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Two "Arsenals of Democracy": Huntsville's World War II Army Architectural Legacy

Kaylene Hughes

During the two decades between the end of World War I and the Japanese bombing of Pearl Harbor, the United States withdrew into a strong protective shell consisting of isolationist, protectionist, and nativist sentiments. This urge to remain aloof from foreign entanglements had a decidedly adverse affect on the U.S. military, particularly the Army. The period between the world wars was a time of seemingly endless constraints on money, manpower, and materiel. By 1939, the U.S. Army was ranked nineteenth worldwide, behind Belgium and Greece.

The events spawned by the German and Russian invasion of Poland on September 1, 1939, however, disrupted the widespread American desire for neutrality. It was further eroded by Japan's increasingly aggressive expansion onto the Asian mainland and into the western Pacific. Though it sought to avoid another military conflict, the United States was not willing to retire meekly in the face of Axis (Germany, Italy, and Japan) threats. When Hitler unleashed his "lightning war" it was high time the country looked to its own defenses and prepared to meet the aggressors head-on.

The Army Comes to Huntsville

In his last "fireside chat" of 1940, President Franklin D. Roosevelt advised the nation's citizens that the United States had to become the "arsenal of democracy." In one way or another during the following year, every part of the country was affected by the growing preparations for war. The U.S. military, greatly strengthened by larger budgets and the establishment of the first peacetime draft in the nation's history, began a spate of building projects to erect the production facilities for the munitions and materiel needed to successfully confront the country's enemies in Europe and the Pacific.

In April 1941, Congress approved funds for the Army to construct another chemical manufacturing and storage facility. This installation would supplement the production of the Chemical Warfare Service's only chemical manufacturing plant at Edgewood Arsenal, Maryland. Col., Charles E. Loucks headed the selection team dispatched by the Army to locate a suitable site for the new facility.

The team visited several areas, searching for about 30,000 acres of land located inland far enough from the coast to provide sufficient protection from enemy attack. Access to adequate rail, water, and highway transportation; sufficient fuel and electrical power; ample construction supplies; and enough raw materials for subsequent operations were other prime considerations. Among the areas appraised were Florence, Huntsville, and Tuscaloosa, Alabama; El Dorado, Arkansas; Kansas City and St. Louis, Missouri; Toledo, Ohio; Memphis, Tennessee; and Charleston, West Virginia.

The first stop on the Army's inspection tour was at Huntsville on June 8, 1941. A three-man delegation, representing a local group which supported the city's selection, initially escorted Loucks and the civilian engineer who accompanied him to a spot on the south side of the Tennessee River. When the engineer rejected the proposed location as unsuitable because it was too uneven for building without a lot of leveling, the delegation showed them an alternate site on the southwestern edge of the city. Although no one knew it at the time, the Army had found the future home of the chemical munitions installation to be known as Huntsville Arsenal.

After completing his inspection of the other sites, Loucks submitted his recommendation. On July 3, 1941, fire trucks raced through town delivering an "EXTRA" edition of The Huntsville Times. The paper's banner headlines heralded the construction of a \$40 million chemical war plant "south of [the] city and extended to [the] Tennessee River." Included in the reservation composing Huntsville

Arsenal was over 7,700 acres which were to be used for construction of a depot area.

During this same period, the Army Ordnance Corps was also in the market for a place to build a chemical shell loading and assembly plant. The Ordnance Corps had undertaken this expansion program in response to President Roosevelt's proclamation of May 27, 1941, declaring the existence of a state of unlimited emergency. New Ordnance facilities were needed in order to assure adequate production of ammunition in keeping with the time-objective requirements of the General Staff.

Recognizing the tremendous economy of locating the new facility close to Huntsville Arsenal, the Chief of Ordnance acquired a 4,000-acre tract east of and adjacent to the Chemical Warfare Service's installation. Initially known as Redstone Ordnance Plant (so named because of the area's predominantly red soil), the new post was redesignated Redstone Arsenal on February 26, 1943.

Before the Army Came

The land acquired by the Army in 1941 to establish Huntsville Arsenal (32,244 acres) and Redstone Ordnance Plant (4,000 acres) was located in a part of the Tennessee Valley that archaeological remains have proven was first inhabited over 2,000 years ago by a prehistoric Indian culture known as Copenas. By the beginning of the 20th century, the approximately 57-square-mile area of rolling terrain, which contained some of the richest agricultural land in Madison County, comprised such small farming communities as Pond Beat, Mullins Flat, Union Hill, Elko, Cave Hill, Hickory Grove, Horton's Ford, and Bettle Slash.

Cotton, corn, hay, peanuts, livestock, and various fruits and vegetables were the primary agricultural products cultivated by the area's inhabitants. Although there was no electricity, indoor plumbing or telephones; few roads and fewer cars or tractors, the people who lived in the area that

one former resident recalled as being “nearly out of the world” prospered enough to support their own stores, mills, shops, gins, churches, and schools.

Of the 550 families (about 6,000 men, women, and children) living in this part of the county, 76 percent were black. Some of the families were tenant farmers, but many, black and white, were landowners who had worked the fertile soil of the region for several decades. White or black, tenant or landowner, all of them were forced to leave their farms when the Army came to Huntsville. Understandably, there was a lot of concern at first among the area’s residents about when they had to leave and where they could go.

Despite some early rumors to the contrary, the Army postponed the moving date until after the autumn harvest. This was done not only to benefit the local farmers, but to save the federal government the cost of the crops that would have been abandoned. Because their farms were located in a section of the reservation where construction was slated to begin first, some families did have to move in July and August, 1941. The majority, however, relocated to other farms or moved into town later in the year. By the middle of January 1942, all of the area’s former residents were gone.

The federal government also provided assistance to the displaced farmers through the Farm Security Administration (FSA). The agency was authorized to provide small grants for those without sufficient funds to move; to help in locating new farms; to make loans to those with farming experience but not funds to start over; to maintain a list of vacant properties for sell or rent; and to give advice on the suitability of a new farm.

The FSA also joined with the Alabama Relocations Corporation, a private organization sponsored by the U.S. Department of Agriculture, “to buy or lease large tracts of land to be divided ... and put in shape for tilling,” with suitable shelter also provided. These farms served as temporary stopping places for some families, while becoming perma-

ment homes for others “who proved themselves worthy of a chance at ownership.”

Of the 550 families that had to relocate, 295 of them made their own arrangements. A total of 273 of the original 550 moved to farms in Madison or other adjoining north Alabama counties, while 183 moved to town. Many of the latter found jobs at the arsenals, since former residents of the Army reservation were given preference in hiring as part of the government’s assistance effort.

In addition to more than 500 houses and other assorted buildings, there were 3 schools for blacks; 1 church for whites and 11 churches for blacks; 31 known cemeteries; and several black lodges. Certain structures, such as the Chaney house built c. 1835; the antebellum Lee mansion; and the Cedar Grove Methodist Church, were considered to be among the oldest buildings in Madison County.

The Chaney house, which was relocated to another site on Redstone Arsenal in 1955, has been so extensively renovated during the ensuing years that it “possesses little architectural or historical significance.” Originally remodeled for use as guest quarters for visiting dignitaries, the Chaney house, renamed the Goodard House in honor of the father of American rocketry, now serves as military quarters.



The Chaney house prior to being moved.



The Chaney house, renamed the Goddard House, after begin moved & remodeled.

The Army used the Lee mansion as an office building in World War II and then as a residence for a number of years. It was sold and moved off the arsenal in 1974. The historic Cedar Grove Methodist Church building was relocated to a spot on Jordan Lane after the Army acquired its land. Cedar Grove and Center Grove, another church on the arsenal reservation, merged into the Center Grove United Methodist Church after moving into Huntsville.



The Lee mansion, 1940s

Throughout the war years and into the following decades, the Army made use of many of the vacated buildings on the arsenal reservation usually as office space, storage, or housing. Most of these structures are gone, although traces of them can still be found. The only pre-Army building still on Redstone Arsenal which has not been moved or altered is the Harris house on Buxton Road, close to where the Lee mansion originally stood. Parts of the old home date from the early 1800s, but most of it was built, starting in the 1920s, by joining two older existing structures. It has been used as a military residence since 1941.



The Harris house, 1940s

Huntsville's Two "Arsenals of Democracy"

The first commanding officer of Huntsville Arsenal arrived on August 4, 1941, and broke ground of the chemical plant the following day. By March 1942, the installation's initial production facility had been activated. Huntsville Arsenal became the sole manufacturer of colored smoke munitions, starting in October 1942. The dye used in

the production process colored the workers' clothing and stained their skins. Throughout the war years, it was not uncommon to see people of rainbow hues in the Huntsville area. As one former munitions worker recalled, "You could tell the color of smoke grenades we were running out here by the color of the people walking around downtown on the streets. The dye — yellow, red, violet, green — would get on your skin and you had to wear it off. It wouldn't wash off."

In addition to colored smoke grenades, the arsenal was noted for its vast production of gel-type incendiaries. It also produced toxic agents such as mustard gas, phosgene, lewisite, white phosphorous, carbonyl iron, and tear gas. During World War II, more than 27 million items of chemical munitions having a total value of more than \$134.5 million were produced. Personnel of Huntsville Arsenal won the Army - Navy "E" Award four different times for their outstanding record in the production of war equipment.

The War Department formally established the Huntsville Chemical Warfare Depot on March 6, 1942. Located in the extreme southern portion of Huntsville Arsenal bordering the Tennessee River, the depot received, stored, and issued such Chemical Warfare Service materiel as munitions, bulk chemicals, decontaminating apparatuses, protective materials, and spare parts of gas masks. To avoid confusion with Huntsville Arsenal, the War Department changed the depot's name on August 10, 1943, to the Gulf Chemical Warfare Depot.

Ground breaking ceremonies for Redstone Ordnance Plant were held on October 25, 1941. Officially activated on February 5, 1942, the new installation's first production line began operation before the end of the following month. The only government-owned and operated arsenal established by the Ordnance Department during World War II, Redstone was the seventh Ordnance Corps manufacturing arsenal and the only one located south of the Mason-Dixon line.



The first commanding officer of Redstone Ordnance Plant breaking ground for the new facility, October 1941.

During the war, Redstone Arsenal produced such items as burster charges, medium and major caliber chemical artillery ammunition, rifle grenades, demolition blocks, and bombs of various weights and sizes. Between March 1942 and September 1945, over 45.2 million units of ammunition were loaded and assembled for shipment. For their outstanding services in the manufacture of munitions, Redstone employees won the aforementioned Army-Navy "E" Award five different times.

The Arsenal's World War II Architectural Legacy

The laying of paved roads and new railroad tracks were among the first construction work started on Huntsville Arsenal in September 1941. This resulted from the need for adequate transportation systems to deliver heavy equipment and supplies to various construction areas. Neighboring Redstone Arsenal experienced a similar need.

After the Ordnance plant's commanding officer shoveled the first spadeful of dirt out of a cotton field in the southeastern corner of the Army reservation in October, large bulldozers and other machinery immediately moved in to begin constructing the first road to the arsenal. About 75 miles of railroad track connecting the east and west classification yards at Huntsville Arsenal, as well as lines to the Gulf Chemical Warfare Depot and Redstone Ordnance Plant, were completed in December 1941.

The first road
being
constructed in
area of ground
breaking,
October 1941



The first structures erected at Huntsville Arsenal were long, two-story frame buildings located in the north-eastern corner of the reservation. Situated on land now outside the confines of the arsenal, at the corner of what is now Bob Wallace Avenue and Jordan Lane, these buildings served as temporary headquarters for the arsenal's commander and his staff. They moved into their new offices on September 14, 1941, after operating briefly from borrowed space in the Huntsville National Guard Armory and the Huntsville High School gymnasium. The Army also made use of the farm houses vacated when construction began in this part of the arsenal.

This section became the installation troop area in 1942 when arsenal headquarters moved to Squirrel Hill off of Goss Road. Most of the buildings were converted into barracks, but others served as a chapel, theater, and officers club. Some of the buildings were used for apartments to house members of the original Von Braun rocket team after they moved here in 1950 from Fort Bliss, Texas. The Army's own space and rocket museum was set up in the area in 1965, but was dismantled in May 1971. Several of the display items were subsequently loaned to the Alabama Space and Rocket Center. The last major activity to be located in the area was the Civilian Personnel Office, which moved to the south end of the arsenal in 1976. The build-

ings in this area, which became known as "Splinter Village" its final year, were demolished and sold for scrap in 1977.

One of the lesser known structures located on Huntsville Arsenal during World War II was a prisoner of war (POW) camp designed to accommodate 655 inmates. The Army Corps of Engineers built the original camp for 250 prisoners sometime in 1944, but the remainder of the facility was constructed under the supervision of the Post Engineer using POW labor. The camp was in use by the time Karl Spitzenpfeil, a former inmate, arrived in August 1944.

Prisoner labor was used for a variety of tasks, such as working as mechanics for the Motor Pool; laboring for the Engineering Services Division at the sawmill, in the limestone quarry, or on the rock crusher; and serving as cooks and kitchen help at the Huntsville Arsenal Officers Club. Approximately 1,100 captured German soldiers were imprisoned on the arsenal at one time.

According to Karl Spitzenpfeil, who returned to visit the arsenal in June 1982, "life in the Huntsville camp was not a hardship." Although the prisoners had to work hard, there was always enough to eat; there were occasional outings for swimming; and there were two cases of beer for each prisoner on his birthday. In addition, the Army paid the POWs 80 cents a day for their work and allowed the prisoners to use the money to buy things at the post commissary.

Located on what is now Dodd Road, northeast of the present gate into NASA, no traces of the arsenal's prisoner of war camp remain. The barracks and guard house were dismantled many years ago, and the tents that housed some of the prisoners no doubt were removed at the end of the war.

Another of Huntsville Arsenal's lesser known facilities was the airfield built to accommodate the planes used to test clusters of incendiary bombs and smoke grenades.

Flight testing of all incendiary bombs produced by Huntsville Arsenal as well as those “turned out by all other arsenals and 15 private concerns under contract,” was carried out in a proofing area known as the South Bombing Range.

In addition, a 500-foot bombing mat and a simulated village of 50 wooden shacks known as “Little Tokyo” were built. The latter area was obliterated by February 1944, but the concrete bombing mat remains, a reminder of an all but forgotten piece of the arsenal’s past. The airfield is also still in use, but it has been extensively renovated, expanded, and upgraded to accommodate modern air traffic for the Army and NASA.

Several other Huntsville Arsenal structures built in World War II also remain functional. The old headquarters building 111 on Squirrel Hill served as the main office for the Ordnance Guided Missile Center after Redstone Arsenal took over the chemical plant’s land and property in June 1949. It was later used as the Officers Club until being converted into office space in 1985. Other Squirrel Hill structures, such as the old Post Hospital, also function as office buildings today.

Building 111, the
old Huntsville
Arsenal
headquarters,
after 1950.



The only World War II - era buildings in that area of the reservation still being used for the purpose for which they were originally constructed are the quarters built in 1942 for the officials of Huntsville Arsenal. Located near the headquarters building for the officers' convenience, these structures have been renovated several times but are still serving as military housing.

In addition, in what is now the Ordnance Missile and Munitions Center and School area other World War II vintage administrative, storage, and production facilities fulfill a variety of useful functions. Farther south within the arsenal reservation, storage igloos and warehouses built for the Gulf Chemical Warfare Depot continue to be used for the same purpose.

The first building on Redstone Arsenal was completed in November 1941. Designed primarily as quarters for the post's bachelor officers, the structure temporarily served as the plant's first headquarters until the permanent administration building was finished in March 1942. Building 7101, as Redstone Arsenal headquarters was most commonly known, functioned as administrative office space until the structure was finally torn down in 1986.

The Redstone Arsenal headquarters area, 1940s. The Bachelor Officers Quarters is the building to the left, while the portion of the structure on the right is building 7101. In the background is the commanding officer's house on what was known as "headquarters circle."



Although both the bachelor officers' quarters and building 7101 are gone now, the three houses constructed in 1943 for Redstone officials are currently occupied. Situated in the area behind building 7101, these three-bedroom frame residences, along with seven others like them added in 1947, made up what was known as "headquarters circle." The center of the arsenal's community life in the 1950s, this area was "for several years the most prestigious address on post." Today the modest dwellings, which once housed some of the arsenal's most well-known commanders, are home to senior noncommissioned officers and their families.



"Headquarters circle," circa late 1940s

Although several of the production and storage buildings erected on Redstone in World War II are still standing and still occupied, many of the arsenal's original structures no longer exist. One of the more interesting of these was old fire station #3 on Redstone Road. Constructed in 1942 as the fire house and jail for Redstone Ordnance Plant, the building was described in a 1983 historic properties survey report as a:

military building with unusual pretensions to style. The two-story wood shiplap-sided building is derived from a standard World War II Army building prototype but varies from the prototype through the employment of such distinctive architectural features as a curved entry bay and a five-story watch tower.

Set on a hill near building 7101, so that it overlooked the original ordnance production lines, the fire station was used in the capacity for which it was chiefly built until January 1983. For two weeks prior to its disposal, the building served as a training aid for arsenal fire fighters who put out blazes in individual rooms. The shell of the structure was set afire for the last time on March 18, 1985, and allowed to burn to the ground. Although the architectural historians who surveyed the fire station recommended that it be preserved by finding “an adaptive use ... that will not alter its distinctive architectural character,” the cost for the building’s conversion and upkeep were too prohibitive.



Fire Station #3,
circa late 1940s

Other Evidence of Redstone’s Past

Except for the aforementioned structures which still stand as reminders of Redstone’s World War II origins, at first glance there appears to be little other evidence of the arsenal’s wartime roots. Most of the pre-Army dwellings and outbuildings were typical of small farm communities throughout the 1940s South. Once they ceased to be useful to the Army, the majority had no intrinsic or historic worth to justify their preservation.

Likewise, none of the structures hurriedly erected by the Army in 1941 to meet the immediate need for office space during the construction of the arsenals were worth pre-

servicing once they no longer served any useful purpose. The rather volatile nature of the munitions work carried on at the arsenals is another reason why some of the original production buildings no longer exist: they were destroyed by explosions or fires. Still others were damaged by storms and flooding.

When production ceased at the arsenals after the war, some buildings were leased temporarily to private chemical manufacturing firms. One gas mask production line was even converted for use by the Kellar Motors (formerly the Dixie Motor Car) Corporation for the manufacturing, assembling, testing, and selling of automobiles and related products. The General Aniline Facility, the buildings of which were constructed by the Army in 1943 for use in the production of iron compounds, has been under lease since 1949 for the same purpose.

After Huntsville Arsenal became part of neighboring Redstone Arsenal in 1949, however, most of these leases were terminated and many of the chemical munitions buildings were remodeled to accommodate the installation's new Ordnance rocket and guided missile mission. The same was true for the original Redstone Arsenal structures.

As the post's missile and rocket responsibilities have continued to expand in subsequent years, most of the old World War II buildings have been extensively renovated to extend their usefulness, primarily as office buildings. According to the 1983 historic properties survey, these buildings, which date back to 1942 and 1943, have "no specific architectural, historical, or technological significance at this time."

Despite the fact that almost all the pre-Army buildings are gone and most of the World War II-era structures no longer can be easily identified as dating from the war period, to the informed eye there is still evidence of the post's pre-missile era origins. The way in which arsenal structures are spread out within the reservation is mute testimony to the

installation's former use. Chemical munitions production buildings had to be widely separated to prevent the spread of explosions or fire from one plant to the next. The location of administrative areas and officer housing at either end of today's arsenal is indicative of the fact that once there were two installations with separate headquarters areas.

While many of the roads on post reflect Redstone's modern function as the home of the Army's rocket and guided missile programs, several of the most traveled routes were named for Chemical Warfare Service soldiers killed during World War I (e.g., Buxton Road, Goss Road, and Rideout Road) or past chiefs of the Ordnance Corps (e.g., Bomford Drive, Croxier Drive, and Hughes Drive). Hale Road, Leoffler Park, and Valim Reservoir memorialize the flight crew of an Army Air Forces plane that crashed while on a routine testing mission at Huntsville Arsenal during World War II.

Redstone Arsenal also has an active historic preservation program which protects such areas as the pre-Army cemeteries located throughout the reservation and various significant archaeological sites. In addition, the post newspaper has enhanced general awareness of the installation's history by publishing interviews with older employees who once lived in the communities that predated the Army in this area as well as other pieces on the arsenal's past.

Redstone's position on the technological cutting edge in missilery and space has not totally obscured its World War II roots. The legacy of this era is an enduring one. Today's arsenal is an interesting blend of the past and present, a mixture that can be seen easily by the interested observer.