unknown, hut it began May 10 when a punch press operator dropped a towel in the factory to signal the walkout. The strike lasted until August 3. According to many retirees interviewed in the late 1970s, it was a bitter and sad period for the company.

Allen-Bradlev's best known union leader was Herman Kuehne. He was elected president of UE Local 1111 in 1942, a position he held until 1964. Kuehne was highly respected by labor, management, family, friends and his community during his 38 years of service with Allen-Bradley. Kuehne also served as vice-president of UE's 11th District, which includes Wisconsin, Minnesota and Illinois.

Bingo games at the Milwaukee plant started in the fall of 1936 were so popular they were held for many years to entertain **employees** and their families