THE PRICE OF VICTORY: THE SUNFLOWER ORDNANCE WORKS AND DESOTO AND EUDORA KANSAS

by

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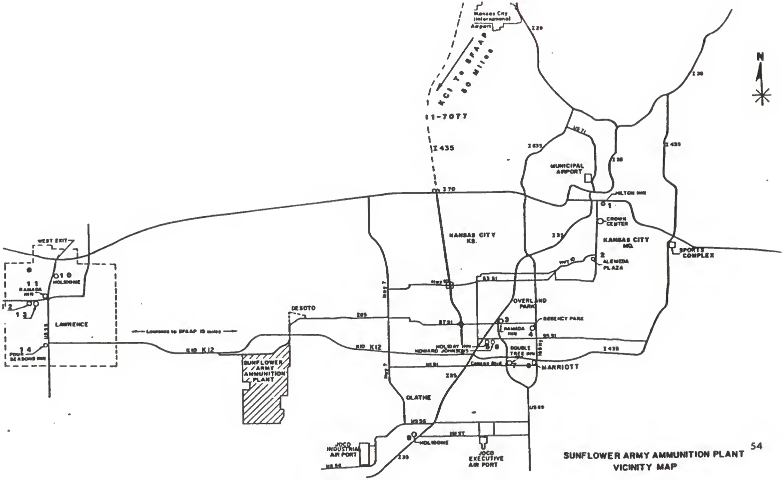

SUNFLOWER ARMY AMMUNITION PLANT
VICINITY MAP

In the early morning of April 20, 1942, the 400 citizens of DeSoto, Kansas waited in eager anticipation. Nearly all of the northeastern Kansas community, including the high school band, had turned out to celebrate the return of train service to this farming town. The Santa Fe Plug had been a fifty year tradition in DeSoto until the railroad discontinued the route in 1939. The Plug was making its return because the U. S. Army had just announced that it would build a huge ammunition plant six miles east of DeSoto.The Plug would soon be carrying men and supplies to further the American war effort in its own small way. At 8:52 AM the Plug roared into DeSoto to cheers of acclamation from the assembled crowd. The train stopped for less than a minute, picking up only four milk cans and throwing out a bag of mail, giving the townspeople only a glimpse of the train.[1]

In many ways that first quick stop of the reactivated Santa Fe Plug illustrated the sudden appearance of the Sunflower Ordnance Works which during its peak production employed over 12,000 Kansans and was the largest rocket propellant manufacturer in the world from 1943 until the plant was closed down in the fall of 1948. The story of the Sunflower Ammunition Works is tribute to the men and women of northeastern

Kansas who made a significant contribution to the American war effort by working at Sunflower.[2]

The popular conception of the American home front during the Second World War is one of sacrifice. The greatest sacrifice a family could make to further the war effort was by having a son or daughter enlist or be drafted into the armed forces. Americans also gave up necessities and material comforts to help destroy the Axis. Americans rationed goods; such as, sugar, silk, rubber, and a plethora of others. During World War II, Americans forfeited portions of their paychecks in seven different war bond campaigns to finance the war. And in places such as DeSoto and Eudora, Kansas where the government invested millions of dollars to build factories for war production, the populace sacrificed a way of life. For as the huge gunpowder plant began to take shape out of the farmland of western Johnson County residents understood that this facility would forever change their communities. For the people of Eudora and DeSoto this was their sacrifice for the war.

Yet even though the residents of DeSoto and Eudora realized they were changing their way of life, the sense of sacrifice was balanced with opportunity. For the people of western Johnson County the Sunflower Ordnance Works became a chance to escape the agricultural malaise of the 1930's and to try something new by finding work at the plant, or providing services for its employees.

In the autumn of 1943, American, British and French soldiers stormed ashore on the European continent, landing two armies on the Italian peninsula. During the ensuing months of bloody fighting as the Allies pushed northward, the Wehrmacht retreated further and further into the mountains of central Italy. In his diary kept during the campaign, Major General John P. Lucas, U.S. Army, related an encounter with a German prisoner-of-war. The man, a medical officer, was disgusted with the conduct of German High Command. He raved at his captors: "You people expend artillery ammunition but mine only the bodies of men." This simple, bitter statement summed up U.S. Army tactics for securing victory over the Axis with the minimum cost in American lives.[3]

The established doctrine of American field commanders during the Second World War was to pave the way for advancing infantry by massed artillery and aerial bombardment. To defeat Germany and Japan, steel and high explosives rather than infantry were used wherever and whenever possible. In March 1944, during the first two days of fighting around Monte Cassino, American artillery units fired nearly 11,000 tons of shells into the area around the ancient monastery. At the Battle of the Bulge, in December 1944, as Hitler launched his last desperate offensive in the West, some three million 105mm howitzer shells were expended during a single month. On the other side of the globe landings on Pacific islands were preceded by days, and

sometimes weeks, of methodical pounding by naval vessels and aircraft to drive the Japanese off the beaches. During the assault on Iwo Jima in February 1945, 40,000 tons of explosives were used to pulverize the island's eight square miles of land. The use of artillery and bombs rather than flesh and blood saved countless American lives, but it ate up ammunition at rates never before thought possible.[4]

Still the record of American ammunition production during the Second World War stands as one of the striking achievements of any industrial society. During four years of war American ordnance workers produced 100 million grenades and mines, 33 million bombs and bomb clusters, and more than a billion rounds of 70 types of shells ranging from 20mm anti-aircraft to 240mm mortar. In fact the output of ammunition for the most common American field artillery piece, the 105mm howitzer, was so astronomical that laid end to end the shells would circle the globe not once but twice.[5]

The magnitude of this achievement becomes even more apparent when one realizes that in 1939 there were only six federally owned arsenals and only two of those produced artillery shells. Together these facilities could produce only 5% of the Army's estimated needs in September 1939. The production of ammunition, or ordnance, was a very exacting procedure. It required perfectly refined gunpowder to create a reliable, predictable shell. Metalwork had to be milled exactly

to fit gun barrel sizes, and fuse production was a precise science. For these reasons and federal budgetary constraints, private sources of ammunition for the military were non-existent and commercial explosive plants could not be converted to ammunition production. Therefore, to meet the needs of the Army and the Allies fighting the Axis powers, the Ordnance Department created something new in American economic life-- an interlocking network of ammunition plants owned by the Federal government but operated by private industry.[6]

Who would be allowed to operate these new plants, and what would be the terms of the contracts were two questions faced by the War Department. The bitter lessons of profiteering by munitions manufacturers during the First World War made Congress very wary of schemes to enrich industrialists. However, after months of wrangling among the War Department, Congress, and prospective manufacturers, it was agreed that reputable firms with extensive experience in the field of explosives would be allowed to operate the government-owned facilities on a "cost plus fixed fee" basis.[7]

Between June 1940 and December 1942, sixty of these Government Owned-Contract Operated (GOCO) plants were authorized, representing a capital investment of $3 billion. The GOCO program employed 250,000 men and women. The sixty plants encompassed a total land area equal to that of New York, Chicago, and Philadelphia

combined. The selection of sites for the new GOCO facilities involved a variety of factors. Some were strategic considerations. Coastal areas were exempted because of the possibility of enemy attack. The dangerous nature of the product, meant that GOCO plants were also placed away from large metropolitan areas, so they could be isolated in case of accident. At the same time however, the locations had to have the proper communications and transportation infrastructures for mass production. Railway and highway access were a necessity, as was the availability of resources such as water, electricity and natural gas.[8]

The expansion program began on a modest scale during the summer of 1940 with construction commencing on five new plants. In 1941 the program gained momentum with groundbreakings taking place at twenty-five new locations. These thirty new plants were expected to supply a four million man army. In January 1942 the last phase of expansion began with construction commencing on another twenty-five new plants, the last of which was the Sunflower Ordnance Works. Thus a little over a year before actual American entry into the war, the Ordnance Department had begun to gear up the American munitions industry for wartime output.[9]

On March 25, 1942 the War Department publicly announced that it planned to construct a munitions plant near the farming communities of Eudora and DeSoto, Kansas. The plant, to cost between $80 million and $100 million, would cover 8,000 acres, or twelve

and a half sections. The new plant would be so near Kansas Highway 10 as to require a $60,000 rerouting of that route, and a reopening of rail lines by the Santa Fe Railroad to supply the new facility. The new ordnance works would force the evacuation of roughly seventy-five farm families, and the War Department created a Real Estate Division in Olathe to speed the transfer of land. To run this new GOCO plant, the government had chosen the Hercules Powder Company of Wilmington, Delaware, a subsidiary of Du Pont, and a firm which had been in the explosives business since 1913. The War Department also noted that the Sunflower Ordnance Works would employ an estimated 8,000 workers and construction would begin under the supervision of the W.S. Broderick and D.G. Gordon Company of Denver, Colorado in early June.[10]

For the families asked to leave their farms, the news of the government's decision was a traumatic experience. The federal government provided strict procedures to facilitate the transfer of land. First, landowners whose property lay within the boundaries of the planned site filled out a Tract Ownership Data Form. This document served as the basis for all negotiations, and when completed was sent to Olathe. Next, government appraisers rated the property for its market value. However as this process developed many landowners complained that they were receiving only half of the market value for their land. In the final step of the transaction the U.S. District Attorney's

Office transferred the money and title. The families asked to vacate their homes were the first people directly affected by the creation of the Sunflower Ordnance Works. Most had lived there for generations and suddenly they had to leave and make new homes.[11]

The Dint family was one of the first refugees. On February 10, 1943, Oma Dint wrote a letter to the editor of the DeSoto News explaining her feelings toward the change. In it, Miss Dint wrote that she knew her world had forever changed. She drove past the farm houses of neighbors which had been altered into project homes, sleeping barracks, or that had just been abandoned by those who had moved away. Moving from her family home made her heartsick. The very rocks on the ground had some sentiment attached to them, the trees she had climbed as a child, the house her father had been born in, even the cemetery where her mother's grandmother was buried, all had to be forsaken and destroyed. She described how her family had felt that the government had to have another more suitable place for the ordnance plant, but "Uncle Sam" wanted her little town: "even though it took the homes of our loved ones, and destroyed all the things we had worked for all our lives." However, Miss Dint was willing to sacrifice her way of life to win the war. She wrote: "Of course we wanted to win the war, so if that's what it took to win it, then we'd go on our way-- making the best of the situation."[12]

The White family was also moved off their land

to make room for the ordnance plant. In another letter to the Desoto News, dated September 9, 1942, Roger White contemplated the changes his community was undergoing. He wrote, "I find myself completely willing to give up these things [his quiet town], find myself propelled by the same motives which propels the new people who come here: the will to do, and readiness to do all possible for the national war effort.... I am ready to do more for I am proud to be an American."[13]

The news that the government was going to invest such a large amount into the surrounding area set off varied reactions The two communities which would be most affected by the new plant were colloquial agricultural towns. DeSoto was a small hamlet which lay just outside the boundaries of the plant, while Eudora a larger community, was further west. For over a decade these two communities had remained virtually static. In 1930, Desoto had a population of 383. The 1940 federal census set its population at 384. Eudora had a population of 627 in 1920, but by 1930 the number of people living in the city limits had declined to 599, and in 1940 to 603 residents. The news that a huge ammunition complex would soon be built nearby meant great changes for these bastions of small town living.[14]

Once the boundary lines for the new plant were set many people foresaw thousands of outsiders descending on their homes. On the other hand, Lawrence greeted the news with excitement. For residents of Lawrence, the plant would create more business

activity. On March 26, one day after the announcement, one restaurant wholesaler related how quickly Lawrence's business community reacted to the news. "Several of the smaller restaurants where I have been lucky to get only an occassional order gave me long lists of needs today." One enterprising restauranteur even ordered a cigarette vending machine because he felt he would soon be too busy to sell them over the counter. Rental space in Lawrence quickly disappeared as speculators began to plan for the construction crews moving in only fifteen miles from the project site. One man related that a recently vacant building which used to bring in $40 a month in rent, a day after the announcement the price doubled and had already been rented. Lawrence foresaw a boom time.[15]

However in the sleepy little town of Eudora no one was dancing in the streets over the news. George Lothholz, the seventy-three year old mayor of the town said at first the general consensus about the plant was positive, but as the rumors got bigger and bigger, sentiment began to turn against the project. " We're all patriotic here and we're not against anything that's for the good of the country, but as for doing the town any good, I don't think it will if they walk off and leave it after a few years; its going to hurt this whole part of the country." Paul C. Somer, Eudora's Assistant Postmaster, voiced the belief that war industries were not so rosy for towns: "If you have to crowd up your schools, put on more law officers, jam

up your homes and backyards with workers, it's a lot of grief." As the days passed, more and more speculators moved into Eudora buying up all the property they could, and within weeks Eudora had restaurants and a brand new movie theatre converted from an old warehouse. Changes were coming quickly to this tiny town.[16]

Groundbreaking at Sunflower took place in May 1942, with work commencing on the administration buildings on the old Osborne farm. Relations between the workers and the townspeople in DeSoto were generally good. The increase in activity around DeSoto had sparked new economic life into the community. In May, the two garages in town, known as the Len Plummer Building and the Zeigler Building were converted into cafes. In July, a new deli catering to the construction crews was opened. To deal with the influx of workers Zeller's barbershop added a second chair. Due to unaccustomed lines at the bank, working hours were extended, and two additional windows were opened to assist customers. Since DeSoto was the nearest rail depot to the Sunflower facility, Santa Fe expanded the train station's workforce to eighteen employees, who worked in three shifts, twenty-four hours a day. By February 1943, the DeSoto News announced that farm labor in the town was virtually non-existent for nearly everyone in the community was involved with the sprawling powder plant on the outskirts of town.[17]

However, the rapid influx of people into

DeSoto did cause some problems. The complaint most often heard around the rapidly growing community was about the congestion. In June, the town newspaper reported that men were milling around on the streets trying to get to the employment office set up in DeSoto, and that the main street was crowded with 200 parked cars. Traffic had become so heavy that on July 16, 1942, during a fifteen minute interval, 200 cars passed through the town. There were also minor altercations between residents and construction workers. These ranged from a myriad of trespassing complaints, to actual confrontations.[18]

One such episode was recounted in the Eudora Weekly News, on May 14, 1942. The Elmer Jewett family owned a farm that bordered on the site of the ordnance works. On this particular day, heavy equipment was moving earth by the Jewett's pasture when the operator of the bulldozer accidentally knocked down part of the fence. The hole in the fence was large enough that the Jewett's cattle escaped from the pasture. Mrs. Jewett and her son tried to recapture the cows, but to no avail. She then asked the operator of the errant bulldozer for help. He replied that he was sorry but, "This is war", and kept on working. Mrs. Jewett agreed that yes, this was war and stood directly in front of the bulldozer until the driver helped recapture the cattle.[19]

In August 1942, construction at Sunflower was well under way. By that time, the construction crew

numbered nearly twenty thousand men. Since there were no plans for on-site housing, the surrounding area had to absorb this new population. Most workers settled in Lawrence from which five bus lines brought workers to the plant at forty minute intervals, but the shortage of housing would plague Sunflower throughout the war years.

The months of June, July and August brought great changes to Eudora as it tried to cope with the influx of newcomers. In just twelve weeks its population doubled. Trailers seemed to be the order of the day. Just as Conestoga wagons had carried pioneer families across Kansas a century before, highways were crowded with cars pulling trailers toward war production work. Four trailer camps had been created in town for 153 trailers. There were seventy five trailers in the yards of private individuals. The strangers and old timers for the most part got along well, but there were exceptions. At 2:00 AM one morning a car and trailer pulled up to an exceedingly well kept yard. The house was owned by a widow who took great pride in her flowers, but for the sake of patriotism she agreed to let the owner of the trailer, his wife, and their small dog stay in her yard. Unfortunately, once everyone settled down for the remainder of the night, the dog started barking and kept up an incessant racket until dawn. By that time the widow was plagued by visions of the troublesome little mongrel chasing her cats and digging up her flowers. By 9:30 AM, the widow had had

enough of patriotism and by noon the trailer was gone.[20]

But trailers were not the only solution to alleviating the housing shortage. It was not uncommon to have eight to ten boarders in a home. Basements, old barns, and even chicken coops were converted into apartments, but the skilled labor to do these conversions became impossible to find because of the work at Sunflower. During the summer of 1942, Eudora reported a fifty percent decrease in farm labor around the area. Restaurants could not open because no one could be found to do the essential plumbing. Milk deliveries in town had to be discontinued because the milkman could not hire any extra help or find tires. Some businessmen found it more profitable to lock up their shops and work at Sunflower, and even local farmers seeded over their fields with grass and went to work on the construction crews. The boom had hit Eudora despite the reservations of her inhabitants.[21]

As part of the construction contract, Sunflower Ordnance Works was built by union labor. When additional labor was required, Broderick and Gordon Co., the prime contractor, made a request to the United States Employment Service, who in turn contacted the American Federation of Labor offices in eastern Kansas to have local unions supply the necessary men. But finding qualified electricians, pipe fitters, plumbers, concrete workers, and other skilled craftsmen for a $100 million job became increasingly difficult, and eventually impossible. Since the union provided the

qualifications for the different classes of labor, and as more and more of the qualified construction labor in eastern Kansas went to work at war production plants, unqualified labor joined the ranks of workers at Sunflower. This increased inefficiency and waste, and it helped to undercut the morale of the construction crews. An example of this problem was presented to Truman Committee on the National Defense Program which investigated Sunflower in June 1943, involving plumbers and steam fitters. During the peak construction period in the fall of 1942 there were 1,800 plumbers and steam fitters at Sunflower. All of them were union certified as experienced tradesmen. Four hundred of these men had no prior experience with plumbing or pipe work before taking the job at the powder plant. Common labor at Sunflower was paid 90 cents an hour, while plumbers and steam fitters received $1.65 and hour. Since the average work week at Sunflower was 68 hours, these inexperienced workers, essentially common laborers, were paid $110.55 a week, instead of the $60.30 a common laborer would earn. This wastage also affected the morale of the experienced worker because, as Oscar Dolbow, a former concrete inspector, testified to the Truman Committee experienced workers saw inexperienced men being paid as much as they were, so skilled labor did not work as hard.[22]

The labor problem at Sunflower became worse due to the high turn over of workers. Broderick and Gordon estimated that on the Sunflower job they were

dealing with an annual turn-over rate of sixty-five percent. During the Truman Committee hearings, Senator Ralph O. Brewster, asked Lieutenant Colonel E. E. Taylor, the Army's area engineer for the Sunflower project about the high termination rate on the project. Brewster asked: "And you didn't discharge a man unless there was a pretty good cause, I take it, because you needed him?" Colonel Taylor replied, "No, because we expected that the man who replaced him would be almost as bad." In October 1942, 1,000 men were terminated for a variety of reasons. The offenses ranged from sleeping on the job, to loafing, fighting, gambling, and drinking. Drinking seems to have been a frequent cause of terminations. Kansas, being a dry state, kept strict control of alcohol, but as work at the ordnance plant expanded a large bootlegging operation ran from Missouri to DeSoto supplying the work crews with cheap spirits.[23]

By September 1942, construction was ahead of schedule with the Hercules staff offices and railroad feeders completed, inspite of labor problems. The biggest difficulty faced by the Army and Hercules was finding enough prospective employees and then securing a place for them and their families to live. One thousand one hundred workers were travelling 100 miles daily by bus to and from Topeka. Eighty seven homes had been built in Lawrence and spaces found for more than fifty trailers, but the shortage of living space plagued the ever growing ammunition plant. Finally in

early September the Army acquired additional land for living accommodations for its workers. By October, Sunflower Trailer Park was well under way with sites for 800 trailers. The park, four miles east of Eudora, had bath and laundry facilities, a grade school for between 600 and 700 children, a recreation center, and a grocery store. So by the end of 1942 the ordnance plant and support facilities were nearing completion.[24]

The construction of the Sunflower Ordnance Works was a massive project completed in nine months. The peak construction employment payroll was over 24,000 men and women, encompassing some 64,000,000 man hours, and seven fatalities. Miles of railroad track were laid, and if one toured the facilities spending ten minutes in each of the 4,500 buildings constructed on the fifteen and a half square mile site, it would take a visitor forty-eight hours. Underground water storage facilities were three times the size of the reservoir system of Kansas City, Missouri.

There were three powder production lines of for 37mm anti-aircraft ammunition, howitzer, and mortar shells, and ammunition for 75, 105, and 155mm guns. On March 23, 1943, the first powder began to roll off the presses, while 12,000 construction workers tried to finish their duties.[25]

Although the completion of Sunflower was an impressive feat, it was not without its detractors. In June 1943, Senator Harry S. Truman's Congressional subcommittee on the National Defense Program visited

Sunflower to investigate alleged waste at the sprawling facility. The Sunflower Ordnance Works was contracted as a $100,000,000 gunpowder plant, but actual construction costs ran over $129,000,000. The hearings concentrated on the inefficiency of workers. For two days the committee listened as former workers related stories of fraud and waste they'd seen while the plant was under construction. For instance, John R. Calder, a former inspector testified that on November 15, 1942, he witnessed twenty tons of steel being pushed into a reservoir by a bulldozer and then buried. George Ryan, another former inspector, testified that he saw perfectly good lumber being burned in huge pits which measured 75 feet wide by 200 feet long. Ryan further related that truckloads of lumber were carried to the pits all day long. Oscar D. Dolbow, a concrete inspector charged that forty percent of the labor on the Sunflower project was wasted. He reported that it was common to have five inspectors watching four workmen. Following the testimony of witnesses the Committee pointed out areas which it felt required attention. It called into question the use of inexperienced workers at the discretion of unions, and it called for closer inventory procedures on material. Truman's visit to the plant was soon forgotten as Sunflower continued to gear up to full production.[26]

By late 1943, the ordnance works was employing 9,000 workers, a little less than half of whom were women. Hercules hired the first woman powder worker on

April 16, 1943. From the beginning women were expected to play a large role in the operation of the plant. As early as October 1942, Hercules began to advertise supervisory positions for women after completion of a fifteen-week course. Applicants for supervisory work had to be between the ages of eighteen and fifty, and have at least a high-school diploma. At first women were relegated to the least dangerous jobs in the plant. Nitroglycerin, the most volatile substance at Sunflower, and a key ingredient in gunpowder was considered too dangerous to be handled by the "fairer sex." However as the shortage of labor became more and more acute, women were put on the powder presses. To the amazement of management, women not only proved capable of handling the big machines, but they followed directions more closely than men and kept their work stations in better order. In fact, women working at gunpowder presses proved so successful that they replaced men at most presses. Women made up even more of Sunflower's work force when in 1944 munition workers were reclassified for the draft. So by 1945 women made up over sixty percent of Sunflower's payroll.[27]

Sexual harassment was a fact of life at the facility. In many instances Sunflower was the first experience men had with women working by their sides. The most blatant form of harassment that is extant in the records was refered to as the "squeeze play." The Sunflower Ordnance Works was the size of a small city, and it was connected by a well ordered transportation

system of buses to move personnel from place to place on the site. In most cases women drove the buses. As construction was completed and powder production began, buses had to share the road with dump trucks, bulldozers, and other heavy equipment. The squeeze play involved heavy construction equipment refusing to yield the right of way to buses and forcing them off the road. This harassment became so bad that on April 30, 1942, the plant's newspaper, the Sunflower Sentinel, ran an article entitled, "Girl Drivers and Road Courtesy," which enumerated the rules of the road inside the plant.[28]

In August 1943, Sunflower was rapidly approaching its production capacity when a strange turn of events drastically changed the fortunes of this munitions works. In late 1942, the Ordnance Department gave David B. Bruce, Hercules' Smokeless Powder superintendent, two sheets of paper with specifications for a new special type of solventless, smokeless powder used for rocket propellant. He was then directed to follow the instructions to create a full-scale production line immediately for rocket fuel from almost nothing. A seemingly impossible task, but luckily he knew that the British had been experimenting with rocket artillery for a number of years. Bruce and two other officials from Hercules and the Army flew to England and spent a month inspecting England's four solventless powder lines. Fundamentally the Hercules rocket propellant process was modelled after those of

the British. In fact Bruce returned from England with a team of four British engineers to help set up an American plant. Upon returning to the United States, Bruce and his team created a rocket fuel production line at the Hercules facility at Radford Ordnance Works in Radford, Virginia. Once the pilot model was completed, it was moved to the Sunflower Ordnance Plant where a complete full scale production line was constructed. Known as the "F" Line, it was completed in July 1943.[29]

The rocket propellant being produced was a double base powder, made from a highly volatile mixture of nitroglycerin and nitrocellulose. Once mixed, the powder was rolled into black sheets resembling roofing tar paper. The paper was then placed in presses and dies, and under thousands of pounds of pressure it was transformed into hard plastic sticks of any desired length or diameter.[30]

Using the instructions he had received from the Ordnance Department in 1942, Bruce had the rocket propellant pressed into cylindrical sticks two and a half feet long, and one and half inches in diameter, resembling a policeman's nightstick. Shortly thereafter, the rocket propellant was successfully tested and two more production lines were begun at Sunflower.[31]

In August of 1943, two Soviet officers arrived in Kansas City amidst tight security. The senior officer was Lieutenant Colonel P. I. Molchanov, a

military attache with the Soviet embassy in Washington D.C.. The other man was P. S. Solodov, a civilian engineer with the U.S.S.R. Purchasing Commission, which handled the Soviet side of American-Russian Lend Lease. The next day the two men were taken to Sunflower where they inspected the rocket propellant lines. Molchanov then ordered over a ton of the propellant to be transported to Moscow for ballistic tests. This was done immediately and not another word was heard from the Soviet government for six weeks.[32]

As part of the Lend-Lease agreement between Roosevelt and Stalin, the Russians had asked for rocket propellant and the specifications the Ordnance Department had given Bruce in late 1942 were those for propellant for Soviet Katusha rockets. Since the United States was not producing any rocket propellant until the "F" Line became operational, Sunflower suddenly became the only American mass produced source of rocket propellant. This new weapon quickly fascinated the U.S. Navy who ordered it stockpiled in the ensuing weeks while nothing was heard from the Soviets.[33]

Then in late September, Sunflower received terse instructions to ship the powder to the Soviet Union. No ballistic reports appeared nor even notification that the Soviet tests were a success. There were only instructions to send the fuel to New Jersey where it would be loaded on a freighter for Murmansk. From July 1943 to July 1944, the great bulk of rocket propellant produced at Sunflower went to the

Soviet Union. The Russians received between five and six million pounds of rocket of Sunflower rocket propellant which would be used to throw back the Germans in 1944 and 1945.[34]

Thus, starting out with only two sheets of paper provided by the Soviet government, Hercules engineers designed a huge rocket propellant plant for the Sunflower Ordnance Works, an additional $15 million investment in the facility. At the same time Sunflower was producing large quantities of powder for artillery shells on a twenty-four hour a day basis. By the new year of 1944, Sunflower was the largest rocket propellant producer in the world. In fact ninety percent of all rocket propellant used by American forces came from the Sunflower Ordnance Works.[35]

Rockets were used with great success by the United States Navy beginning in late 1943. Two months later during the invasion of Kwajalein in January 1944, a specially modified infantry landing craft was introduced which fired hundreds of rockets at the invasion beaches. These new weapons were quickly dubbed "157 foot battleships" because with rocket artillery they provided firepower equal to thirty cruisers each firing twelve, six inch guns, or the equivalent of thirty regiments of artillery. The rocket became such a popular weapon with the United States military that in July 1944 all Russian orders were cancelled and Sunflower began to produce rocket propellant solely for American forces.[36]

With the introduction of the new rocket propellant Sunflower's capacity to produce more munitions increased and so did the need for more workers. By the end of 1944 Sunflower employed 11,000 workers and had been operating for an entire year without a single lost time accident. The overall safety record of the munitions industry as a whole made working in an ammunition plant safer than all other industrial pursuits save the women's garment industry. Sunflower enjoyed an absenteeism rate of less than 1%. Yet even with this high level of efficiency and a large, dedicated work force the demand for labor was not quenched.[37]

On May 1, 1944, the Kansas War Manpower Commission placed the Sunflower Ordnance Works at the top of the list of essential war industries in Kansas. E. W. Franzke, the Kansas Director of the War Manpower Commission, noted that short term lay-offs at Sunflower in order to convert equipment to rocket propellant production had given many the belief that the war was nearly over and it was time to return to civilian pursuits in order to "beat the hounds." Franzke said: "What I do know is that we must continue to produce weapons, airplanes, and gunpowder, and all those essentials until the enemy hoists the white flag." He noted that the war was far from over, and that Sunflower would require 2,000 more workers before the end of the year if it was to supply American boys with the where with all to defeat the enemy.[38]

One source of additional labor came from the education profession. As school ended in June of 1944, over 150 educators from all over Kansas flocked to Sunflower to answer the call for more help. Between ten and twelve teachers trickled into the employment office at the plant every day. Teachers were hired for three month contracts at the same rate of pay as other workers: 73 cents an hour for women, and 83 cents an hour for men. Training lasted just one day after which the teachers entered the work force. The newcomers were scheduled to fill in the swing and graveyard shifts which were least desirable to the workers with more seniority. Even though the vacationing teachers tried to solve the employment problem, there were not enough to fill 2500 vacancies which would exist by early 1945. Americans were slugging their way across the Pacific and had just landed in France, the demand for more ammunition, both rocket and conventional artillery powder was increasing, and Sunflower needed more labor to supply the demand.[39]

All during the summer and fall of 1944, the Army and Hercules waged a media blitz to attract more and more attention to Sunflower. On July 26, the commanding officer at Sunflower, Lieutenant Colonel Donald R. Hyde, led a press tour of the plant. Colonel Hyde proclaimed, "Right now every person can help by aiding this plant to secure sufficient employees to operate at full production." Hyde pointed out that by December 1944 new powder lines would begin operation,

and that the facility would require 4,000 new employees to reach production capacity. On August 16, Harry V. Chase, Plant Manager for Hercules, granted a press interview to discuss the vital role women were playing at Sunflower. Chase said: "In no industry have women played a more important role than the explosives industry, and without them the Allies' fire powder [sic] would have been seriously curtailed." Chase pointed out that women made up sixty percent of the Sunflower work force. He also noted that Hercules was making a serious effort to let husbands and wives have the same shift schedules and the same days off, and that Hercules provided twenty-four hour daycare for children at Sunflower Village.[40]

A coincidence that played into the hands of the managers at Sunflower for keeping the ordnance works in the public eye was the awarding of the Army-Navy "E" for excellence in war production, which was announced in September. Sunflower was to receive a giant flag with an embossed "E" to fly above the plant, and each employee was to get a lapel pin as recognition for service to the nation. The ceremony was held October 6, 1944 with the Undersecretary of War, Robert J. Patterson, and representatives of the Army and Navy presiding. The ceremony was watched by 3,000 Sunflower employees and made for quite an event in the local media.[41]

A more overt attempt to recruit prospective employees was the Firepower Show which toured

northeastern Kansas and Missouri for thirty days. The Firepower Show gave interested citizens a chance to see war material, some of which was made at Sunflower; such as 50 caliber machine gun ammunition, 57, and 75mm shells, and demonstrations. The show also included veterans who addressed the crowds on the need to increase war production. The show was run by Harry Barnard of the U.S. Employment Service, who had scattered half a dozen desks throughout the displays where any queries about employment at the Sunflower plant could be answered. During the thirty day exhibit 164,000 people saw the Fire Power Caravan, and 764 workers were recruited to work at the ordnance plant.[42]

While the media blitz helped the employment picture somewhat, employment quotas were never met. The main reason for this was a high number of turnovers because of the distances employees were forced to travel daily. It was not economical to travel back and forth 20 miles to Lawrence and farther to Topeka where the majority of Sunflower's nearly 12,000 employees lived. In September, Hercules had tried to face the transportation dilemma by agreeing to subsidize the six bus lines that serviced Sunflower with transportation for its employees. Workers at Sunflower paid $5.75 per week for six round trips between the plant and Topeka. Hercules agreed to subsidize the bus companies $3.65 for each employee, thereby reducing the laborers transportation cost to and from work to $2.10 per week, but even this did not stop the problems of high

turnover. In December 1944, there were more terminations than hires for the first time in the plant's history. The problem was the inconvenience of travelling so far to work. Roughly a quarter of all commuters to Sunflower quit during their first six months, while only 1% of Sunflower Village's 2,900 residents quit during the same time period. In early January 1945, Hercules tried to solve this problem by providing more housing close to the ordnance plant.[43]

One way attempted to relieve the housing shortage in the vicinity around Sunflower was to make barracks available on the site. These were termed sleeping dormitories and were segregated by sex. Accommodations were spartan in the facilities; a worker was alloted a bunk and a locker. By August 1944, there were eight of these dormitories in the plant, and by September there was space for another 425 men and women.[44]

On the 18th of January, 1945, the first of a planned 680 apartments were opened for Sunflower workers in what used to be the Sunflower Trailer Park. The project had begun in October and eighteen were ready by January, but a scarcity of construction workers had slowed the progress of the apartments considerably. To get an apartment applicants had to work at Sunflower. The apartments were one or two bedroom units which could be rented furnished or unfurnished at rates between $34.50 and $43.00 a month. Management at Sunflower needed to hire another 700 men

and women to meet the needs of the war, and by attempting to provide workers them with clean, affordable housing they hoped to induce them to stay.[45]

The brunt of the increase in housing facilities fell on the old Sunflower Trailer Park, renamed Sunflower Village. By May of 1944, the Village housed 459 families. It had its own recreation center, school, grocery store, post office, barbershop, laundry, and filling station. In September 1944, the Army announced that they would move 380 temporary houses from Niagara Falls, N.Y. to help ease Sunflower's housing shortage. With the added convenience of housing near the ordnance plant the population of Sunflower Village skyrocketed between 1944 and 1946. In May of 1944, the Sunflower Sentinel reported a population of 1,650 in the Village. As more and more housing became available in January 1945, the Village's population exploded. During the week ending January 15, 1945, thirty-six families moved in. For the week ending February 9, 1945, there were 90 new residents. The net result of this growth was that by June 1946, Sunflower Village boasted a population of 5,800 people.[46]

As 1944 ended despite the problems with employment, Sunflower had enjoyed a remarkable year. The ordnance works had consumed 40 tons of sulphur, 23,000 gallons of fuel oil, half a railcar load of limestone, and 33 million gallons of water every day. The plant had increased its output of rocket propellant

ten times what it had been in 1943, and Sunflower was producing seven new types of conventional gunpowder not available in 1943. For the year 1945 Sunflower geared up for a final push to defeat the Axis.[47]

In March 1945, the second anniversary of the beginning of plant operation, Sunflower reached its peak employment of 12,067 workers, and had produced over 100 million lbs. of powder. The tremendous output of the plant at this time was best exemplified by the illustration that if Sunflower's workers all concentrated on gunpowder for .45 caliber bullets they would produce enough in one day to kill every human being on earth, assuming one bullet for every person. The plant had produced rocket propellant for over 1,200,000 rockets. By May 1945, rocket fuel output was up 120 percent over the previous six months output, and for these accomplishments Sunflower received a second Army-Navy "E."[48]

In September the Second World War was over, and Kansans in the northeastern portion of the state paused to reflect on the accomplishments of the Sunflower Ordnance Works. In March 1943 the plant had opened as a three-line producer of double-base gunpowder. By 1945, the plant had expanded to an eight-line production facility which had supplied the victorious Allies with 175 million pounds of gunpowder and rocket fuel. Sunflower was the world's largest producer of rocket propellant and one of the largest gunpowder producers.[49]

The physical dimensions of the plant boggled the mind. Sunflower occupied 12,000 acres which had 4,500 buildings connected by 175 miles of roads, 30 miles of standard-gauge railway, and 40 miles of narrow-gauge track. The plant was criss-crossed with 135 miles of steamlines and 175 miles of process water and acid lines. The total estimated value of the plant in 1945 was in the neighborhood of $200,000,000.[50]

The cessation of hostilities meant immediate lay-offs for Sunflower employees. By the end of September the work force of more than 12,000 was reduced to 4,500. The government kept producing gunpowder at Sunflower until 1947 when there were only 500 Army and Hercules employees left on the payroll to place the facility in mothballs in 1948.[51]

Yet even though the war was over, western Johnson County did not revert to the sleepy little agricultural area it had been in 1941. The work force at the ordnance plant was reduced and workers rapidly left Sunflower Village, but they were replaced by still more newcomers. On September 7, 1945, the United States Navy announced that 200 Navy families would move into Sunflower Village because of its proximity to Olathe Naval Air Station. With the 1945-6 academic year beginning, 485 students from the University of Kansas had moved into the Village on September 21. In October the Army began housing the dependants of soldiers stationed at Fort Leavenworth, and the families of soldiers undergoing treatment at Winter General

Hospital in Topeka. In late October 1,100 of Sunflower Village's 1,500 apartments were occupied. In December, between ten and fifteen apartments were being rented daily, and by February 1946, Sunflower Village was full to capacity with a waiting list of 450 people.[52]

For DeSoto and Eudora, the end of the war meant that life in those small towns would slow down, but not return to the pre-1942 days. The streets were not as busy or congested, the trailers which had been parked in the yards of residents left town, and agriculture regained its importance over munitions work as the town's primary source of income. However both Eudora and DeSoto experienced substantial and permanent growth from the Sunflower Ordnance Works. In 1950, five years after the end of the war, DeSoto had 518 residents, representing a thirty-four percent increase over the 1940 population of the town. Eudora experienced more drastic expansion. Between 1930 and 1940, Eudora grew six tenths of one percent, yet between 1940 and 1950 Eudora's population increased fifty-four percent to 929 citizens. The sleepy little communities that were home to Oma Dint and Roger White were gone forever. For DeSoto and Eudora, the Second World War meant the sacrifice of a way of life, and that was the price for victory.[53]

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THE PRICE OF VICTORY: THE SUNFLOWER ORDNANCE WORKS AND DESOTO AND EUDORA KANSAS

by

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AN ABSTRACT OF A REPORT

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In the spring of 1942 the federal government announced that it would build a gunpowder manufacturing plant near the Kansas farming communities of Eudora and DeSoto. By 1944 the Sunflower Ordnance Works was the world's largest producer of rocket propellant and gunpowder employing over 11,000 men and women. This report explores the growth of the Sunflower facility, its effects on the rural communities near S.O.W., and its overall contribution to the American war effort during the Second World War.

For the surrounding communities of DeSoto and Eudora, the construction of the sprawling ordnance works meant the end of a way of life. Both were static agricultural towns which were quickly transformed into war boomtowns as thousands of workers moved into the area. The report concentrates on how the residents of these two towns perceived and adapted to the changes forced upon them.

The research for this project consisted primarily of archival sources including municipal records from DeSoto and Eudora, and newspapers such as; DeSoto News, Eudora Weekly News, Topeka Capitol Journal, Lawrence Daily Journal World, Sunflower Sentinel, and Sunflower Villager.