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150 Years of the Unexpected

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BEFORE DISMISSING AMES AS ANOTHER COLLEGE TOWN SURROUNDED BY CORNFIELDS, CONSIDER ITS UNIQUE HISTORY.

BY RACHEL VIPOND  DESIGN ALEXANDRIA COLLINS  PHOTO RAHEMMA MAYFIELD

Believe it or not, our beloved college town had humble beginnings. Containing only 12 blocks and 844 residents when it was incorporated in 1870, Ames now has 58,965 residents including ISU students. In 1864, Ames was chosen as a location for a station stop for the Cedar Rapids and Missouri Railroads. Ames was named by the railroad president for his friend Oakes Ames, who never actually visited the town. The Hub, now a favorite spot for coffee or a quick sandwich, was then a bookstore and waiting area for the Ames College Railway, which connected the town to the college campus. Ames turns 150 this year and quite a few interesting things have happened here—maybe more than you’d expect.

Albert Cadwell, the principal of Ames High School from 1914 to 1917, had an interesting experience—he survived the sinking of the Titanic.

Remember a few years back, when ethanol was being marketed as a new fuel? It turns out Ames was ahead of the game. A blend of corn ethanol was first sold commercially in Ames as early as 1932.

Ames resident and ISU student Herman Banning became the first black man to make a transcontinental flight in 1932. He flew a plane supplemented with surplus parts from Los Angeles to Long Island, N.Y.; Banning named his plane “Miss Ames.”

Thanks to Iowa’s political draw, Ames has hosted 11 presidents—or future presidents—over the years, including Ronald Reagan and William Howard Taft.

Ames has been home to Hollywood actors, as well. In an interview with the Ames Historical Society, lifelong Ames resident Jay Simster recalls playing with actor Nick Nolte (from “Cape Fear,” “The Prince of Tides” and “Gangster Squad”) as a child. Nolte spent five years of his childhood in Ames.

Scandalous new dance moves are often cause for controversy. For example, the Inter-fraternity Council banned tango from fraternity dances in 1913. We’d hate to see what they’d think of twerking.

Have you ever heard of “partner cities?” Sometimes, international or local partnerships are made between towns for diplomatic reasons or because of similarities. Ames has been a partner to Koshu City, Japan since September 14, 1993.

ISU’s Morrill Hall has had many eclectic uses over the years. Since its construction in 1890, zoology, entomology and geology classes have been held there. It has also served as a home for printing services, an office for agriculture extension and get this—a barber shop. It now serves as an art and textile museum.
Just south of Hamilton Hall, on the east end of campus, lies a stone roughly the height of a car tire. The stone goes mostly unnoticed, as it is not located in a busy sector of campus. But, if one were to approach this stone, they would notice an aged bronze plaque with an inscription protruding from the metal, that reads: “A striking achievement among the many associated with the Wartime Atomic Energy Project in the United States was the production of many tons of pure Uranium by a group consisting of faculty and students working in a disused building on the campus of the Iowa State College at Ames.” As you may have realized, this is no ordinary stone, and these were no ordinary men. The work accomplished at the very location of this stone revolutionized science and impacted the world in a way these men may have never understood, and this is their story.

The Manhattan Project was conceived in 1939 and placed under the direction of United States Major General Leslie Groves, with the backing of allies Canada and the United Kingdom. This top-secret project was created to research and develop the materials that eventually composed the first atomic bombs, costing the program what would roughly amount to $24 billion in current U.S. currency. The operation had labs throughout the country. One of the most famous sites was in Chicago, where a renowned physicist, Enrico Fermi, worked under Arthur Compton, who was in charge of the Chicago lab, in hopes of creating the first man-made nuclear reactor. In the fall of 1942, Dr. Frank Spedding, a professor at Iowa State College (ISC), was brought on the scene. Spedding, a graduate of Berkeley, had been working at Iowa State since ’37 as the head of the physical chemistry department, and was an expert in...
the field of rare earth metals. His expertise in rare earths is what sparked the interest of General Groves and his staff. Spedding was summoned to Chicago to be briefed on the project. Spedding quickly returned to Ames, but not for good—he would return to Chicago several times over the next few months to serve as an intermediate between Ames and the project as a whole.

Upon returning to Ames, Spedding understood a new technique for purifying uranium metal would be needed for Fermi’s plan to succeed, so he proceeded to find a way. Spedding immediately formed a team of qualified chemists and scientists. His first addition was Dr. Harley Wilhelm. Wilhelm, who was also a professor at ISC, was an expert in the field of metallurgy, making him a perfect fit for the project. With Wilhelm at his side, Spedding continued to assemble a group of the college’s top scholars.

Work immediately went underway in Gilman Hall as the perimeter was taped off and government officials stood guard. Security became a top priority in Ames. Ray Fisher, a chemist-technician for the Ames project, elaborates on security during this paranoid era in an interview by the Ames lab for the project’s 50th anniversary: “We had very tight security in those days. An FBI agent was stationed in Ames and he checked for anyone who talked too much outside the workplace. I think only one person was let go due to loose lips. When asked what was going on inside first floor of the Chemistry Building, we told outsiders that we were making boxes.”

Though all may have seemed lax from the outside, the work going on inside Gilman hall couldn’t have been any more hectic. Fisher continued to tell of the mad scramble going on inside the Chemistry building: “I remember that Dr. Wilhelm was always in a hurry. We shared an office in Chemistry and there was a transom above the door, which was usually open for ventilation. Dr. Wilhelm wouldn’t always take time to open the door to put his mail on his desk. As he passed by, he would throw it up through the transom where it fluttered to the floor or onto my nearby desk.”

All the hard work would pay off. Soon, the team working inside of Gilman Hall had produced a pure uranium ingot (also referred to as a biscuit). Wilhelm, with no time to lose, was off to Chicago to share the news.

Wilhelm placed the eleven-pound ingot in a traveling bag and boarded the next train to Chicago. The biscuit produced only a miniscule amount of radiation, but it probably didn’t help that the handles on Wilhelm’s travel bag gave way, allowing the rare earth metal to fall to the ground. He bravely carried it under his arm for the remainder of the journey. Upon arriving with the ingot, Wilhelm was greeted with doubt. Compton (head of the Chicago lab) suspected that he would surely find that the ingot was hollow inside. His suspicion was invalid. It was apparent that little was expected of the Ames lab by the mere astonishment of Chicago when Wilhelm showed up with the product of Spedding and company. The uranium was exactly what Fermi’s plan called for, but they needed more. The government presented Iowa State with a contract to produce 100 pounds of uranium per day, and within the week of Wilhelm’s dash to Chicago, Iowa State accepted the contract and large-scale production was underway. Soon the project would have a sufficient amount of fuel to test the reactor.

Spedding stood among a collection of the nation’s brightest individuals in a tension-filled room laying just beneath Chicago’s Stagg field on a brisk day in early December of 1942. The men were brought together by a common interest: produce the world’s first controlled nuclear reaction, a goal the men were poised, but eager to test. Fermi, the renowned physicist, was responsible for the construction of the reactor, later to be named “Chicago Pile-1” or “CP-1.” The reactor was a configuration of pure uranium metal (which was the reactant Ames was producing) that was situated systematically between the graphite. At the base of this “pile,” a man would stand; his task was to operate the control rods, which would be inserted into the reactor to regulate the reaction by absorbing neutrons. Above the pile, three men sat ready to pour buckets of cadmium solution over the reactor in order to prevent nuclear runaway and the devastation of Chicago.

The Chicago reactor was the first of its kind, and like many of the other experiments these scientist had undergone, they were unsure of what may transpire upon testing the reactor. Fully aware of the explosive powers that may be present within the graphite pile, Fermi declared all systems go. The reactor performed just as expected and word was relayed to Washington that the experiment had been a success. Compton, head of the lab, notified James Conant of the National Defense Research committee. The conversation ensued as follows: “The Italian Navigator has landed in the New World,” Compton said. “How were the Natives?” Conant asked. “Very Friendly,” Compton replied. And so it was, the beginning of a new era and the inception of a new weapon that would change the course of the world.

Back in Ames, Gilman Hall would no longer provide adequate space with the project going full-scale, so a new location would be needed to move forward. In December of
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'42, furnaces were moved to a new location named “Little Ankeny.” The building resembled a large wooden shed and was previously being used for storage. The name Little Ankeny referenced an ammunition plant just south of Ames. They thought if they nicknamed this building after the popular ammunition plant, citizens would assume they were doing similar work here in Ames, and not producing nuclear fuel.

Work at Little Ankeny went around the clock. Competition arose between shift teams to see who could yield the purist and largest amounts of uranium. Work eventually became so repetitive for the scientist that they became bored. David Peterson, a chemist, goes into detail on how they compensated for the sometimes-boring conditions in an interview by the Ames lab: “The routine of standard metal production soon became boring, so active, inquiring minds were busy dreaming of ways to improve the process. The ‘wiser’ heads of upper management squelched almost all of these ideas before they could be tried. However, upper management was seldom present during the graveyard shift from midnight to 8 a.m. Some experiments were tried on this shift and were noted in the production journal only if successful. The famous explosion that moved the south wall of Little Ankeny out one foot happened to occur on the graveyard shift. No record, oral or written, of that experiment has ever surfaced.”

The final step after production was shipping the material. During this time, Ames had train tracks passing through part of ISC’s campus, so the Ames Project was able to utilize this for shipping. A train occupied by government officials would roll into Ames with armed guards perched above the boxcars. The cars entered with their doors open and the cargo was loaded onto the train in secret compartments laying beneath the boxcars, the cars then departed with doors open, the same way they entered. When the project was completed, over two million pounds of pure uranium metal had been transported out of Ames.

Civilians in Ames would not know of the events that occurred in both Gilman Hall and Little Ankeny until the months following the detonation of the first nuclear bombs over Japan. The sheer magnitude of this event continues to ripple through society today.

In December of 1942, underneath the hustle and bustle of suburban Chicago, a group of our nation’s top scientist gathered around a table where a Geiger counter sat to register the increase of neutrons from the CP-1 reactor. The reaction caused the Geiger to click at a faster and faster rate until Fermi gave the order for the control rods to be inserted and to terminate the reaction. The click of the counter began to slow and a sigh of relief came about the room. After a subtle and awkward applause, a flask was presented and wine was distributed into one paper cup to be passed around the room. Realizing they had just witnessed a pivotal moment in history, a dramatic silence set in and no toasts were made, as the cup traveled from man to man, not a word was said. The essence of this humbled silence is all that is needed to comprehend the prominent effect this event set forth upon the world. These men understood it would no longer be the same.