INDIUM CORPORATION
LEGACY OF INNOVATION

The History of Indium Corporation

Authored by: Brad Velardi, Greater Utica Magazine.

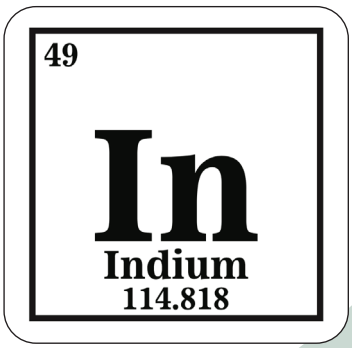
Every individual or entity strives to attain success; however, few strive for excellence. To be successful, one must work tirelessly to find solutions for the problems that confront them. Those who aim for true excellence actively search for obstacles that no one in their field has been able to overcome. There have been relatively few individuals in human history who have possessed the necessary mixture of intellect and courage required to pursue excellence. While we all attempt to climb life's proverbial mountain, few of us reach its peak. Even fewer, however, stand at the summit and gaze in search of the next highest mountain.

Ninety years ago, Dr. William S. Murray set a standard of excellence for what we know today as Indium Corporation. From his childhood roots in rural northwest Pennsylvania, Dr. Murray grew into, arguably, one of the most significant chemical engineers in world history. His life's mission was to seek answers to the most elusive problems imaginable—when he found the solution to one, he sought after another. Dr. Murray's endless pursuit of achievement continues to inspire the company he founded nearly a century ago. It's what has made Indium Corporation one of the world's leaders in the technology manufacturing industry.

By following the influence of Dr. Murray, Indium Corporation has played a critical role in the technological development of the world since 1934. In ways that most of us don't even realize, our lives are affected dramatically each day by products developed by this local company. Their progression has been fueled by three basic principles that the company has coined The Indium Way. They are Respect, Appreciation, and Achievement. For generations, Indium Corporation has strived to uphold these principles—Dr. Murray would have it no other way. When current employees of the company are in need of inspiration, they need not look further than the story of Indium Corporation's founding. Dr. Murray took a metal with (then) little material significance and refined it into the company's key element for success.

Element 49

In 1861, the element thallium was discovered by British chemist William Crookes. The following year, Crookes and French chemist Claude-Auguste Lamy independently developed the process of isolating thallium, identifying it as a metal. As with nearly any elemental discovery, the existence of thallium sparked the interest of chemists in various parts of the world. In 1863, German professor Ferdinand Reich of Freiberg University (Freiberg, Germany) was conducting



From One Engineer To Another®

Indium Corporation is a premier materials manufacturer and supplier to the global electronics, semiconductor, thin-film, and thermal management markets. Products include solders and fluxes; brazes; thermal interface materials; sputtering targets; indium, gallium, germanium, and tin metals and inorganic compounds; and NanoFoil®. Founded in 1934, the company has global technical support and factories located in China, Germany, India, Malaysia, Singapore, South Korea, the United Kingdom, and the USA.

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Professor Ferdinand Reich (left) and Hieronymus Theodor Richter (right).

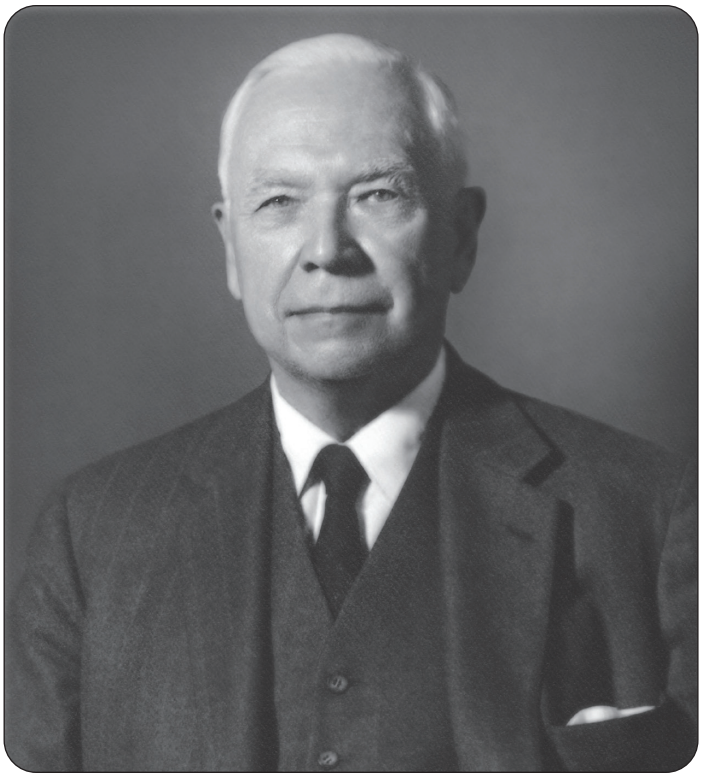
research on a piece of zinc ore, hoping to find traces of thallium. With the help of his assistant Hieronymus Theodor Richter, Professor Reich inadvertently made a discovery that would change the world forever.

As Professor Reich studied the zinc ore with a spectroscope, he continuously detected the presence of an unknown element. Reich, who was color blind, asked his assistant Richter to observe the element. Richter described it as having an indigo blue stripe in its spectrum. This monumental discovery led to a shift in the focus of the two scientists' research. Like thallium, the new element was identified as a metal—Reich and Richter named it indium because of the colored lines in its spectrum. Not only did Reich and Richter discover indium in 1863, but they also isolated it that same year. The process for the commercial extraction of indium, however, remained unknown.

After publishing a paper about their findings, Reich and Ritcher do not appear to have analyzed indium in any significant way. Although research was conducted on indium by various scientists in the coming years, no breakthroughs were made in terms of its extraction or use. It became little more than a tiny square on the periodic table for the better part of 60 years. When indium was first discovered, Reich was 64 years old and Richter was 39—neither lived to see the twentieth century. As it related to their elemental discovery, they'd reached the peak of their proverbial mountain; however, there were many more peaks to climb.

A Visionary is Born

About 24 years following the discovery of indium, the visionary who realized its many potential commercial uses was born. On March 4, 1887, Dr. William Stanley Murray was born at Stilson Hill in Warren County, Pennsylvania to George and Armina Murray. Stilson Hill is quite rural—



Dr. William Stanley Murray. Courtesy of Indium Corporation.

citizens of more urban persuasions may refer to it as "the middle of nowhere." Today, just over 38,000 citizens live in the entire county. To say that it is unlikely that a world-renown chemical engineer would be reared in such a settlement during the nineteenth century would be an understatement. Nonetheless, that is precisely what occurred.

Dr. Murray earned his early education in local schools before matriculating at Colgate University in nearby Hamilton, NY. During his time at Colgate, Dr. Murray was immediately recognized by his professors as an immensely gifted chemist. Professors Joseph Frank McGregory and Roy B. Smith, under whom Dr. Murray studied, understood that a classroom would only serve to harness such profound natural ability as that possessed by Dr. Murray—that's why his "curriculum" was a bit different than that of his classmates. Professor McGregory once said of Dr. Murray, "He couldn't be kept within the confines of any course, so we just gave him a laboratory desk and didn't bother him." The results of this experimental form of education were indisputable.

In 1910, Dr. Murray earned his Bachelor of Science degree from Colgate and immediately entered the workforce. He was hired as a chemist for the Utica Pipe Foundry, located at the corner of Broad St. and Dwyer Ave. in East Utica. During his time with Utica Pipe Foundry, Dr. Murray was

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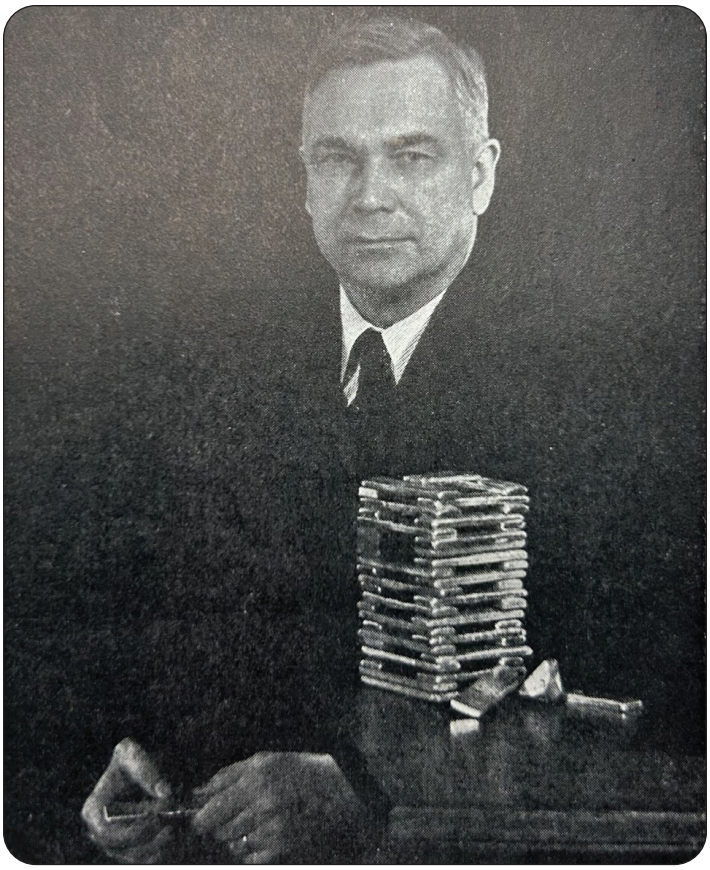
establishing a local reputation for being a talented chemist. In June of 1913, he married Margaret A. Collins, who would be his wife until her passing many years later. Dr. Murray's future appeared to be set; however, the Pipe Foundry filed for bankruptcy the following January and he was forced to carve out another career path.

What seemed at the time to be a scary proposition turned out to be the greatest thing to ever happen to Dr. Murray. Following his time with the Utica Pipe Foundry, he became a consulting chemist for Oneida Community Limited, silversmiths known across the world. Confident in his incredible abilities, Dr. Murray would soon establish his first business—an engineering consulting firm that operated under the name of William S. Murray, Incorporated. The company would be headquartered for some time in the Devereux Building in downtown Utica. It wouldn't be long before other companies from around the area sought the expertise of Dr. Murray, hoping he could find solutions to their most complicated issues. Several of his clients supported the nation's effort in World War I. Among the firms Dr. Murray consulted were Savage Arms Corporation, Utica Cutlery Company, Bossert Corporation, Utica Heater Company, and International Heater Company.

Around the early 1920s, Oneida Community Limited sought to hire Dr. Murray as their head of research; however, he would only accept their offer if they hired him as a contractor. So much did they desire Dr. Murray's abilities that they agreed to his terms, and he served the organization in that capacity for several years. In 1922, he and his wife Margaret purchased their home at the corner of Sunset Avenue and Watson Place in West Utica. About two years later, Dr. Murray was given a special assignment by Oneida Community Limited that provided yet another unexpected turn in his professional life.

The Search

Around 1924, Oneida Community Limited posed a challenge to Dr. Murray and his colleagues. Their aim was to manufacture silverware in a way that had never been done before—they wanted their product to be non-tarnishable. They asked Dr. Murray to use his innate ability as a chemist to help them make this vision into a reality. Although such a feat seemed unconscionable, that was exactly the kind of project that stimulated the mind of Dr. Murray. He'd conceived the idea of coating silverware with another metal that would be resistant to corrosion. He began studying various rare metallic elements that could be used during this process and one was found to have the desirable qualities—indium.



Dr. Murray with more than 250 ounces of indium metal.

Assuming that a healthy supply of indium would be readily available, Dr. Murray and his team contacted a chemical supply house in New York and ordered a large quantity of the metal. The supply house would spend the next several months contacting foreign entities to locate the amount of indium requested by Dr. Murray. At the conclusion of their search, they were only able to find one gram in the entire world. While many others may have been discouraged by this result, Dr. Murray forged ahead with his research, purchasing one gram and beginning his work. In his own words, Dr. Murray once stated, "Our first step was to locate, if it existed, an ore which contained paying quantities of indium." He and his colleagues "begged, borrowed, and bought" ores of zinc, silver, gold, lead, and other metals. Only trace levels of indium were found in the many samples examined.

Finally, after testing hundreds of samples, a breakthrough was made. Dr. Murray looked into the spectroscope and with his own eyes he saw a prominent indigo blue stripe on the spectrum of the ore—it was a paying quantity of indium. The sample was traced to a state in the Midwest and just days later, Dr. Murray boarded a train to that location

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with a spectroscope in his possession. He and his team began analyzing thousands of ores from the region only to find that every one of them showed no signs of indium. It appeared that Dr. Murray's journey to the Midwest was falsely inspired by a mislabeled sample. He'd traveled all that way only to discover his excitement was predicated on a mistake; or was it? Luckily, there was a man present who was native to the area. The man recalled an instance in which samples of ores from other regions had gotten mixed in with local ores and shipped out. The man's recollection helped Dr. Murray redirect his search. In 1926, in conjunction with personnel from the Salt Lake City Bureau of Mines and the Anaconda Mining Company of Great Falls, Montana, Dr. Murray finally discovered commercial quantities of indium in an abandoned mine near Kingman, Arizona.

Finding commercial quantities of indium was only the beginning of Dr. Murray's journey—now he had to find a way to refine it. Indium's physical properties made its extraction an extremely challenging process—its consistency resembled dust one would find in their carpet. James Milliken University graduate and scientist, Daniel Gray, would be called upon to assist in the refining process. Together, the two men developed a process to effectively extract and purify indium, earning patents in several countries on the process. They then developed and patented the process of plating various metals with indium, some of them included silver and silver plate. Dr. Murray and Daniel Gray were the world's leading experts on indium. Because of their efforts, the refined supply of indium in the world went from one gram to more than a million grams in a matter of a short period of years.

Indium Corporation of America

While Dr. Murray focused heavily on the research and development of indium from 1926–1934, he continued to operate a successful consulting firm. In 1932, he hired a young man that would eventually become his successor—John Robert Dyer, Jr. Like Dr. Murray, Dyer was born and raised in a small Pennsylvania town. During his adolescent years, Dyer's family moved to Clayville, NY and in 1928, he graduated from Utica Free Academy. Following Dyer's graduation from Philadelphia Technical School in 1932, Dr. Murray hired him as a consulting chemist for his company, William S. Murray, Incorporated.

Dr. Murray's home at 805 Watson Place in Utica served as the first headquarters for The Indium Corporation of America.

By 1934, Dr. Murray realized through his years of research that there was an almost endless list of potential commercial uses for indium. Its flexibility, lubricity, high electric conductivity, and ability to stabilize easily-corroded metals had potential to change many industries across

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Pictured at left: Daniel Gray; above: J. Robert Dyer.

the world. With that in mind, Dr. Murray, Oneida Community Limited, and the Anaconda Mining Company founded The Indium Corporation of America in Utica, NY on March 13, 1934. Its corporate officers were William S. Murray – President, J. Robert Dyer – Vice President, and Daniel Gray – Technical Director. They would be headquartered in Dr. Murray's garage at 805 Watson Place.

Throughout the remainder of the 1930s, The Indium Corporation of America continued to perfect indium-related products and processes previously developed while patenting several new ones. In the infant stages of the corporation, indium was used to improve commercial products, such as dental alloys used for tooth fillings, headlight reflectors, and various instruments of communication. While serving as president of two successful companies, Dr. Murray was also leading a successful career in politics. In 1936, he was elected chairman of the New York Republican State Committee—arguably the most significant Republican position in the state. Four years later, he was named delegate-at-large to represent the state at the Republican National Convention in Philadelphia. He also held a place of prominence in the local community serving at one time as president of the Utica Rotary Club and trustee of both First Presbyterian Church on Genesee Street as well as his alma mater, Colgate University.

In 1938, The Indium Corporation of America accomplished by far its most significant feat at that time. That year, they were approached by United Aircraft Corporation and asked if they could develop a process by which indium-treated engine bearings could be manufactured. J. Robert Dyer went to work at Indium Corporation headquarters (which was still located in Dr. Murray's garage) and eventually developed the technology used to plate aircraft engine bearings. This was a monumental breakthrough that would make an immense global impact in the coming years. It was a major reason why, in 1939, Dr. Murray was awarded an honorary doctorate from Colgate University for the development of commercial uses of indium. Prepared for substantial growth in the following decade, The Indium Corporation of America opened an office in 1940, in New York City, to "carry on the educational and promotional plans for developing uses and sales of indium." This office was headed by Maria T. Ludwick who played a significant role, over several decades, in increasing customer awareness of the company. The following year, they opened a laboratory in New York City, where work commissioned by the United States Bureau of Conservation of Materials was conducted. At that laboratory, research for the development of decorative surfaces was conducted. In these experiments, indium was used as a substitute metal for tin (of which there was a shortage) in alloys for solder and brazing materials. This was yet another instance in which indium was used in products previously susceptible to corrosion and erosion, including piston rings, valves, bearings for machinery, and many more.

In December 1941, the United States officially entered World War II and The Indium Corporation of America was called upon to aid in the war effort. Dyer's process in manufacturing indium-treated aircraft engine bearings played a significant role in the Allied Forces eventual victory. Perhaps the greatest honor that could have been bestowed upon an American company during that time was awarded to Indium Corporation of America on November 12, 1942. On that day, Colonel S.R. Brentnall of Wright Field in Dayton, Ohio, presented the company with the prestigious Army/Navy "E" Award given to production facilities who achieved "Excellence in Production." They were given the award for their efforts in refining indium which allowed for the production of indium-treated aircraft bearings, tin-free solder and brazing material, the use of indium thrust bearings, and the use of indium in solid and liquid lubricants.

The Army/Navy "E" Award.

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The Indium Corporation of America headquarters at 1676 Lincoln Avenue in Utica.

Interior photo of Indium Corporation headquarters on Lincoln Ave.

During his address, which took place at the Murray home, Colonel Brentnall expressed the significance of these developments as they pertained to the war effort. In reference to indium-plated engine bearings, he stated that they "allowed engines to run at higher speed without burning out the bearings. This has increased the power output for aircraft engines without increasing the weight." This gave "results in increase of cargo or bomb load carried by that airplane." The use of indium also increased the life of engines by preventing corrosion, particularly in cold climates. In short, military aircraft flew faster, lasted longer, and carried heavier loads because of The Indium Corporation of America.

After receiving their historic "E" Award, The Indium Corporation of America became the focus of stories in several national publications, including TIME Magazine, Business Week and the Wall Street Journal. While almost all of their production efforts were concentrated on the war from 1942–1945, they still found time to contribute to other industries. Certain materials, such as chromium, copper, nickel, and brass, were being preserved for war purposes.

Interior photo of Indium Corporation headquarters on Lincoln Ave.

In response, the company was able to utilize indium's lustrous decorative finish to plate bumpers on 1942 Studebaker automobiles and other products, such as cosmetic containers, optical frames, office machinery, watch cases, bracelets, flashlight reflectors, and buckles. These were just some of the many commercial uses of indium utilized during the 1940s. The company's manufacturing operation predictably grew out of Dr. Murray's garage in 1943, and during that year, they moved into a facility located at 1676 Lincoln Avenue—a location still owned by the company today.

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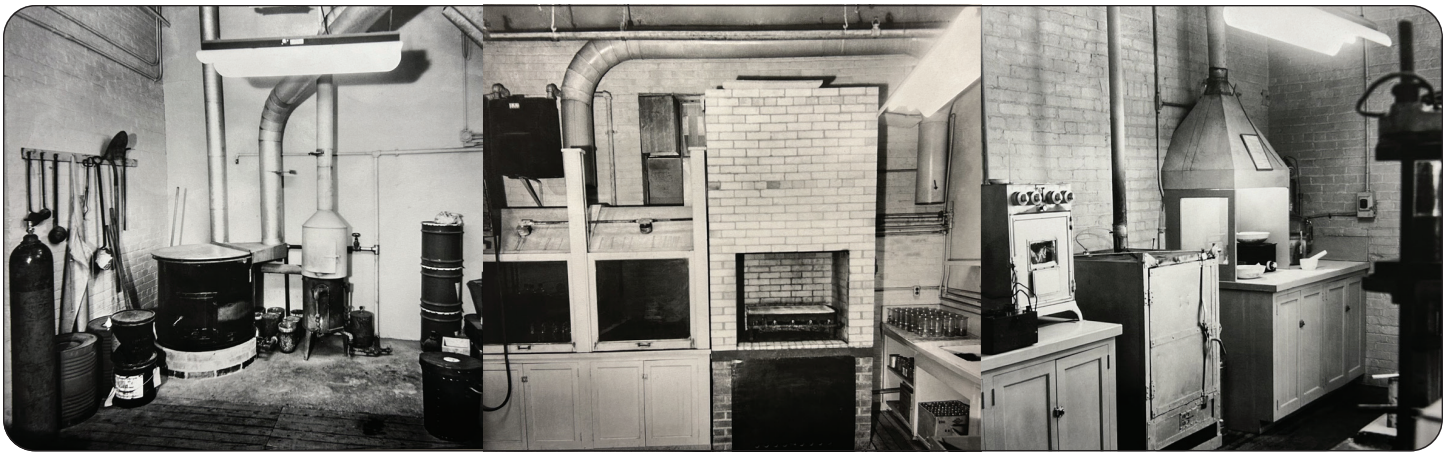

Historic photos of the interior of Indium Corporation's Lincoln Ave. facility.

The Army/Navy "E" pennant flew beside the American flag in front of the new Indium Corporation headquarters. They could proudly claim a vital role in the Allied victory made official in 1945. The Indium Corporation of America had accomplished more in eleven years than most companies could have dreamed of achieving in a century. However, as we well know, they were only getting started. With technological advancement came more intense challenges and a greater risk of becoming obsolete; however, the spirit of Dr. William Stanley Murray inspired the company to overcome any obstacles that stood in its way. As they reached the summit of one mountain, they sought another with an even higher peak. They were guided by The Indium Way.

In a little over a decade's time, Indium Corporation had established itself as a true chemical engineering force. Under the leadership of Dr. William S. Murray, the company created many practical applications for the newly commercialized element, indium, most of which were associated within the stabilization of other metals. For his inspiring and ground-breaking achievements, his alma mater, Colgate University, awarded Murray an honorary degree of Doctor of Science (Sc.D.) for his contribution to science through his discovery and development of the commercial uses of indium.

From the late 1930s and into the 1940s, Indium Corporation's development of coated engine bearings gave the business national recognition and helped the Allied forces defeat Nazi Germany in WWII. This achievement led to Murray and his then 10-person company earning the prestigious Army/Navy "E" Award for manufacturing excellence. According to the October 18, 1942 edition of the Utica Observer Dispatch, the award was given for "indium salts and metal which go into the manufacture of virtually every airplane turned out on the production lines in the factories in the United States." Less than a week later, Indium Corporation was featured in an article in

The exterior of the Lincoln Ave. facility.

Time Magazine. Although Indium Corporation had already achieved so much, a whole new world had yet to be discovered. Awaiting them were endless possibilities—things were about to get electric.

Changing the World Again

In 1947, scientists John Bardeen, Walter Brattain, and William Shockley invented the first working transistor at Bell Laboratories in Murray Hill, New Jersey. For their work on the transistor, the three men would go on to win the Nobel Prize in Physics nine years later. These brilliant individuals created a device that would change the electronics industry forever—the transistor—which had the capability of converting a radio from a piece of furniture to something that could fit inside your shirt pocket. The electronics revolution had begun.

After several trial runs, the men at Bell Labs knew the transistor could accomplish all they'd envisioned: however, building one required Ph.D.-educated scientists and a tremendous amount of production time. Without finding the appropriate partners, the scientists knew that

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William N. Macartney, Jr.

William N. Macartney III

Current Indium Corporation CEO Greg Evans.

there was no hope of mass production for this potentially world-changing invention.

After coming to this realization, Bell Labs enlisted the expertise of Texas Instruments (TI), who at the time was one of the world's leaders in electronics commercialization. While developing a manufacturing process for the transistor, TI continually faced an issue when attempting to solder certain components. At the time, there was only one type of solder manufactured in the world—it was made up of 50% lead and 50% tin. Because TI was limited by this single formula, they were unable to produce mass numbers of transistors quickly and efficiently. They needed an alloy (metals made by combining two or more metallic elements) to use in place of traditional solder.

However, such a product was unheard of at the time. They turned to a chemical engineer that was known for doing the impossible—Dr. William S. Murray of Indium Corporation. In Dr. Murray's mind, solder was not limited to the 50% tin/50% lead formula. He felt that solders could be any combination of metals that provided an optimal melting point (temperature at which a solid melts), thermal conductivity (a material's ability to conduct heat), and electrical conductivity (a material's ability to conduct electricity) to complete a particular task. Murray and his team of chemists on Lincoln Avenue in Utica were able to develop 13 different solder alloys—yet another monumental breakthrough by this very small company.

To enable the mass production of electronics devices, size, and volume—repeatedly. With that in mind, Dr. Murray and his team developed what became known as solder preforms—solid, flat, manufactured shapes of solder that can be used for a wide variety of assembly applications.

One of these solders developed by Indium Corporation, produced in exacting sizes, weights, and formulations, allowed for the mass production of the transistor during the mid-1950s. Suddenly, Indium Corporation was in the thick of a technology explosion that was taking the nation by storm.

The Next Generation

The foundation for a global enterprise had been laid by Dr. Murray; however, he was considering retirement as the 1950s came to a close. Someone with great foresight and business sense would be needed to fill his shoes. In August of 1960, Indium Corporation was purchased by William N. Macartney, Jr. who served as the company's new president and treasurer. In a friendly transfer, Dr. Murray would step down from his post as leader of the company and serve as chairman of the board of directors. In 1969, Dr. Murray retired from the company he created. He died in 1971.

Although he was not an engineer, Macartney, Jr. had proven himself to be a capable businessman during his time as treasurer of Horrocks-Ibbotson Company, a Utica-based fishing tackle company known all over the world. He could see Indium Corporation's potential for growth and decided the company would dive headfirst into the electronics assembly industry.

Over the next decade, Macartney, Jr. followed the advisement of Dr. Murray, as he led Indium's expansion into this new market.

In 1966, Macartney, Jr.'s son, William N. Macartney III, joined Indium Corporation, serving as director. Macartney III was born and raised in Utica and had recently earned his master's degree in business administration from Cornell University.

Almost immediately, Macartney III showed natural leadership ability and uncanny vision. Within two

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Above from left to right: Robinson Road, Clinton, United Kingdom, and Chicago.

years, he was promoted to vice president of marketing and in 1970, he became the company's president. He purchased the company in 1971.

Macartney III was a calculated risk taker who aggressively grew the business, relying on the engineering prowess of longtime Indium Corporation vice president J. Robert Dyer. Macartney III was the perfect man to take the reins during the electronics manufacturing boom, boldly investing in equipment and processes, ensuring the company stayed ahead of customer demand—these two qualities have become defining characteristics of the Indium Corporation for the past sixty years.

Going Global

While the company was enjoying immense success, Macartney III wanted the Indium Corporation name to be known all over the world. Soon he would achieve this goal. But first, the company went to the moon. In the summer of 1969, Apollo 11 carried the first geologic samples from the Moon back to Earth using a hermetic sealing system that relied on high-purity indium metal that was refined and purified by the Indium Corporation in Utica, NY.

In 1976, Indium Corporation was researching and developing an innovative new product that promised to revolutionize the electronics manufacturing industry. The product was known as solder paste and would change the trajectory of Indium Corporation's future. Prior to the development of solder paste, electronic components could only be attached to a circuit board by putting their wire leads through the board. Solder paste allowed components to be surface-mounted on one side of the circuit board, leaving the opposite side of the board completely clear and able to be populated by even more components. This ability became known as surface-mount technology (SMT) and offered circuit boards twice as much "brain power," meaning they could perform twice as many functions in the same space. SMT is a major reason why today's mobile devices have so many capabilities despite their small size. Needless to say, if solder paste could be perfected, the technological possibilities would be endless. The company also began manufacturing fluxes, materials that clean the surface of metals, allowing them to be soldered.

The year 1981 proved to be a pivotal one for Indium Corporation. It was during that year they added one of the most significant figures in company history—Clarkson graduate and chemical engineer Greg Evans. The combination of Bill Macartney III and Greg Evans powered the international expansion that Indium Corporation would experience over the next several decades. While Macartney III was the visionary who had the "golden touch," Evans was the man who communicated the ideas to Indium Corporation's research and development team and made them a reality. Macartney III understood the ever-changing technology market while Evans had the ability to translate Macartney's ideas into growth, whether that meant overseeing construction of a new facility or researching and developing SMT assembly materials.

Beginning his career at Indium Corporation as a technical service engineer, Evans was quickly promoted to product line manager. Evans and his new product development team were the driving force behind the impressive expansion of Indium Corporation's SMT offerings. Macartney III, Evans, and other leaders at Indium Corporation realized there was a huge market overseas that they could capitalize on—they had the vision, drive, and company-wide talent to achieve this feat.

In 1985, Indium Corporation outgrew their Lincoln Avenue facility and added a new manufacturing plant on Robinson Road in Clinton—this building would be used solely to produce SMT assembly products, including solder paste and solder powders and fluxes. One of the key benefits of this facility was that Indium Corporation now

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Above from left to right: Indium Corporation facilities in the Utica Business Park, South Korea, and Rome, NY.

had the capability to address SMT customers on a case-by-case basis—a customer could bring their circuit board to the facility, and Indium Corporation would produce a product specifically for them. As their SMT operation grew, it opened the door to lucrative new global markets.

In 1989, the company returned to outer space and performed the Indium Float Zone Purification Experiment, in conjunction with Rockwell International, aboard NASA's Space Shuttle Mission STS-30, Atlantis. The company returned to space in 1990 and performed Microgravity Disturbance experiments aboard NASA's Space Shuttle Mission STS-32, Columbia.

Also in 1990, Indium Corporation established the Indium Corporation of Europe (1990), and opened a new facility in the United Kingdom. In 1992, the company moved its corporate headquarters to the Robinson Road property and two years later, an office was opened in Torino, Italy to facilitate commercial indium trading. The international expansion continued in 1995 with the launching of Indium Corporation's Asia-Pacific Operations, opening a manufacturing and sales facility in Singapore.

In 1997, after 15 years of helping Indium Corporation broaden its reach, Greg Evans was promoted to president of the company and the growth continued. Starting in 2002, Indium Corporation moved into the e-commerce age, making their first of many internet sales. In 2004, operations were established in Suzhou, China. In 2006, a sales office was opened in Shenzhen, China. That same year, Indium Corporation opened a manufacturing facility in Chicago, Illinois. After outgrowing its Lincoln Ave., Utica facility in 2007 (again), the company moved half of the building's operations to a structure at 111 Business Park Drive in Utica.

By the late 2000s, Indium Corporation was doing business with just about every major electronics manufacturer in the world. With that, further expansion was needed and in 2008, Indium Corporation's Cheongju, South Korea facility was opened. The following year, they acquired the processes, equipment, and know-how of Reactive NanoTechnologies. By 2012, they'd predictably reached the capacity of the Business Park Drive building, purchased a manufacturing facility at 5836 Success Drive in Rome, and expanded their capabilities there. In 2014, Indium Corporation celebrated its 80th anniversary and opened a regional technical service tech hub in Penang, Malaysia. They were almost an entirely different company than the one Dr. Murray founded in 1934; however, they were still motivated by his incredible engineering spirit. March 13 of that year was declared Indium Corporation Day in Oneida County, Utica, and Rome.

In 2017, Ross Berntson, a then 20-year employee, was named company President and Chief Operating Officer and Greg Evans was named CEO.

After forty years of commitment to excellence, growth, and serving his community, William N. Macartney III retired from Indium Corporation in 2017 and served as chairman of the board of directors. When Macartney III began his tenure as owner of the company, Indium Corporation had one facility (Lincoln Avenue), primarily served American customers, and had just a handful of employees. When he retired, they operated facilities on three different continents and turned a small Mohawk Valley-based company into an essential business in the global electronics manufacturing industry. In addition to all of his incredible accomplishments in business, Macartney III also founded the Indium Corporation & Macartney Family Foundation which for decades has been funding the delivery of food, shelter, healthcare, and education to those in need in the Oneida-Herkimer-Madison County region, as well as in Chicago.

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Above from left to right: Indium facilities in Germany, Malaysia, and Singapore.

As the 2010s ended, Indium Corporation continued moving forward with Macartney III's vision. In 2020, the company established manufacturing operations in Malaysia and India. They'd once again outgrown the facility in Clinton and moved their corporate headquarters to a larger space at 301 Woods Park Drive in Clinton, relinquishing their former HQ facility to manufacturing. In 2021, the company acquired Solder Chemistry of Landshut, Germany, adding to Indium Corporation's European presence. The following year, the company received an Electronics Maker Leadership Award for "Best Electronics Assembly Materials Manufacturer of the Year." This was just one of dozens of international awards given to Indium Corporation over a period of 40+ years. In that same year, Greg Evans was named Chairman of the Board.

The Legacy Continues

The electronics manufacturing industry is one of the most competitive in the entire world—customers demand an elite product, and they want it delivered quickly and efficiently. The world's largest electronics manufacturers have plants operating in many countries. Suppliers to these companies must be nearby to ensure they meet their customers' every need as quickly as possible.

When a supplier has competitors all over the world, there is always someone awake while you're sleeping, and that's why Indium Corporation must maintain a presence in several locations across the globe. It's not an option, it's a necessity. Today, Indium Corporation describes itself as "a premier materials refiner, smelter, manufacturer, and supplier to the global electronics, semiconductor, thin-film, and thermal management markets."

Their products include solders and fluxes; brazes; thermal interface materials; sputtering targets; indium, gallium, germanium, and tin metals; inorganic compounds;

Indium Corporation's President and COO Ross Berntson.

and NanoFoil® (a reactive multi-layer foil that provides instantaneous heat for a variety of applications in many industries).

Products developed by Indium Corporation are essential ingredients in the manufacturing of electronics we use every single day. Indium Corporation products are used in the manufacturing of mobile devices (including the inorganic compound ITO, indium-tin oxide, that enables the touch screen), medical devices, space telescopes, automobile electronics, telecommunications, and many, many more. Their impact on these products cannot be overstated. The company is fueled by the engineering spirit of Dr. Murray, the skillful pursuit of measured growth of Bill Macartney III, and the intellect, efficiency, and productivity of Greg Evans and Ross Berntson. This combination of passion and competence, in conjunction

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with Indium Corporation's culture of respect for fellow team members and customers, has given them a stellar worldwide reputation. Rick Short, who recently retired as corporate associate vice president and contributed greatly to Indium Corporation's international expansion, has addressed many hundreds of college students over the years—including many who are interested in working with the company. Short says that the first thing he asks these young prospects to do is, "Name the world's leading technology companies." In all his years, he says that every company ever named by a student is a customer of Indium Corporation.

The company designs such unique and complex products that, often, the machines used to manufacture them have to be designed and built in-house because they simply aren't offered by any other company. In addition to that, their products have become so small in size and vast in quantity that the company must rely on automation to build, inspect, and package many of its offerings. Some of their products are manufactured, inspected, and packaged without ever having been touched by human hands.

As of 2024, the Indium team is made up of about 1,400 people in 16 facilities around the world. Over 1,000 of their teammates call Central New York their home. Astute individuals interested in electronics manufacturing come from all corners of the earth to work for the company. Each day brings a new adventure and an opportunity to solve problems and address opportunities presented by the world's leading technology companies. Today, Indium Corporation's goal is that by the time a customer realizes they have a problem or opportunity for improvement in their manufacturing process, Indium Corporation has already addressed it.

The 90-year history of Indium Corporation is a story of tremendous challenges cleverly met and opportunities creatively solved. It began with an experiment to produce non-tarnishing silverware, turned to the mass production of the transistor, journeyed through outer space, enabled mobile communication, and continues to help power today's digital revolution. Indium Corporation's R&D and new product development teams are constantly aiming to break down even more barriers and enable the most challenging breakthroughs. Dr. Murray must be smiling down on the company because he knows they're on the brink of yet another innovation and that they will stop at nothing until the next solution is found.

That is The Indium Way.

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