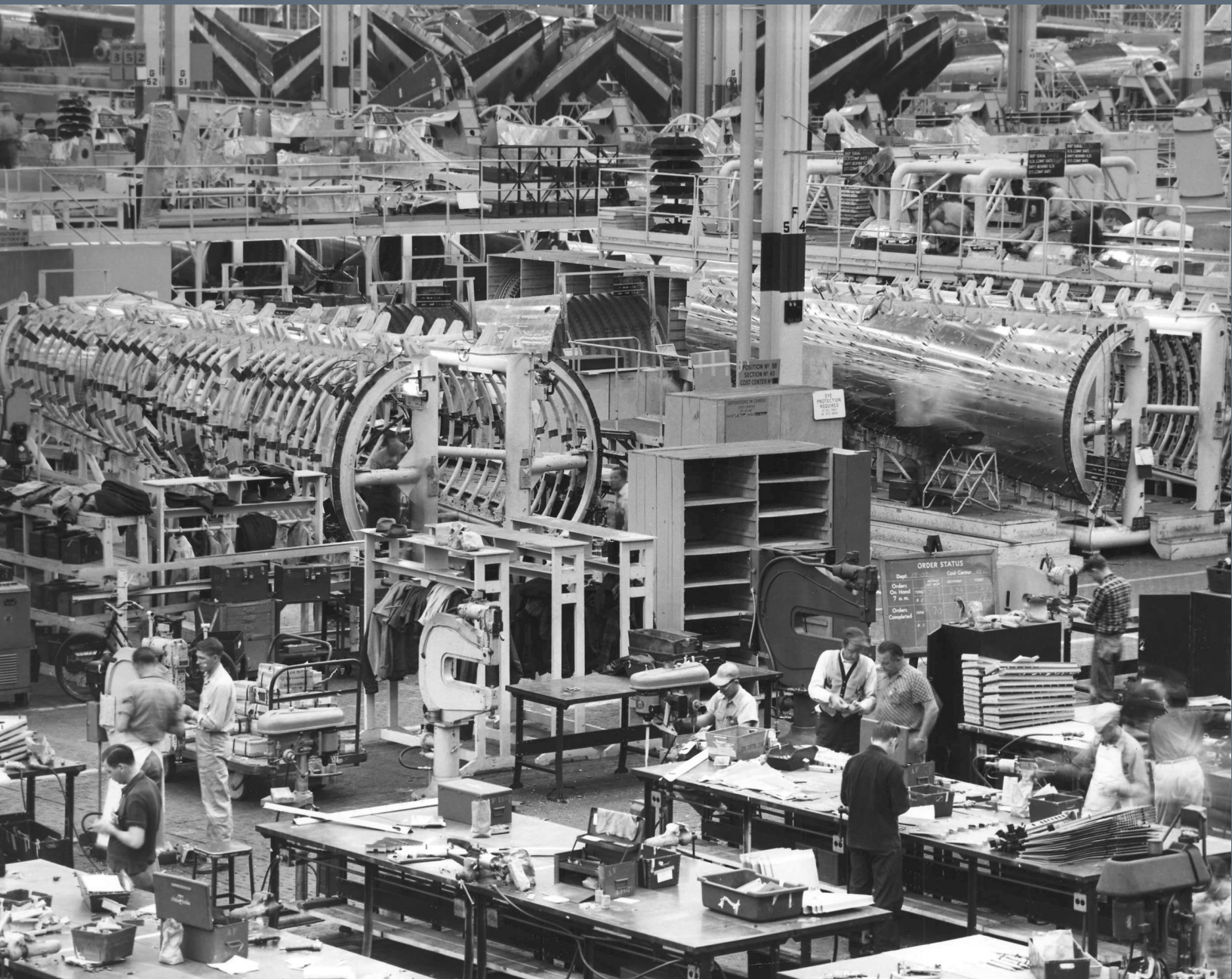


UNDER ONE ROOF

The Story of Air Force Plant 6



Jeffrey L. Holland

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***Published by the Aeronautical Systems Center,
Acquisition Environmental, Safety, & Health Division,
Wright-Patterson Air Force Base, Ohio***

***Jeffrey L. Holland
2006***

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Lockheed C-141 covered in a rare Atlanta snow, January 14, 1982.

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Introduction

When 15,000 or so pink slips were handed out to workers at Marietta, Georgia's Bell Aircraft Company bomber plant that August day in 1945, it was not unexpected. The war in the Pacific had been going well all summer. Allied forces were moving closer and closer to the Japanese mainland, thanks in large part to the effectiveness of the B-29 bombers that were harassing Japan around the clock, the very same ones that were rolling out the massive doors of the plant known as Government Aircraft Plant 6 (later Air Force Plant 6) at a rate of two per day.

Just two weeks earlier, the indefatigable manager of the plant, Cobb County native and local-boy-made-good, James V. Carmichael, had stated emphatically that the rumors of a mass layoff were unfounded, and that work would not cease until the Japanese were defeated. He promised that every effort would be made to keep the plant in postwar production. That was just before atomic bombs were dropped on Hiroshima and Nagasaki, and the Japanese had little choice but to surrender.

Despite Carmichael's promises, the Army immediately cancelled its order for any more B-29s. Bell was only to complete the 85 that were already in final assembly, which would bring to 668 the total number of aircraft turned out by the plant in just two and a half years.

When the layoffs came, the mood in the massive assembly plant, one of the largest structures under one roof in the world, was mostly one of joy and relief at the end of the terrible war that had taken the lives of so many young men. New wives would wait anxiously for their men in uniform to return home, and the money they made but could not spend during the war would go toward a new house, appliances, automobiles, and clothes for the inevitable children.

A small portion of the workers had come from the company's Buffalo plant, or from other aircraft plants in the Northeast or Midwest, and many of them did not return home. They appreciated the climate, the attitude, and the opportunities of their newly adopted home. Those who had come from the surrounding counties—farmers, shopkeepers, millworkers—would settle down in the Atlanta region and start businesses of their own, or go to work for large firms that were supplying or servicing the consumer goods that young families wanted.

Those laid off workers who remained in Marietta took up residence in a vastly different town from the one that had existed just four years before. The changes that the Bell bomber

plant brought were at the core of Cobb County's transition from a sleepy, agrarian society, to a bustling, modern suburban community. Although the term New South had been around since the 1870s, the hope for a South with a diversified economy, a rich cultural life, and an ample opportunity for advancement was finally being realized.

So, few tears were shed when the bomber plant shut down, although one worker later lamented that she hated to leave the place, since it had been so much fun to work there. Almost all of the workers expressed a profound sense of accomplishment and feeling of pride for their contribution to winning the war. Certainly for many of the men, who had never dared to expect earnings beyond what was needed to shelter, feed, and clothe their families, and the many women who had never expected to work outside of the home at all, the experience had been eye-opening. They left the plant confident that they would find other employment.

And they did find work, as plumbers, electricians, automobile mechanics, secretaries, manufacturers, accountants, and insurance salesmen. With government programs to get them started, and new skills to offer employers, the loss of nearly 30,000 jobs in only a few months had much less impact than would be expected.

It would be six years before the mammoth assembly plant would be put to use again. The Air Force was created from the Army Air Corps as a separate branch of the military after World War II. With the outbreak of the Korean War in 1950, the Air Force called on Lockheed Aircraft Corporation to pull the B-29s out of storage and make them ready for active service. Many of the former Bell employees would go back to the plant to work for a different company, refurbishing the same planes that they had built during World War II.

The Cold War between the United States and the Soviet Union provided a continuous demand for military aircraft after the end of the Korean War. To help counter the Soviet threat, in the early 1950s the Air Force ordered the long-range, jet-powered B-47 Stratojet, designed by Boeing and built by three different companies at several locations, including Lockheed's facility at Government Aircraft Plant 6. However, it was cargo planes that would form the backbone of Lockheed's operation in Marietta, first with the C-130, then with the C-141 and C-5. The C-130 especially would prove to be one of the most versatile aircraft ever manufactured, perfectly suited to military airlift and airdrop, rescue and humanitarian missions, and day-to-day hauling. By 1969, employment under Lockheed at Air Force Plant 6 reached an all-time high of over 30,000, more

even than during the Bell years, when much more work was done by hand.

Although contract problems and political controversy surrounding the C-5 would result in layoffs in the early 1970s that nearly equaled those in 1945, Lockheed survived and Air Force Plant 6 continues to turn out the latest generation of the C-130, the C-130J, as well as the Air Force's most sophisticated fighter, the F-22A.

Although it was recently surpassed by the county school system and WellStar Health Systems as Cobb County's largest employer, Air Force Plant 6 has been a vital player in the economy of Marietta and Cobb County. Owned by the federal government and operated under contract first by Bell and then Lockheed, it is part of a larger military complex that includes Dobbins Air Reserve Base, the Naval Air Station Atlanta (recently recommended for closure), and a variety of associated contractors. It is the impact of the plant—on the landscape, on the town, and on the people—that is the focus of this book.

The impetus for a popular history of Air Force Plant 6 came from the Georgia Historic Preservation Division, working with the Air Force and Lockheed Martin Aeronautics Company (LMAero), as part of an effort to document historic buildings at the facility in accordance with Section 106 of the National Historic Preservation Act of 1966. The Air Force has been carrying out a modernization program at Air Force Plant 6 to renovate or demolish buildings that have reached the end of their functional lives; however, nine buildings at the plant, comprising the core buildings of the plant constructed during World War II, are part of a historic district that has been determined eligible for listing in the National Register of Historic Places. Photographic and historic documentation of the buildings according to proscribed guidelines serves as mitigation for the resulting loss of the historic fabric of the facility. The program allows LMAero to continue to manufacture aircraft while preserving the plant's historical legacy.

The administration building (B-2) at Air Force Plant 6, built over 60 years ago as a semi-permanent structure, was one of the structures requiring demolition. As mitigation, the Historic Preservation Division recommended a history be commissioned to focus on the facility and the day-to-day operations of the plant. Therefore, this book does not delve extensively into aviation and military history, subjects that are covered well in other studies. Instead, this volume is more a history of a place, albeit a very large place, with particular attention to the buildings, the inner workings of the facility, and how the whole affair was managed.

Under the 46-acre roof of the main assembly building and the numerous surrounding support buildings that make up Air Force Plant 6, a small town's worth of people worked around the clock to assemble football field-sized aircraft so precisely that seams are invisible and thousands of rivets are set with tolerances of less than a millimeter.

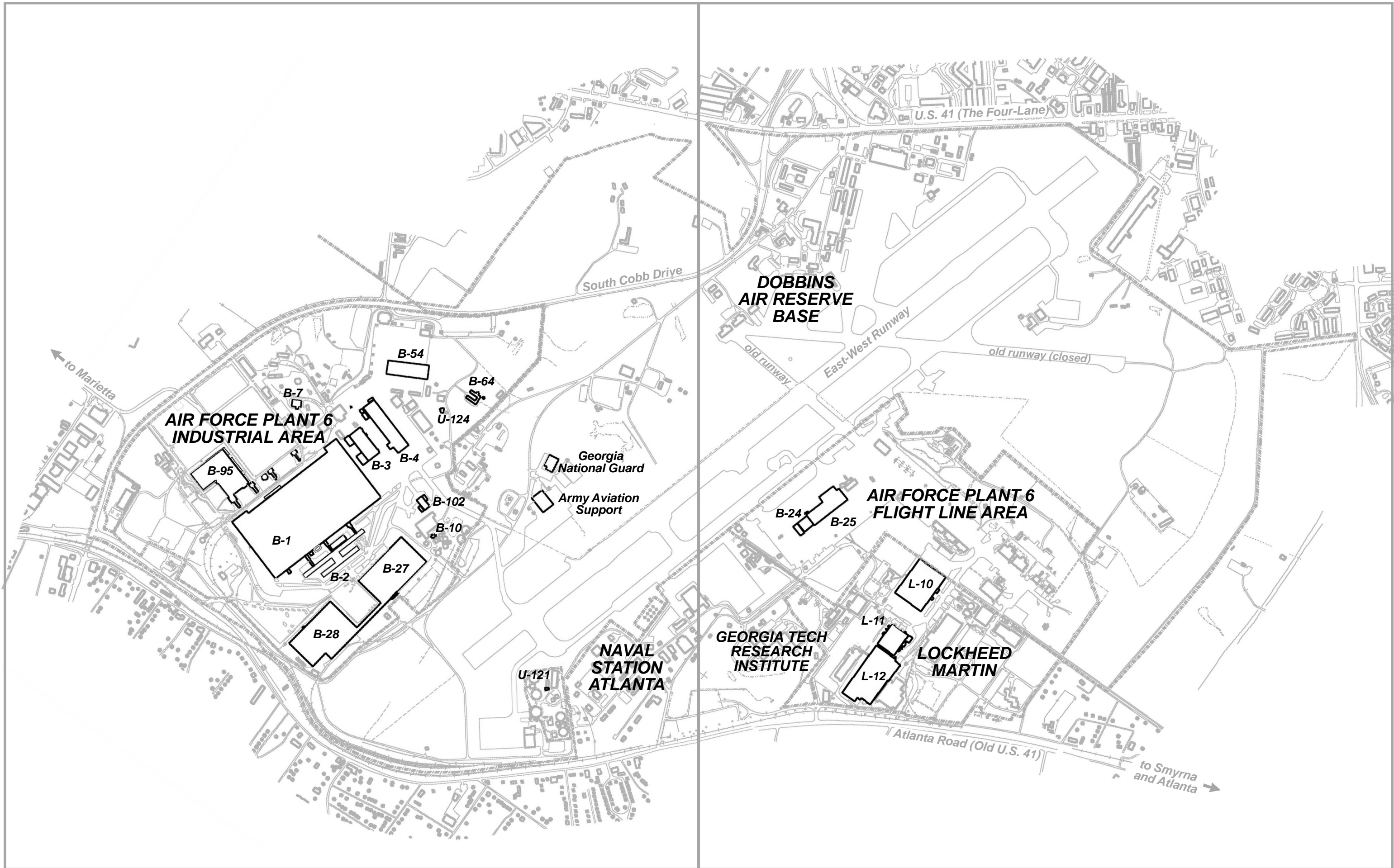
Recounting the entire history of Air Force Plant 6 would take volumes, but this work is intended for a general audience and hits the highlights of this fascinating story so that even readers with only a passing interest in aviation, the military, or Marietta can appreciate it. It is generously illustrated with pictures from Lockheed Martin's communications department, chosen with an eye toward capturing the many facets of the operation and the many extraordinary people—most not well known outside the industry—who made the whole operation possible. The book is arranged chronologically, with special topics and profiles of employees who worked at Air Force Plant 6 covered in sidebars throughout the book.

Many thanks are due to Frank Tokarsky of the Air Force's Acquisition Environmental, Safety, and Health Division at Wright-Patterson Air Force Base, Ohio, who guided the project along and provided his comments on the drafts. Elizabeth Shirk and Steven Moffson of the Georgia Historic Preservation Division also provided valuable guidance and comments.

Mr. Jeff Rhodes and the staff of Lockheed Martin Aeronautics Company's Communications Office were very gracious in sharing their space, materials, and copier for two weeks. Rita King and the staff of the photographic archives at Lockheed Martin processed over 100 negatives from their vast collection into digital files so that they could be included here.

Thanks also go to Dr. Tom Scott of Kennesaw State University, whose research on Air Force Plant 6 and interviews with former employees there provided much of the background material for this book. Dennis Edwards of the Lockheed Martin Aeronautics Company's Facilities Department, Bruce Ramo at Dobbins Air Reserve Base, and Dorothy Allen from the Defense Contract Management Agency's security office also provided valuable assistance.

The research and writing of this book were conducted and completed by TRC Garrow Associates, Inc., in Atlanta, Georgia. The project was managed by Metcalf & Eddy in Wakefield, Massachusetts, under their Worldwide Planning, Program, and Design contract (4P A-E) with the Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas.



**AIR FORCE PLANT 6
INDUSTRIAL AREA**

**DOBBINS
AIR RESERVE
BASE**

**AIR FORCE PLANT 6
FLIGHT LINE AREA**

**LOCKHEED
MARTIN**

**NAVAL
STATION
ATLANTA**

**GEORGIA TECH
RESEARCH
INSTITUTE**

Georgia
National Guard

Army Aviation
Support

to Marietta

to Smyrna
and Atlanta

U.S. 41 (The Four-Lane)

South Cobb Drive

old runway (closed)

East-West Runway

Atlanta Road (Old U.S. 41)

B-54

B-64

U-124

B-7

B-3

B-4

B-95

B-102

B-10

B-1

B-2

B-27

B-28

U-121

B-24

B-25

L-10

L-11

L-12



B-29 Bombers on the ramp at Air Force Plant 6, ca. 1944.

CHAPTER ONE

Bell Bomber Plant Brings A “Torrent of Change” (1942–1946)

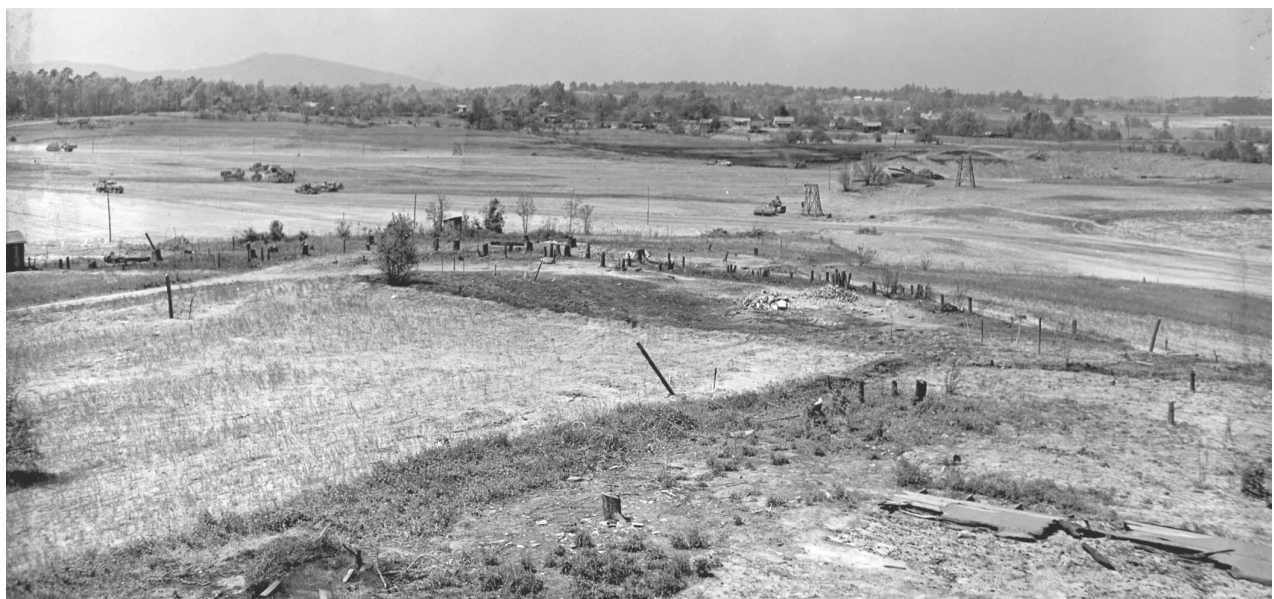
In the 1870s, as the South struggled to recover from the destruction of the Civil War and the graft and corruption of the subsequent Reconstruction government, political leaders and pundits were considering the future of the region. While cotton continued to be king throughout the former Confederate states, many commentators felt that a more diversified economy was essential to the long-term success of the South.

Beginning in the 1880s, the editor of the *Atlanta Constitution*, Henry Grady, popularized the idea of a South more in step with the industrialized North, with factories, improved transportation, and a more varied agricultural regime. Some industries did develop in the South, mostly based on the processing of raw materials, such as cotton into textiles and timber into furniture, barrels, and tool handles. But it was not until World War II that high-tech industries appeared in Georgia. The demand for manufactured products for the military and the need for large tracts of inexpensive land for training facilities led to massive government investment in the South.

On the eve of World War II, Cobb County was primarily agricultural, with a population of less than 40,000 people. About 9,000 of those lived in the county seat of Marietta, a small but vibrant town that boasted several nearby textile mills, the Brumby Chair Works, and a number of mercantile stores. Most

farms in the surrounding county were of moderate size and were operated primarily by families and occasionally hired labor. Once the lifeblood of the county, cotton was in decline as a result of the Depression and the boll weevil, an insect pest that attacked the balls of cotton. Corn and livestock had become the major products of the county, and many farm families were finding it more and more difficult to survive, much less prosper, from agriculture.

Although Southerners disdained government welfare programs, the realities of the Depression had shifted public opinion in many cases. Local politicians were becoming more comfortable with the process of pursuing federal projects and funding that could benefit their counties. Three men who rose to prominence during the late 1930s in Cobb County were particularly adept at this type of self-promotion—County Attorney James V. Carmichael, Mayor Leon M. “Rip” Blair, and Sheriff and later Commissioner of Roads and Revenues George H. McMillan. With the aid of Marietta native Major Lucius D. Clay, who was appointed to a key position in the Army Corps of Engineers in 1939, this triumvirate of progressive-minded public servants worked tirelessly from their respective offices, first to secure a major airport for their county, and subsequently to insure the selection of the airport as the



Site of Air Force Plant 6 and Dobbins Air Reserve Base prior to construction, ca. 1942.

site of the largest manufacturing facility that the state had ever seen—the Bell bomber plant. The changes brought by the plant and the associated air base would change the social and economic character of Cobb County forever and begin its transformation from a simple, agrarian society to a complex, urban one.

Local Leaders Land a Big Prize

An Atlanta Chamber of Commerce meeting, attended by a delegation of officials from Cobb County in the fall of 1940, was the trigger that set in motion an amazing chain of events. The city of Atlanta had developed Candler Field, later to become Hartsfield International Airport, on the south side of the city. It had quickly become one of the busiest airports in the Southeast. To handle overflow and emergency traffic, the city felt that secondary airfields located around Atlanta would be cost effective and beneficial for the region. They encouraged Cobb County to pursue federal funding for such a facility from the Civil Aeronautics Administration (CAA), which was overseeing a program of emergency airfield construction in anticipation of the United States' possible entry into the war in Europe.

Marietta Mayor Rip Blair was a part of the Cobb delegation, and he was enthusiastic about the project. He quickly put together a team to travel to Washington to stump for the airport, unaware that Lucius Clay had recently been appointed to the approval board for construction at the CAA. When he spied the Marietta native's nameplate in the halls of the Pentagon, he rushed into his office and was given a promise that Clay would push for an airfield in Cobb County.

Blair returned to Marietta and immediately enlisted the support of the Atlanta Chamber of Commerce, civil engineers at Georgia Tech, and his own staff in pursuing the project. Then-Commissioner of Roads and Revenues Charles M. Head sent a resolution of the Cobb County Commissioners to the CAA declaring the county's intention to purchase the land for the airport and to provide the funding necessary for its continued maintenance.

County Attorney James Carmichael secured options on three possible sites, with the most promising being a large parcel just south of Marietta that could accommodate the long runways necessary for the largest civilian and military aircraft of the time. Most of the landowners took the county's offer for their land, but there were a few holdouts, including one 90-year-old man. The efforts of Carmichael and Blair to convince residents of the importance of the new project helped persuade

some of the reluctant ones. In the end, condemnation proceedings were carried out on only a few properties.

Atlanta Mayor William B. Hartsfield and Georgia Tech professor Montgomery Knight also lobbied for the project, endorsing the Marietta site as an ideal second airport site for Atlanta's growing north side suburbs, as well as a potential site for an aircraft manufacturing facility.

Major Clay shepherded the project through the bureaucratic process in Washington, advising Mayor Blair along the way. In May 1941, the CAA approved the Cobb County Airport project, and surveyors began work at the site. The airport would provide commercial service, as well as act as an auxiliary field for the U.S. Navy. The president of Eastern Airlines, World War I ace Eddie Rickenbacker, promised \$5,000 for the right to use the field, along with \$25 for each plane that landed there. As thanks for the upfront investment in the airport, county officials agreed to name the facility Rickenbacker Field.

As construction proceeded on Rickenbacker Field during the summer of 1941, the future of the site continued to remain in limbo. The increasing likelihood of U.S. involvement in World War II had given urgency to efforts to establish military and industrial facilities throughout the country. Although the American public had been wary of entangling the country in the affairs of Europe, President Franklin D. Roosevelt had recognized that the U.S. might become involved and would be severely disadvantaged by not having the weapons and supplies necessary for mobilization. In 1940, he reorganized the Reconstruction Finance Corporation (RFC) to facilitate the development of the war industries. The RFC created the Defense Plant Corporation, which financed the construction of manufacturing plants throughout the United States to fill military orders.

Because start-up costs for production of items like aircraft, steel parts, machine tools, and synthetic rubber were high, and military orders were likely to be temporary, private industry could not invest the capital needed to meet the demand. Therefore, the Defense Plant Corporation constructed the manufacturing facilities and leased them to industrial companies. More than \$9 billion was spent on 2,300 projects in 46 states and overseas. These projects included everything from pipelines and mines to the manufacture of precision parts for engines and instruments. The head start provided by this investment in the defense industries greatly reduced the time required for the United States to mobilize for war after Pearl Harbor.

The aircraft industry was one of the primary beneficiaries of Defense Plant Corporation spending, with about half of the money going to aviation-related industries. In May 1940, Roosevelt announced that he wanted 50,000 planes added to the U.S. military's inventory, a goal that would require a significant investment by the federal government. Aircraft engines were built at Ford Company and other automobile plants, and airframe manufacturers geared up for the massive effort by searching for sites throughout the country for new plants. By the end of 1940, a year before the U.S. entered World War II, construction had begun on bomber plants operated by Boeing in Wichita, Kansas, by Consolidated Aircraft in Fort Worth, Texas, by Douglas Aircraft in Tulsa, Oklahoma, and many others. When war was finally declared, the plants were beginning to turn out finished B-24 Liberators and other aircraft for the war effort.

The Cobb County airport site was eyed as a possible location for a munitions plant, an army supply depot, and an army airfield during this time, but Cobb County and Atlanta Chamber of Commerce leaders had their sights set on an aircraft manufacturing plant. In September 1941, the Atlanta Chamber of Commerce wrote to Glenn McLaughlin of the National Resources Planning Board in Washington, D.C., touting the benefits of the Cobb County airport site for just such a facility.

The Chamber's letter noted the availability of utilities, transportation facilities (including the Nashville, Chattanooga & St. Louis Railroad, the recently four-laned U.S. Highway 41, and a streetcar line between Atlanta and Marietta), and the availability of inexpensive labor from the surrounding area. The letter cited a Georgia Unemployment Service figure of approximately 26,700 people registered as unemployed in the Atlanta area. Training in the industrial arts was already underway in Atlanta and Marietta under programs instituted by the National Youth Administration, a New Deal program. It is worth noting that the Chamber emphasized that the labor was of the "better class" of workers of "Anglo-Saxon" stock, regarded as "ideal" for factory labor. The large pool of African-American labor was not considered as a potential source of skilled labor for such a factory.

The military importance of Rickenbacker Field increased dramatically with the Japanese attack on Pearl Harbor on December 7, 1941. The flurry of activity and the movement of men and materials that followed the attack can scarcely be conceived of today. Marietta's airport promoters—Blair, Carmichael, and McMillan (who took over as Commissioner of Roads and Revenues after the death of

Charles Head in April 1941)—had been hard at work in the fall of the year negotiating with the CAA, the Army, and the Navy to get the most possible use out of the large site they had acquired for the airport. In October, they had received additional funds from the Navy to extend the runways, and the Navy had continued to eye the site for a possible training field.

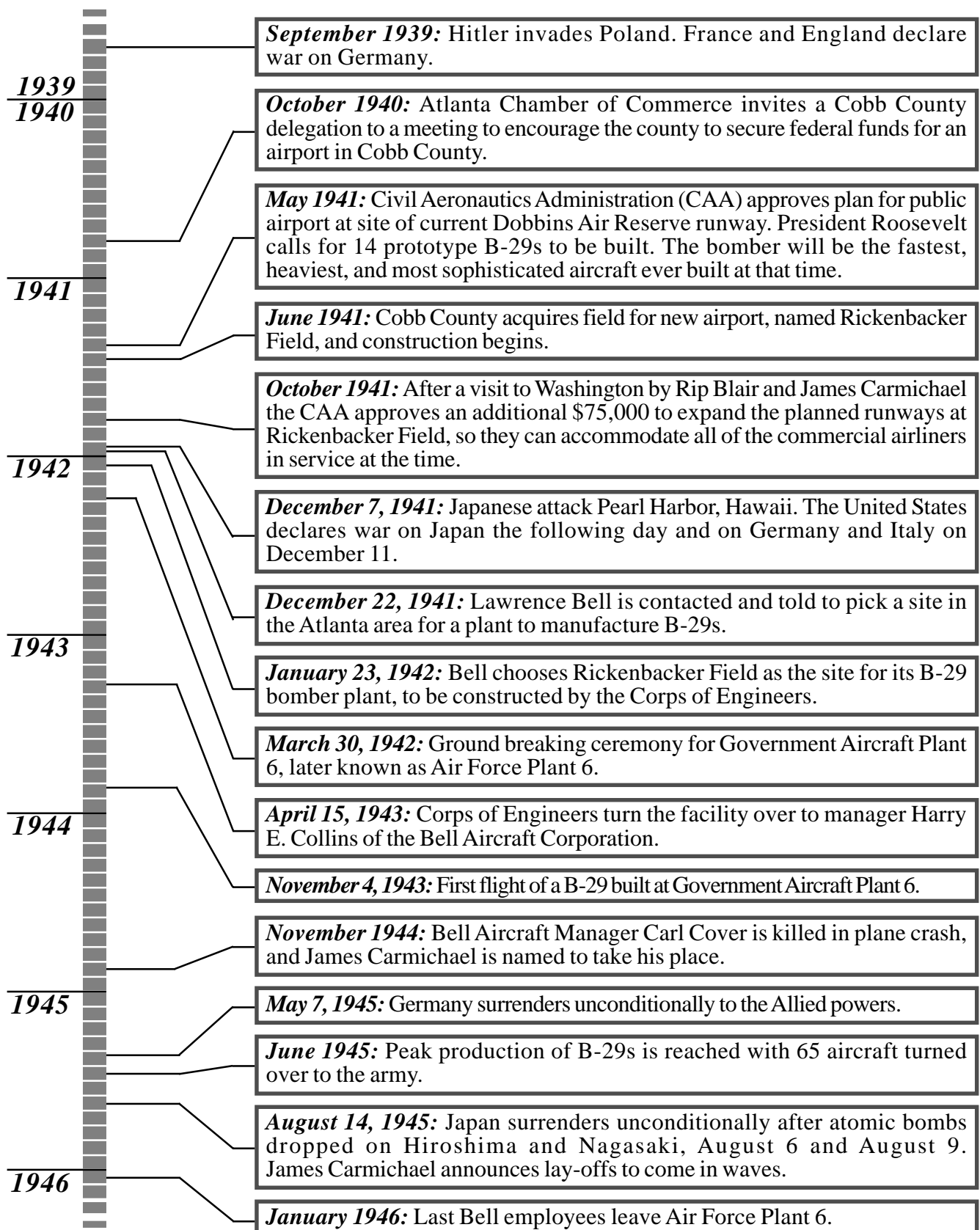
Cobb County officials were aware that the Army, which at the time oversaw military aviation, was seeking a site for a large aircraft manufacturing plant to produce the B-29 bomber, then being developed by Boeing. The long-range heavy bomber, dubbed the Superfortress, would be the fastest, heaviest aircraft in the world, as well as one of the most sophisticated in terms of equipment and design. In May 1941, President Roosevelt decided that long-range bombers were critical to the nation's military capabilities and in June ordered 14 YB-29s, "service test" versions of the prototype XB-29 that had yet to make its first flight. Despite the untested nature of the B-29, the president's endorsement indicated that the plane would eventually be put into service. To turn out the hundreds or thousands of planes that would be necessary would require a massive plant and equally massive work force. Cobb County hoped to provide both.

Carmichael, Blair, and McMillan worked ceaselessly through December 1941 and January 1942 to secure a bomber plant for the Cobb County airport site. Living on "Coke and cigarettes," as Blair recalled later, the officials fought off a last-minute claim on the airfield by the Navy, which would have hampered the potential of the site as a manufacturing and testing site for the Army.

On December 22, 1941, Larry Bell was informed that his company, Bell Aircraft Corporation, would be one of the producers of the Boeing-designed B-29, under a cooperative agreement among several aeronautics companies. The massive undertaking was too large for any one company, so B-29s were to be built for the Army Air Force by Boeing, General Motors (through its Fisher Body division), Bell Aircraft, and North American. North American was later dropped from the project and the Glenn L. Martin Company replaced General Motors.

Bell Aircraft, a small manufacturer based in Buffalo, New York, had only about 2,000 employees and was mainly involved in the production of the 2-ton, 1,200-horsepower, single-engine pursuit plane, the P-39 Airacobra. It was anticipated that the Bell bomber plant would employ 20,000 people to turn out a 62-ton bomber with four, 2,200-horsepower engines, and a 141-foot wingspan.

Key Events of the Bell Aircraft Era at Air Force Plant 6



The Army ordered Bell to select a site in the Atlanta, Georgia, area, where it would operate a plant to be constructed and owned by the federal government. In early January 1942, two Bell vice presidents and company lawyer William J. O'Connor came to Atlanta to scope out sites. Although they were considering sites as far away as Gainesville and Griffin, when Carmichael, Blair, and McMillan took the Bell executives to the nearly completed Rickenbacker Field, O'Connor reportedly needed to look no further. "This looks good right here," he declared.

Impressed with the capabilities of Marietta's leadership, O'Connor announced on January 23 that Bell had chosen the Marietta site. In February the Army officially approved the site selection. In March the Corps of Engineers surveyors arrived at the site to take over the construction begun by the CAA, and in May the Army Air Force took possession of Rickenbacker Field and the surrounding land for military purposes. The entire property would be part of a U.S. reservation that would include an Army Air Field and the assembly plant. The Air Force would maintain a small cantonment of hangars and support buildings at the east end of the runways, while the assembly plant would be located in the northwest part of the site at the opposite end of the runway. The Air Force facility was designated Cobb County Army Airfield, and soon after changed to Marietta Army Air Field. Its mission was solely to serve as the flight facility for the bomber plant.

The U.S. Army Corps of Engineers would oversee the overall project, with the Atlanta architectural firm of Robert &

Company hired to design and supervise the construction of the assembly plant. It would take the efforts of over 100 contractors working around the clock for a little over a year to complete the largest aircraft assembly plant under one roof in the world, along with a 200,000 square-foot administration building, and all the other support buildings necessary to turn out the B-29.

The announcement that Marietta had been selected for the bomber plant was met with mixed emotions by the citizens of Cobb County. Although most were excited about the opportunities and prosperity that the plant promised, others were skeptical of the claims of its proponents and fearful of the changes that would accompany it.

The opponents were concerned that the development would attract unsavory elements—criminals, hucksters, saloons, and slums. People from outside of Georgia, and especially those from outside of the South, were considered "foreigners." Would these people share the same values and have the same respect for the community? Locals also suspected that the plant offered no long-term benefits. The county would have to invest in housing, schools, and infrastructure such as roads, sewers, and water supply to accommodate the influx of people, only to have the plant abandon the town when the war was over.

Larry Bell, however, promised to be a good corporate citizen in the county and town, and assured the local populace that he was committed to a long-term occupation of the plant, even after wartime contracts were filled. He quickly hired the well-liked James Carmichael and Rip Blair as counsel for the company's Marietta division, and he worked with local



Rip Blair, Jimmy Carmichael, and George McMillan (center, from right of the man in uniform) inspect the initial construction of Government Aircraft Plant 6, March 1942.

contractors as much as possible. Blair tackled the task of providing services, housing, and schools for the massive influx of workers with characteristic doggedness. In time, the massive payroll at the plant benefited all aspects of Marietta.

An editorial in the *Cobb County Times* predicted that “our quiet, peaceful ‘aristocratic’ little city” would experience a “torrent of change,” but that longtime residents should welcome the newcomers into their churches, clubs, and dances, to ensure that they became a part of the social fabric of the community. Otis Brumby, publisher of the *Cobb County Times*, likewise endorsed the project, saying that it would “mean great things to many who have never expected anything much out of life.” It was, concluded the *Times*, no less than the “nucleus of a new order.”

Building the Bomber Plant

The requirements of the bomber plant demanded significant engineering feats. The main building is 2,000 feet long by 1,024 feet wide and four-and-a-half stories tall. It was reported that the building could house the cotton crop of the

entire country, or store 20 battleships, with room between for 69 submarines and 24 PT boats.

Large spans between interior supports were needed to accommodate the wingspan of the B-29. To support the roof over the 300-foot span of the main assembly bay, a web-like steel superstructure was required. In all, approximately 32,000 tons of structural steel were needed. As the war effort ramped up, shortages of steel hampered the construction schedule.

Army officials were at first reluctant to locate the plant so close to the coast, as it was feared that it might be vulnerable to enemy attack with the bombers then in use by the Axis powers. The advantages of the site, however—transportation networks, availability of labor, favorable climate—outweighed the concerns. To prevent nighttime bombing raids, the plant was constructed as a “blackout facility,” meaning that it would have no windows so that it could operate at night without giving away its position. As a result, the main assembly building would need a ventilation system capable of moving nearly 4 million cubic feet of air per minute. The railroad bay, where supply trains pulled into the building for loading and unloading, had a separate system that removed dust and smoke from the air.



The main assembly building (B-1) under construction, November 1942.

The hot Georgia summers presented another problem. Because the B-29 was to be constructed at separate plants using subassemblies supplied by a number of different contractors, the materials needed to be kept at a fairly consistent temperature to prevent excessive warping, expansion, and contraction. All the planes had to be identical, so that they could be serviced using the same equipment and parts. Therefore, the assembly plant needed to be air-conditioned, a feature rarely found at the time in buildings in the South, save for first-rate movie theaters.

To maintain a constant temperature inside the building, the walls were well insulated with more than 2 inches of glass wool insulation covered with corrugated asbestos siding. Steel shortages during the war meant that the roof had to be constructed of wood. It was later replaced with tar and gravel.

The air conditioning system was made up of 99 units on the roof. The “tunnels” under the assembly floor were not air-

conditioned, but were kept comfortable with a ventilation system that used 14 fans moving over 2 million cubic feet of air per minute. While the air-conditioning system in the assembly area may have been able to keep the temperature steady within one degree throughout the building, it apparently took some time to bring the system up to speed. The company newspaper, the *Bell Aircraft News*, reported in October 1943, about seven months after the opening of the plant, that the heating, ventilating, and air-conditioning systems were complete with respect to installation, but adjustments were still necessary. Sockwell Company of Atlanta installed the heating, air-conditioning, plumbing, and waste treatment systems.

To provide adequate light for the building, some 72,000 fluorescent lights were installed on the ceiling. The lights had to be constantly replaced by a team of workers that used the catwalks in the top of the building. According to one



Main assembly building (B-1) at Air Force Plant 6. This view, taken shortly after completion in 1943, is of the southeast corner of the building, showing the high-roof of the main assembly bay, the hangar doors, and the entrance to Tunnel 5 (lower left). Manufacturing activities were conducted on the ground floor and the two mezzanine sections. The basement contained cafeterias, locker rooms, offices, tool cribs, and room for temperature control and air compressing machines. The tunnels in the basement were used by motor vehicles and for employees entering or leaving the building through head houses located near the parking lot on the north side of the factory.



Administration building (B-2), May 1943. Note the walkways leading to B-1.



Building B-4 showing large hangar doors and flight control building in front, May 1943 (note B-3 in background left).

maintenance man, the crew would work their way from one end of the building to the other, then would start all over, as other lights would need replacing by the time they got to the end. Another interesting feature of the building was the floor, which was composed of wooden blocks. They provided a softer surface for long hours of standing and could be easily removed to install lines and hoses when work areas were reconfigured.

Before construction of the actual building could even begin, the five tunnels that housed many of the support functions of the assembly floor above had to be excavated and workers had to pour the concrete walls and support footings. This task was done so quickly that in many cases the dirt inside the walls was not fully excavated. Once the walls were poured, the large, heavy equipment could not get back in to remove the dirt, so mules from local farms were employed to haul out the dirt.

Rain created other problems during the grading and excavating of the site. Mud bogged down the carry-alls that were used to move dirt, and excavated areas filled with water.

Although Bethlehem Steel fell behind on its orders, government officials recognized the importance of completing the plant and managed to secure the necessary materials. The first steel support was erected September 1, 1942, and by the end of the year the framework was nearly completed. Construction photographs show the massive scale of the building, which dwarfs the workers on the ground.

The plant was ready for occupancy in the spring of 1943, but employees recall that work began even before the roof of the plant had been finished. "I could look up and see the stars," said Harold Mintz of working the night shift at that time. When it rained, "[i]t rained in."

On April 15, 1943, the Corps of Engineers officially turned the plant over to Bell Aircraft Corporation, presenting Harry Collins, the first plant manager, with a ceremonial key. Omer Woodson, an experienced manufacturing manager, replaced Collins in June.

The completed facility, first known as Government Aircraft Plant 6 and later Air Force Plant 6, included the main assembly building (B-1), an administrative building (B-2), a paint shop (B-3), a final assembly and clean-up building (B-4), and other ancillary buildings totaling over 4 million square feet. It was the largest industrial facility south of the Mason-Dixon line and twice the size of Bell's Niagara, New York, plant. The four main buildings and several others are now part of the designated historic district at what is now Air Force Plant 6. Other buildings constructed during this initial phase

included the Dead Storage Building (B-6), the steam plant (B-7), the Industrial Waste and Hot Etch Building (B-10), the Gas Station (B-21), the Sewage Control Building (U-121), and the Water Pumping Station (U-124).

Putting People to Work

Even as construction proceeded on the plant, Bell Aircraft Corporation was busy hiring and training workers to fill the plant once it was completed. About 150 Bell employees from the Buffalo facility were sent to Marietta to begin setting up the structure and workforce needed to run the plant. An employment office was established in the Rhodes-Haverty Building in downtown Atlanta to process the applications and interview prospective employees. Later, a separate building at Government Aircraft Plant 6 was used as an employment office.

Many of those seeking work at the plant came from the rural areas of North Georgia. Although they had no experience building planes, these farmers and mechanics were quick learners, having worked on machines of all sorts on their farms or in small shops. Assembly line workers needed to be trained to do certain tasks, but most did the same thing all day. Despite the long hours and tedious work, many Georgia residents jumped at the chance to work at Bell. The promise of jobs paying 60 cents an hour for 60 hours a week encouraged people from throughout the state to apply at the Bell employment offices.

Some applicants were immediately assigned to jobs, while others were sent for training at the Bell plant in Buffalo, New York, at the department training office in Atlanta, or at the Rickenbacker Training School in Marietta, established in November 1942 while the plant was still under construction. In March 1943, most of the company's 1,200 employees moved into the partially completed facility.

For the majority of these employees, factory work was a new experience. Many were illiterate and had to sign their checks with a mark. Few had ever used a time clock, but it only took a week or so to get into the routine. The employees of the gunnery department in early 1944 included a former shoe salesman, printer, civil service worker, wholesale grocer, and power company lineman. A company newspaper article joked that the only gun most of these workers had experience with was a squirrel gun.

While certainly not strangers to hard work, most had worked independently or in small companies in their former jobs, and the bureaucratic structure of such a large

operation was foreign to them. The situation was made worse by the fact that many of the supervisors were Yankees, who in some cases were condescending to the Southerners they took to be ignorant. The locals did not take to being told by Northerners the best way to do something when they knew an alternative.

Unions. Working with unions was also new to most Southern workers. Unions had never gained a strong foothold in the South, with the exception of a few industries, and most workers regarded them with suspicion. However, Bell's policy was consistent with the National Labor Relations Act in permitting collective bargaining with unions through their elected representatives. The company warned supervisors not to discriminate against employees who expressed interest in the union.

The International Association of Machinists (IAM), an affiliate of the American Federation of Labor, recruited Bell workers in the February 15, 1943, issue of its newsletter, *Aircraft Bulletin*. It claimed to represent 300,000 aircraft workers in 8,000 plants, and noted that many of the Bell employees were likely to be new to the industry and needed representation. The issue of the newsletter is among the papers of Bell's legal counsel at the time, James Carmichael.

Little coverage was given to union issues in the company newspaper. In the early months of operation, workers evidently chose to be represented by the United Auto Workers (UAW) of the Congress of Industrial Organizations. Discontent over what employees considered low pay and inadequate supervision by Bell managers led 500 workers to quit in June of 1943. An article in the *Bell Aircraft News* in February 1944 reported on an upcoming vote on union representation between the IAM and the UAW. Former Bell employees, most of them in management positions, recall that negotiations were ongoing with union representatives and that most issues were worked out with little trouble.

Housing, schools, and childcare. Housing was a pressing issue for Marietta, as many of the employees at Bell who had

commuted from Atlanta or outlying areas sought more convenient housing near the plant. Even before the plant was completed, plans were under way for over 2,000 housing units in Marietta. An October 1943 special "Bombers for Victory" edition of the *Cobb County Times* featured advertisements for a number of new apartments and housing developments in and around Marietta.

One of the largest of these was Marietta Place around Fairground and Clay streets. Five hundred units were constructed there by Hardin & Ramsey, an Atlanta contracting company. The apartments were typically one-bedroom units grouped in four- to eight-unit buildings.

A more upscale project was Westpark, "The Subdivision in the Trees," located adjacent to the Marietta Country Club. The single-family homes featured Westinghouse electric ranges, Cold Spot refrigerators, and built-in cabinets. Unlike some of the "cookie cutter" housing projects for Bell workers, the Westpark developers touted the "variation of architectural design and landscape planting."

Company representatives and local officials assured residents that schools and day care facilities would be available for workers at Bell. In late August 1943, the city reported that new elementary schools and day nurseries would open that year. It does not appear that Bell offered childcare on premises, but Marietta Place had a 24-hour childcare facility for the



Workers on a B-29 subassembly, ca. 1945. Many workers at Bell were women and elderly men since most young men were serving in the military.

children of Bell Aircraft Company employees in one of its community service buildings. The federal government funded the center, and the Marietta school system oversaw its operation. Other childcare facilities may have been funded by Bell or the federal government for the benefit of Bell workers.

In November 1943, the *Bell Aircraft News* reported that counselors were available to discuss childcare issues with employees. The company, however, provided little direct assistance. It was merely collecting data for Cobb County to assist them in allocating county funds and to help them acquire federal funds for schools and day care facilities.

African-American workers were less likely to find subsidized daycare than their white coworkers. Ernestine Slade did not recall that Bell offered day care. She quit her job there just before her third child was born. She coordinated with her husband and her mother to care for her two children while she was working the night shift at the plant. She put the children to bed in the evening and went in to work, then helped them get ready for school in the morning when she came home.

A New Kind of Labor Force

The large labor supply that had influenced the choice of Marietta for the site of the plant at the start of the war had declined sharply by the fall of 1943, as many young men enlisted in the armed forces or found work in other industries. A federal report on war industry manpower in September 1943 stated that the entire Southeast region was essentially at full employment. Yet the Bell plant expected to need 10,000 to 20,000 more workers. The problem was further complicated by the fact that the War Labor Board controlled wages in the aircraft industry and were reluctant to increase pay rates out of fear of inflation. The board did approve a wage increase for second and third shift workers in September 1943.

Federal officials determined that a public relations campaign with an emphasis on the importance of the plant to winning the war was necessary to encourage more people to work at Bell.

The recruiting effort appears to have worked. The company hired nearly 3,400 people in November 1943, and by the end of 1944 there were 17,200 workers at the facility. To an extent, the recruiting campaign worked too well. Bell was hiring workers in anticipation of producing 40 planes per month starting in June 1944. Because of a number of delays, however, it was not until December that production reached that level. As a result, there were reports that workers were idle at the

plant, or were made to look busy when there were inspectors or visitors around.

Women a Major Force at Bell. A major part of the recruitment effort in the fall of 1943 was to recruit women in large numbers. In fact, nationwide, women were being called upon to fill the jobs left behind by young men entering the service. It was during World War II that “Rosie the Riveter” became a national icon.

Although it was estimated at one time that 50 percent to 60 percent of the work force at Bell would be comprised of women, the total was about a third in October 1944, increasing to 37 percent by the beginning of 1945.

The women who came to work at Bell had varying circumstances. Many were recently married and had husbands overseas or working in other parts of the country. Others were young, single women who saw an opportunity to make some money and gain experience while waiting for the eligible bachelors to return home from overseas service. Ruth Asbell Ivey, who was in secretarial school in the Athens area, recalls that her friend from school had simply said, “Let’s go to Atlanta and get a job with Bell Aircraft,” so they got on a bus to Atlanta and applied.

Older women with grown children also signed up for work. One of the most interesting employees in that category was the 81-year-old widow of Confederate General James Longstreet. Although she had to be assigned to her own work table to avoid delaying the assembly line, she reported in a local newspaper that she worked “nine hours at night, every minute on my feet, building B-29’s, without which, the ghastly war in which we are engaged, cannot be won.” It was this spirit that the company hoped to tap into in order to meet the production schedule of its contract with the Army Air Force.

Women were employed in a variety of capacities at the Bell bomber plant, including the operation of heavy machinery and the production of drawings and technical documents. Pauline Dobson and Clara Griffith were both working in the machine shop in June 1943. Alin Hobbs worked as a draftsman.

Edith Shelley became the plant’s first female crane operator as detailed in a November 1943 story in the *Bell Aircraft News*. At least one other woman worked as a crane operator at Bell. Frances West originally worked at another job, but when she saw the overhead cranes at work, she begged her supervisor to let her do the job. Although initially faced with skepticism from the men, the women showed great proficiency at moving the parts of the airplane’s subassemblies around the building.



"Rosie the Riveter" in a clearly posed photograph, ca. 1952. Note wooden block floor.

Although it was unusual at the time for women to work in manual labor jobs, it was not unheard of, and the needs of the war seemed to have largely stifled the objections of traditionalists who feared the changes that might come from having women in the workforce. Perhaps, too, it was expected that at the war's end, the women would return to their traditional roles in the home.

Along with these more specialized jobs, thousands of women worked as riveters, countersinkers, and finishers on the assembly line, or in clerical jobs such as blueprint control, secretarial work, record keeping, and accounting.

While women could be found throughout the plant, they were rarely in supervisory roles, particularly over men. It seems that if the women could be told what to do and then could do it competently, the men were satisfied, but they had less patience with being bossed by a woman.

Betty Williams, who came from working at the Republic aircraft factory in Evansville, Indiana, to work on the assembly line, became the supervisor of a crew of a dozen to two dozen workers. Some of the workers were men, who resented her position.

"I had three strikes against me to start with," she recalls. "I didn't know I was a Yankee until I got here. I was much younger than they. The men would have a wife and three or four kids. There I would be, 18 years old. They didn't care for that. If a new job came in, they'd hand me some new blue prints to check. I would have to prove by doing. I couldn't just tell them, well, let's do this this way. I would have to actually do it to show them that I knew how before they would do it."

In retrospect, the women who worked at the plant were not only proud of their contribution to the war effort, but saw the whole experience as one that changed their personal lives as well as society for the better. "I think it was very good for women," said Ruth Asbell Ivey, who became a supervisor of the secretarial pool, "that women... were given the opportunity for a lot of different types of jobs. Not only the kind that I had, but the ones for women who worked in the plant at... physical labor jobs."

African Americans Shunted Aside. One potential source of labor was under utilized—African Americans. Cobb County had a relatively small black population, but large numbers of African Americans had migrated to Atlanta during the Depression looking for work. Southern industries had remained steadfastly segregated during this era of Jim Crow laws, however, and most white Southerners were not willing to work alongside blacks.

As a major supplier of the military, Bell Aircraft was required to comply with President Roosevelt's Executive Order 8802 of 1941 prohibiting discrimination in the defense industry based on "race, creed, color, or national origin." The order also established the Fair Employment Practices Committee (FEPC) to oversee the provisions of the order.

Aware of the potential trouble that would come from integrating the plant, Bell Aircraft fell back on the need to adhere to "local values," including the "peculiarities of temperament of Southern workers" regarding segregation of African-American workers. A number of complaints were filed with the FEPC in Atlanta, but the agency had little power to make Bell comply. At the time, the war effort was paramount, and Roosevelt was unwilling to push the issue too hard.

Unskilled labor was needed at the plant, however, and African Americans were hired as janitors, cooks, and laborers in the Roads and Grounds Department. The opportunity to work at Bell was an attractive one for many of the area's black laborers. Ernestine Slade, an African-American woman who worked the night shift in B-1 cleaning and finishing parts, made about 33 dollars a week, compared to the 10 dollars or so a week she made working as a domestic for white families in Marietta. She had to travel to the Atlanta employment office of Bell to apply, however, because the local white families put pressure on the employment office in Marietta not to hire away their help.

Except when servicing work areas used by whites, African-American workers were segregated from their white co-workers in all respects. Blacks had a separate cafeteria in B-1, as well as separate restrooms and water fountains. A poster advertising Bell Aircraft Family Day at the plant in July 1945 noted that "colored" visitation hours were from 9 a.m. to 10 a.m., while white visitors could come anytime between 10 a.m. and 6 p.m.

There were approximately 1,500 African-American workers at the plant in August 1944. This number increased to over 2,000 in January 1945, before falling back to 1,785 by May 1945. This amounted to less than 10 percent of the workforce, and about half the percentage of African Americans in the total population of Cobb County. With their small numbers and segregated status, African Americans were nearly invisible at the plant. Several white former employees did not recall seeing African Americans at all during their tenure at Bell, at least not in their department.

Bell officials insist that they handled the racial situation as well as can be expected. They negotiated with black leaders

and organizations including the National Association for the Advancement of Colored People and the Atlanta Urban League. However, they did not concede ground easily. Jimmy Carmichael, legal counsel for the company, had political ambitions, and while a progressive Democrat on issues such as government programs and encouraging industrial development, he was a practical man and could not appear to support desegregation in Georgia. He made no apologies for the segregationist policy at Bell, but at the same time, he did not want to draw attention to the situation or have it get out of hand.

This approach is well illustrated by the company's response to efforts to train blacks for skilled positions in aircraft manufacture. In 1942, federal money was made available to establish aircraft training programs in the Atlanta area to increase the pool of qualified workers for the Bell bomber plant. Although it was a stipulation of the grant that the schools accept black applicants, initially, they were rejected. Without the training, African Americans had no chance to get a skilled job.

The Atlanta Urban League created the Council of Defense Training to protest the discrimination, collecting the signatures of 5,000 African Americans who were interested in enrolling in the programs. Under pressure from the FEPC to provide the training, the city established a separate training school for blacks at Booker T. Washington High School.

Still, when the graduates of the school applied for jobs at Bell, they were assigned the same jobs given unskilled workers. For example, Sarah Madison, who filed a complaint with the FEPC, took eight weeks of training in riveting, fabrication, and blueprinting, but was hired as a janitor. Through the efforts of the Atlanta Urban League, which went to Bell to protest the practice, Bell agreed to take over the school, improve the equipment, and pay the trainees.

Bell hired 800 graduates of the program, but apparently ceased hiring after reaching this unstated quota. The workers were assigned to segregated areas of the assembly plant and in separate buildings, one of which was about a mile from the plant. An article in the *Bell Aircraft News* of August 1944 praised the work of about 250 blacks employed in metal fabrication, presumably graduates of the training program.

Handicapped workers. Bell was more accommodating in the area of employing handicapped workers. This posture may be attributed in part to the fact that James Carmichael suffered permanent injuries from being hit by an automobile when he was in high school that required him to use canes and occasionally a wheelchair to get around. An elevator was installed in B-2 so that Carmichael could get to his second-



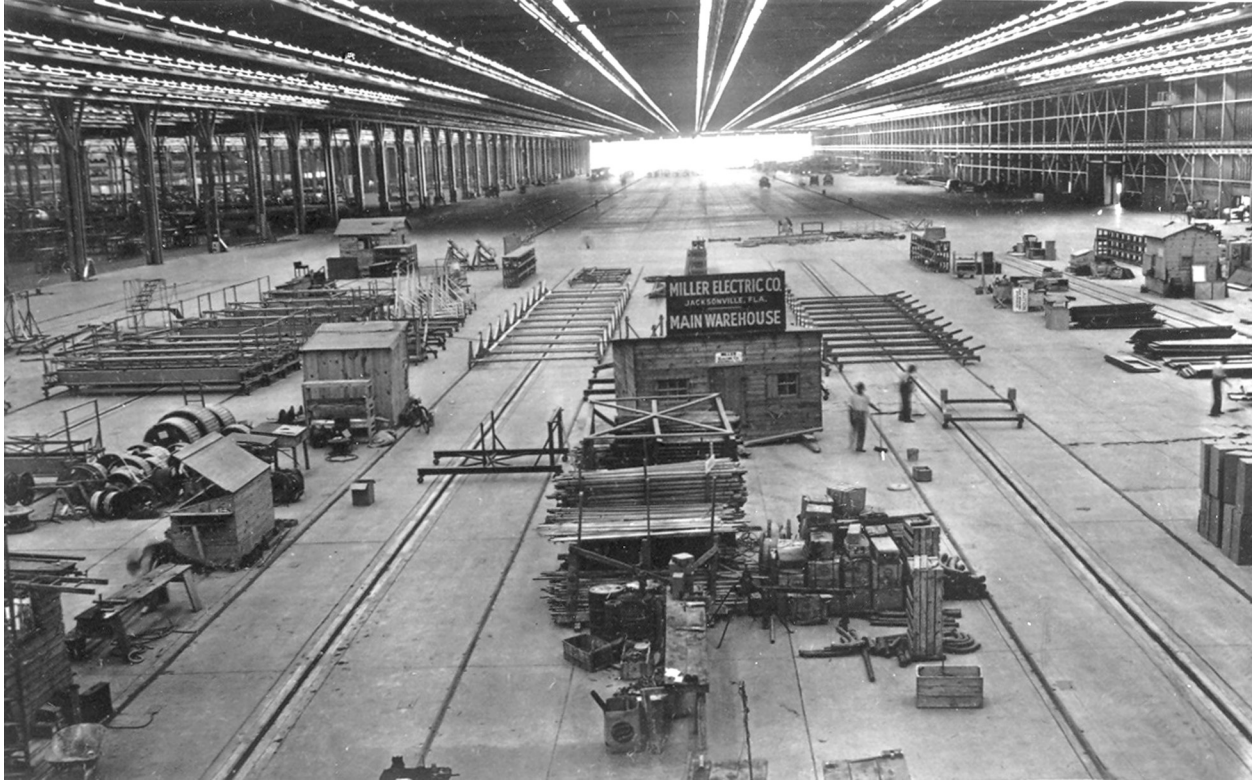
Kaiser Whitener (right), hired for his ability to fit in small spaces, talks to plant visitors, ca. 1945.

floor office. After the war, Carmichael stated proudly that the company had employed some 1,700 handicapped persons, including blind workers who sorted rivets recovered from the assembly plant floor by size and other features using machines and their hands.

One of the more interesting special hires were small adults, who were needed to work in the tight spaces in the fuselage of the B-29. The *Bell Aircraft News* announced in August 1943 that they were looking for “true midgets with slender hips and shoulders” referring to proportional dwarves, or those without skeletal dysplasias. The employment office had already been canvassing carnivals, sideshows, and circuses for such workers for this “important operation.” Brothers Kaiser and Robert Whitener, both of small stature, were among those hired for the work.

Building the B-29

Bell Aircraft had set an ambitious schedule for turning out the B-29. The first planes were supposed to be delivered in September 1943, but it was clear by the fall of 1942 that the building would not even be finished until spring of the next year. The first Bell employees were sent down from Buffalo in



Tooling up for B-29 production in July 1943. Much of the building was still empty at this point, and the first plane would not be completed for five more months.



B-29 machine shop and subassembly area inside B-1, ca. 1944.

December 1942, and by February there were approximately 1,200 employees on the payroll, ready to move into the plant when it was completed. In March, the plant was considered 86 percent finished.

It was not until July 1943 that production was even underway at Government Aircraft Plant 6. The delay was not entirely the fault of Bell. The design for the B-29 was in a constant state of flux, with changes being made on the fly and modifications made to already completed models to maintain consistency in the fleet. Boeing's Wichita plant did not deliver the first production ships to the Army Air Force until about the time that production was beginning in Marietta. Bell engineers, who had been developing the tooling equipment for the B-29, did not see the first completed model until July 1943, when a test model XB-29 landed at the recently completed runways at Marietta Army Air Field, as it was then designated.

The project engineers from Bell were first located in downtown Atlanta, then moved to a wing of the administration building. Since Boeing did all the design work, these young engineers, many of them graduates of Georgia Tech, mostly dealt with small changes that were related to assembly. These “engineering deviations” were carefully logged so that any variations from the standard design would be incorporated into the plane’s service record.

“We were doing no design work at all,” said Thomas Bockman, an electrical engineer at the plant. “We corrected mistakes, taking care of little flaws where they had numbered the wires wrong. The connectors were not the right size. They didn’t fit... That sort of thing.”

Mr. Bockman was an engineer, but like most of the engineers at Bell, much of the work he was doing was blueprint work and drafting. “You couldn’t get an engineer today to go to work as a draftsman,” Bockman said. “[But] that was the job that was open... All the graduates that came out of Tech at that time, even the aeronautical [engineers], were all hired as draftsmen.”

The B-29 required thousands of different blueprints, and any changes in these had to be made to all of the sets

available. This kept the Blueprint Control department busy tracking the changes and making sure that every set of prints was updated. The process was further complicated by the fact that the engineers used a technique known as loft engineering to produce full-scale blueprints that were converted to templates in the shop. The templates were then used to fabricate the parts that were assembled into the B-29. This process was more time consuming than fabricating from scaled drawings, but produced more consistent products and made it easier to train workers, traits important to Bell since it was working with inexperienced workers.

Even those who had worked in aircraft construction before were at a disadvantage with the B-29, since none had yet been built when these workers were brought on. Fabricators and machinists studied blueprints from Boeing to learn all that they could, then set to work building the jigs, setting up the tooling and dies, and producing prototype parts to guide the assembly of the first models. Prior to the B-29, most aircraft assembly was done by hand, with each part being fabricated one at a time and assembled to produce each plane. To meet the huge demand, however, the B-29 was to be manufactured



Roll out of the first B-29, November 1943. With jigs and tooling still being developed, the first few aircraft were constructed largely by hand.

using an assembly line model, similar to that used by automobile manufacturers.

The many modifications necessary to the design slowed the set up of the production lines. In order to get the first planes out the door, the early models were generally constructed by hand in the old manner. Marietta also began to take delivery of parts from the Wichita plant, rather than produce their own. This actually created further problems when parts were found to be incompatible. Bell complained that Boeing was not being cooperative in supplying them with the necessary details of the plane because they feared the competition from the other companies in the future market for large aircraft production.

The delays aggravated the Army Air Force, which sought to cut Bell's production quotas and shift important supplies and materials elsewhere. They also pressured Bell to abandon the loft engineering process. But Bell executives lobbied hard to stick to the established methods and schedule for fear that more changes would threaten the entire operation.

The effort paid off and Bell delivered its first B-29 to the Army in November 1943, several months behind its initial production target, but ahead of the December date agreed upon in contract modifications. Still there were significant problems to overcome. Assembly line production was still nearly a year away. Only 14 planes were completed over the next four months, all of them built by hand, with many parts coming from other factories. The Army Air Force had agreed to allow the first 29 units to be built without making ongoing design changes, which meant that these planes had to be frequently returned for modifications. A report by the Army Air Force's Office of Flying Safety stated that the Bell-built B-29s were "far below the standards required for aircraft used in combat." Despite this assessment, it should be noted that every plane produced at the Marietta plant was test flown by Bell and the Army Air Force without a crash, and all were accepted for delivery.

Managing the Bell bomber plant was more than a full-time job, requiring being on call 24 hours a day. Omer Woodson held the job during the difficult tooling-up period. The pressures of the job apparently became too much for him, and he left in August 1944, just as production was beginning to meet its quotas.

Woodson was replaced with Carl Cover, a former test pilot and manager at Douglas Aircraft, who was then serving as a colonel in the Army Air Force. Unfortunately, however, Cover's tenure was cut short in November 1944 when the plane he was piloting to a meeting at Wright Field in Dayton, Ohio, crashed, killing him and another top employee, Max Stupar.

Jimmy Carmichael, who had been serving as assistant manager of the plant since July 1944, was named the new manager. Although relatively young for such a job, Carmichael already had experience in politics, business, contracting, and legal affairs. He was well-liked and inspired confidence, and perhaps of equal importance, he was a native of Marietta. Larry Bell told Carmichael that he was pleased that a Southerner was now in charge of the operation. "This is how it should be," he wrote in letter, "and I am sure the future will prove it so."

Carmichael proved to be a capable manager. He quickly learned the lingo of the engineers and machinists involved in the B-29 production and trusted the department managers to handle the technical issues that he did not understand. He took charge only when there were delays or problems, seeking out the source of the problem and working out a solution. Even before becoming the manager of the plant, Carmichael was frequently found on the floor of the assembly building, talking to line workers, guiding guests around the plant, or urging employees to purchase government savings bonds to support the war effort.

The production process was far more complex than simply assembling a box full of parts to create a finished plane. Although it was primarily an assembly plant, significant amounts of fabrication were carried out at Government Aircraft Plant 6. The fabrication shop produced the framework and the skin for the fuselage, which were pieced together in the main subassembly bay in B-1. Parts for the nose cone, center wing assembly, and tail gunner's section were also fabricated and assembled at the plant. The wing sections, tail, and engines came from other facilities and were shipped to Marietta via railroad. The sidetracks led directly into a covered area that was part of B-1, although separated by a brick wall from the main assembly area. A truck loading dock was also located in the northeast corner of the building.

Even with many of the parts already assembled, the job was extremely complicated, since the B-29 was by far the most sophisticated airplane constructed to date. It required over 40,000 parts and was held together with more than one million rivets. Each rivet required the work of two people to sink, with the riveter on one side and the "bucker" on the other. The two had to work together, and because of the noise in the plant, they communicated by radio headsets.

The complex electrical systems included miles of wires all marked with different codes to identify them. Since the plane was assembled in sections (nose, midsection, bomber

James Vinson Carmichael

James Vinson “Jimmie” Carmichael was a central figure in the development and operation of Bell Aircraft’s Marietta plant and later Lockheed Aircraft Corporation’s Georgia Division. As county attorney for Cobb County, he was instrumental in the process of securing land for an airport for the county that later became Dobbins Air Reserve Base, as well as having the foresight to acquire enough land for industrial and military operations that might be carried out there. When the Army Air Force expressed interest in locating an aircraft manufacturing facility in the Atlanta area, Carmichael worked with county officials, the Atlanta Chamber of Commerce, and the military to make Air Force Plant 6 a reality.

Carmichael was the son of a farmer and merchant who operated a store in the Log Cabin community of Cobb County near Smyrna. The Atlanta Northern Railway’s trolley line ran past the store, and he rode the trolley to Marietta High School. Just before his sixteenth birthday, Carmichael was running across the road to catch the trolley when he was struck by a car and dragged down the road, severely damaging his spinal cord and nearly taking his life. He spent a year at home

rehabilitating and was eventually able to walk short distances using a cane. At Bell, a special lift was installed in the B-2 administration building to carry him to his second floor office. Carmichael took his handicap in stride, never letting it stand in the way of his goals, and he took great pride in the record of Bell in hiring handicapped workers.

Carmichael was a gifted speaker and storyteller, and he was a natural leader. He graduated from Emory Law School in Atlanta in 1933 and immediately opened a practice in Marietta. In 1936, he ran for a seat in the Georgia Legislature without opposition and served two terms. There he aligned himself with progressive Democrats like Ellis Arnall, who opposed the anti-urban, provincialism of then-Governor Eugene Talmadge. Carmichael led an investigation into graft and corruption in the state government and inspired a younger generation of legislators to support increased government involvement in education, health, and internal improvements.

In 1940 Carmichael retired from the Legislature to resume his legal career. He continued to be involved in politics, stumping for Ellis Arnall and helping him to be elected Georgia’s youngest governor in 1942. In that same year, Carmichael and his law partner, Marietta Mayor Rip Blair, joined forces with Cobb County Commissioner George H. McMillan to bring the Bell bomber plant to Marietta.

Carmichael was appointed legal counsel for Bell’s Marietta plant almost immediately, and played a vital role in smoothing out difficulties that arose in the process of building, staffing, and operating the plant. He was frequently on the floor of the plant, guiding visitors around, encouraging his employees, and getting first-hand information on problems on the assembly line. In the summer of 1944, he was appointed assistant manager of the plant, then became manager in December after the death of Carl Cover.



James Vinson Carmichael

Production at Bell ran like clockwork under Carmichael, and he won praise from military officials for the work done there. By the summer of 1945, his name was being mentioned as a potential candidate for governor, since a change in the state constitution prevented Arnall from running again. When the plant closed down in 1945, Carmichael returned to his law practice, but was drawn into the governor's race by his friend Arnall, who was determined to prevent Talmadge from regaining power. In an election twist similar to the presidential election of 2000, Carmichael won the popular vote, but was defeated by Georgia's equivalent of the Electoral College, the county unit system, which gave the rural counties more power in the election.

Carmichael returned to the business world in 1946, becoming an assistant to the president of Scripto, Inc., the Georgia-based makers of writing instruments. In 1947, he became president of the company. Under Carmichael, Scripto expanded overseas and became the world's largest supplier of mechanical writing instruments, accounting for more than 70 percent of the mechanical pencils in the world.

When Lockheed was chosen in 1951 to reopen Air Force Plant 6 to refurbish B-29s and begin production of the B-47, Carmichael was a natural choice to return as plant manager. He took a leave of absence from Scripto to oversee the startup. After a year, he returned to Scripto and was replaced by Dan Haughton at Lockheed. Carmichael continued to serve on the board of directors at Lockheed until his death in 1972.

Throughout his life, Carmichael was involved in civic affairs, social clubs, and philanthropic endeavors. He donated his services as a consultant to the Department of the Army during the Korean War, and served on a number of government committees. He was a trustee of Emory University, president of its alumni association, president of the Cobb County Red Cross, secretary of the Blue Ridge Bar Association, and president of the Marietta Kiwanis Club. He was also a member of the board of the Atlanta Art Association and the Atlanta Music Festival Association.

Carmichael's life was dedicated to expanding opportunities for those in the South that were willing to take advantage of them. In a speech to the graduating class of Emory in 1950, he decried the "despicable KKK [and] the ravings of our demagogic politicians," which stood in the way of efforts to raise the South's economic, educational, and cultural position in the nation. He called on Georgia to develop a first-rate education system with a nationally recognized graduate program, to fund the art, literature and music, and to raise the standard of living throughout the region by increasing the numbers of professionals and skilled workers. "Let us assume full responsibility for our actions, and let us not be afraid to set ambitious goals which, when achieved, will make us the equal of our fellow-man throughout the Nation and the World," he said. The graduates that day could certainly look to James Carmichael as an example of how to live by those words.

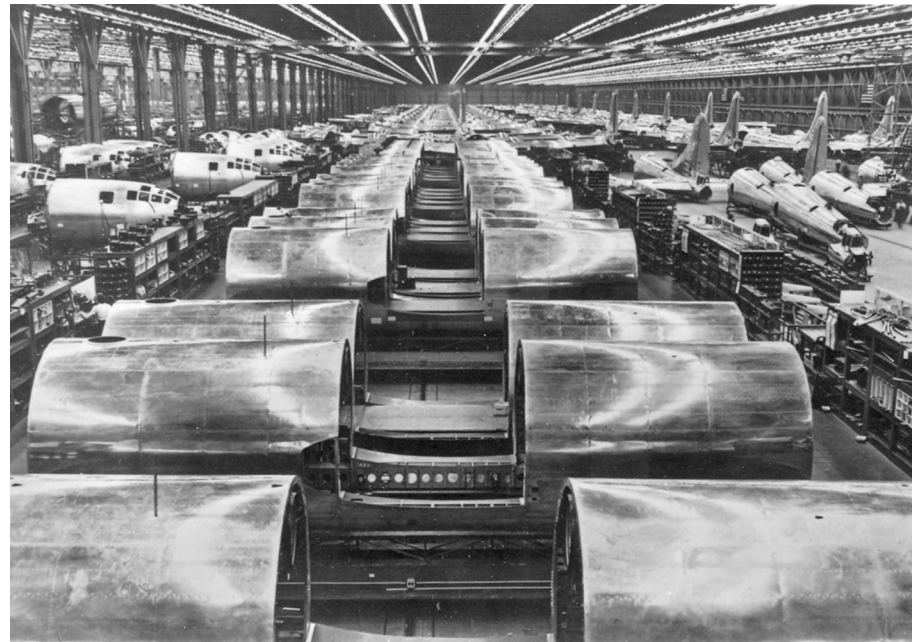


Jimmy Carmichael (center) and future Lockheed president, Dan Haughton (right), talking with an employee in the early days of Lockheed's Georgia Division, ca. 1951.

bays, tail section), the wires were assembled in “harnesses” that grouped the wires together and connected them to plugs that were joined when the sections were brought together. This work was usually done by women, since it required dexterous fingers.

The different sections were assembled in their own subassembly area, each of which had its own department number: 38 for the wing section, 41 for the nose section, and so on. Within these departments were different sections, so people were identified by their department/section number, such as 41-05.

As the sections of the plane were completed, they were then carried to the main assembly line by overhead cranes, capable of lifting up to 10 tons. The Wright R-3350 engines

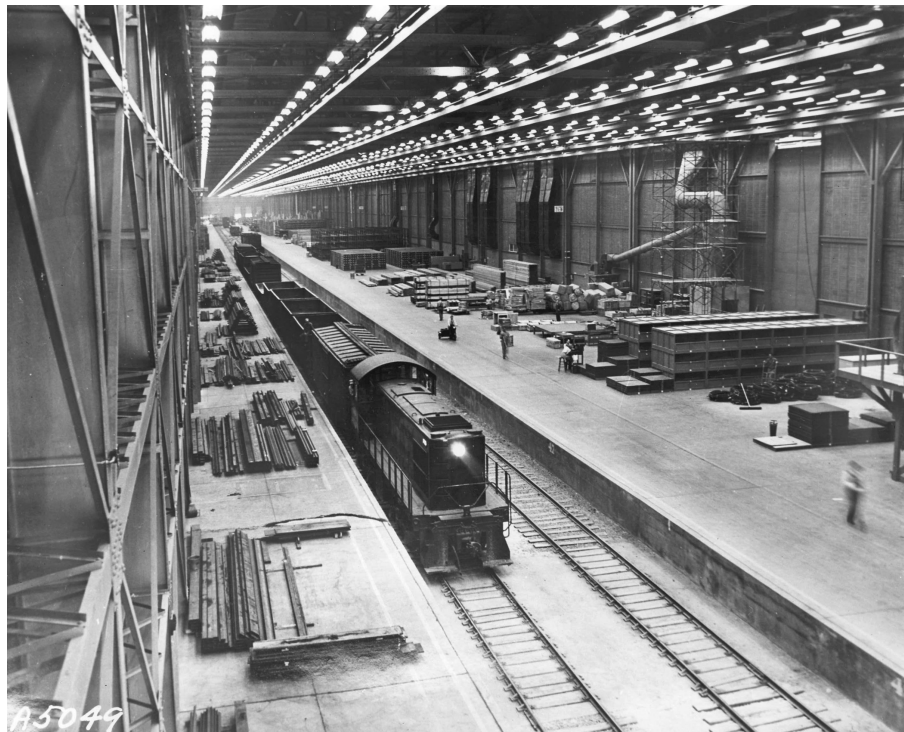


Subassembly production of the B-29, ca. 1943. The nose sections can be seen to the left. The fuselage sections are in the middle. The gap is where the wings will go. The tail sections are to the right.

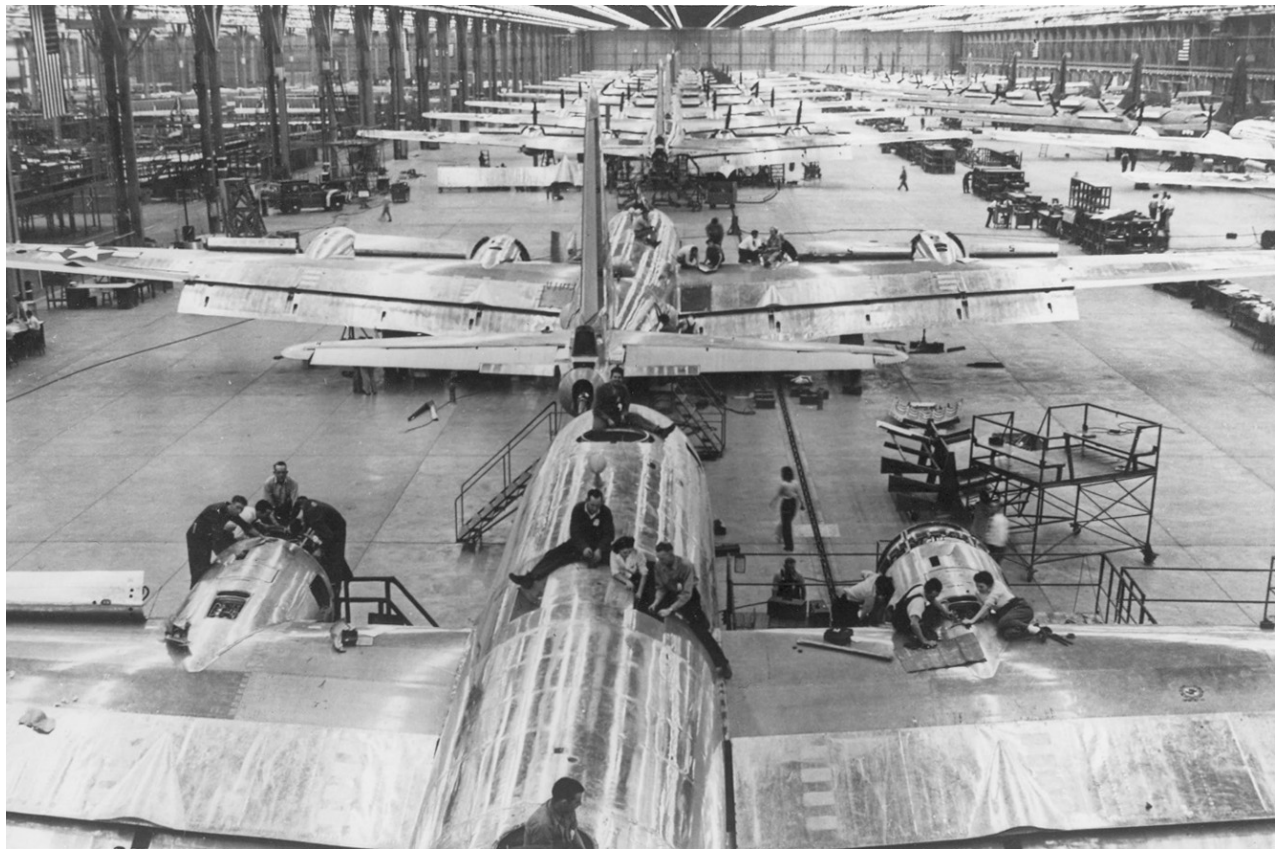
were delivered already assembled, but these had to be incorporated into the nacelles, the pod-shaped structure that

housed the engine, then attached to the plane. The landing gear, wing assemblies, electronics, pressure seals, doors, and interior equipment all had to be added on the main assembly line. As each part of the process was completed, the plane was inched forward toward the giant doors at the east end of the building where it was “rolled out” and across the tarmac to the paint shop (B-3).

Once spot paint and decals were applied (the aircraft were mostly left natural metal), the plane moved to the final assembly building (B-4), where it was inspected in painstaking detail, first by Bell and then by the Army Air Force. If there were problems, these had to be worked out on the spot and the details



The railroad bay on the north side of the building brought raw materials and parts for the B-29 into B-1, which were then distributed to the assembly areas, ca. 1951.



Two side-by-side lines of B-29s in final assembly in the B-1 main assembly bay, ca. 1945.



Newly completed B-29 aircraft are serviced on the tarmac outside the paint shop (B-3, in background), ca. 1944.

noted in the plane's record. If all checked out, an Army Air Force pilot flew the plane to its destination. The Army Air Force maintained a flight wing at Marietta Army Air Field for that purpose.

By the fall of 1944, the production lines were in full operation and B-29s began to roll out the 300-foot-wide by 45-foot-high hangar door at the east end of the building at a rate of about one per day.

Bell had fine-tuned the assembly process to the point that the cost of each plane continued to drop, so Carmichael moved the contract with the government back to a fixed cost per plane arrangement and encouraged the work force to step up its production to improve the bottom line. The approach worked, and by June 1945, a record month for the plant, an average of more than two planes a day were accepted by the Army Air Force.

Working at Bell

Former Bell employees expressed a sense of camaraderie and accomplishment that came with working on such an important mission for the war. Often, crews on the production lines worked two shifts in a row if they were behind. Posters, mass meetings, and articles in the plant newspaper frequently reminded workers that their effort was for the soldiers overseas, who were giving up and risking more than they.

"They gave it their all," says Harold Mintz, a foreman who worked in several departments at Bell. "Because some of them had husbands that were fighting, they had brothers, they had daddies. They were giving everything they had. There was no holding back. That's how we were able to accomplish what we did."

Throughout the war, Bell employees tracked the record of their Marietta-built "ships," making heroes of the pilots who flew them and noting with pride their preference for Bell-built planes. One of the most popular pilots was Major Jack R. Millar, who flew the B-29 dubbed the "Georgia Peach" on missions in the Pacific. His exploits were detailed in the *Bell Aircraft News*, and a 1944 poster featuring Millar encouraged Bell workers to "serve the Axis more 'Peaches.'" In August 1944, Millar visited the plant where his plane was built. "Thumper," another Georgia-built B-29, visited the plant in August 1945. The nose of the plane was painted with 40 bombs to represent its missions, and 29 Japanese flags to represent each enemy plane destroyed by its gunners.

Not all of the employee activities were war related. Despite the long hours and lengthy commutes, workers found time to engage in a number of social and recreational diversions.

Among the earliest employee organizations was the Bell Aircraft Employees' Recreation Club, which sponsored sporting teams, musical entertainment, games, and social activities.

Bowling leagues, softball, baseball, and other team sports

were very popular. Several of the baseball players had been professional ball players at one time. M. H. "Sugar" Cain, a guard in the B-2 building parking lot, had pitched seven years in the majors for the Philadelphia Athletics, the St. Louis Browns, and the Chicago White Sox. He had been a manager for a year in Anniston, Alabama, before coming to the plant. He couldn't completely get rid of the bug, though, and when the Birmingham Barons were in town to play the Atlanta Crackers, he tried out for the team.

During lunch breaks, groups got together to sing songs, both secular and religious. Those with musical abilities entertained



Bell aircraft employees gather around a piano at lunchtime to sing, ca. 1945.

Bond Drives

The desire to help the war effort inspired more than just a strong work ethic at Bell. Employees contributed significant amounts of their paycheck to war bonds. A series of campaigns to encourage investment were met with participation rates that topped 95 percent on a regular basis. The average contribution was in the range of 10 percent of the total payroll. To marshal support, the company held rallies, invited war heroes and movie stars, and fostered good old-fashioned competition between departments and among other aircraft plants and companies involved in the war industry.

In September 1943, Miss B-29, Patricia Ruth Adams, and runner-up, June Blaxton, canvassed the plant during second shift to encourage workers to sign up for more savings bonds. Petty Officer Graham Jackson went along and accompanied them on the piano when they sang for the crowds. Annabella, the one-named French wife of Tyrone Power, and June Preisser, an actress and vaudeville star, were also on hand to drum up support.

The biggest star to stump for savings bonds at Bell was comedian Bob Hope, who performed on a stage set up in front of one of the B-29s. Unfortunately, Hope's appearance came just one day after the company learned of the death of its plant manager, Carl Cover, in an airplane crash. Hope's performance was more somber than usual due to the occasion, but he still managed to entertain the large crowd that gathered for the show.

Lockheed Aircraft continued the bond rallies after moving into Air Force Plant 6 in 1951. With the Air Force as its primary client, investment in savings bonds was seen as a way for employees to invest in the future of the company, as well as the future of the country. It also encouraged employees to invest in their own future. As with Bell, elaborate campaigns were launched periodically to sign up participants. These campaigns apparently worked because in 1954, Lockheed's Georgia Division set a peacetime record for participation among plants with more than 10,000 employees. More than 99 percent of employees at the Georgia Division elected for the savings bond payroll deduction.

Investment had slipped by 1958, and in that year, movie stars Douglas Fairbanks, Jr., and Anne Baxter were brought in to stump for the campaign. Lockheed's Georgia Division hoped to regain the top spot that it had lost to Lockheed's California Division the preceding year.

Posters urging employees to invest in U.S. Savings Bonds were a fixture at Lockheed's Marietta plant for many years. In 1968, the Georgia Division and its branch plants had a 99.7 percent participation rate, with many departments getting full participation.



Hollywood stars Ann Baxter and Douglas Fairbanks, Jr., visit Air Force Plant 6 for a bond drive, April 1958.

by playing the guitar, banjo, or other instruments to add to the fun. The recreation club supported this activity by purchasing pianos and hymnals for the participants to use. Ralph Thomas and Charlie Womack organized a quartet to sing during lunch. Word spread and others joined in. Soon there were 150 to 200 people gathering on the steps leading to Tunnel 2 to sing songs such as "When the Roll Is Called Up Yonder" and "Anywhere Is Home." One of the women who participated said that the gathering substituted for church services that had become hard to attend. She said, "By the time Sunday comes, so many chores have piled up at home that I hardly even get to

church anymore. I always send the children to Sunday School, but usually I stay home to catch up with things."

The recreation club also sponsored dances and dinners, such as the appearance of big band star Louis Prima at a special dance held at the Atlanta Municipal Auditorium in September 1944. The performance started with a salute to Bell workers that was broadcast on the radio as part of the Victory Parade of Spotlight Bands, then Prima and his orchestra played until 11:30 p.m. for the fall dance. A section of the auditorium was "set aside" for black workers who wished to attend. The second shift was treated to its own dance from 2:30–6:00 a.m., with

entertainment by bandleader Lang Thompson, who also happened to be an employee of the plant.

The Bell Era Comes to a Close

In the summer of 1945, Bell began to scale back its workforce in anticipation of the Japanese surrender, but the Superfortresses continued to be delivered to the Army Air Force at a rate of about 60 per month through July. In all, 668 B-29s from Marietta were put into service in the Pacific Theater. Although this number was considerably less than the two Boeing plants, it was more than was produced by the Martin Company in Omaha, and all the production was accomplished in just two-and-a-half years from groundbreaking for the plant. The sheer number of B-29s that were able to pound the Japanese was critical in the Allied victory, notwithstanding the two Superfortresses (both built by Martin at its Omaha, Nebraska, plant) that dropped the atomic bombs on Hiroshima and Nagasaki.

The last issue of the *Bell Aircraft News* was published on August 31, 1945, and a picture on the front page showed a box full of the 5,600 employee badges that had been collected. Some employees kept the color-coded badges as souvenirs. All were justifiably proud of the work that they had done and their contribution to the war effort.

A few employees stayed on at the plant into 1946, doing cleanup duty, finalizing records, and disposing of surplus equipment; then the huge facility was idled. Many other military sites around the country were sold as surplus after the war, but the government decided to hold onto the bomber plant and the associated airfield. The difficulty of finding a buyer for such a huge facility may have figured into the decision.

Although it must have been pretty quiet compared to the days when more than 28,000 people were at work there, the facility was not completely abandoned. The massive covered storage provided by B-1 was used to store large manufacturing machinery from Bell and other plants



Floor of B-1 building covered with surplus machinery from World War II, ca. 1951.

that were to be sold as surplus or scrapped. The Tumpane Company, which had similar operations around the world, oversaw this function. They were also charged with keeping the building in operating condition. George Carson, who had worked as a facilities engineer at Bell, worked in a similar capacity for Tumpane and hired many former Bell workers. In five years, the first officials of Lockheed to check out the plant would find the floor nearly covered with the equipment.

The assembly building also briefly housed a manufactured home company, while part of the B-2 administration building was occupied by the Veterans Administration after the war. The runways and the buildings associated with Marietta Army Air Field were used by three groups of the Georgia Air National Guard starting in 1946. In 1948, following the separation of the Air Force from the Army, the base became Marietta Air Force Base, with its primary mission being Air Force Reserve training. The 94th Bombardment Wing was established there in 1949. In 1950, it was renamed Dobbins Air Force Base in honor of Captain Charles Dobbins, a Marietta native and pilot shot down in World War II.

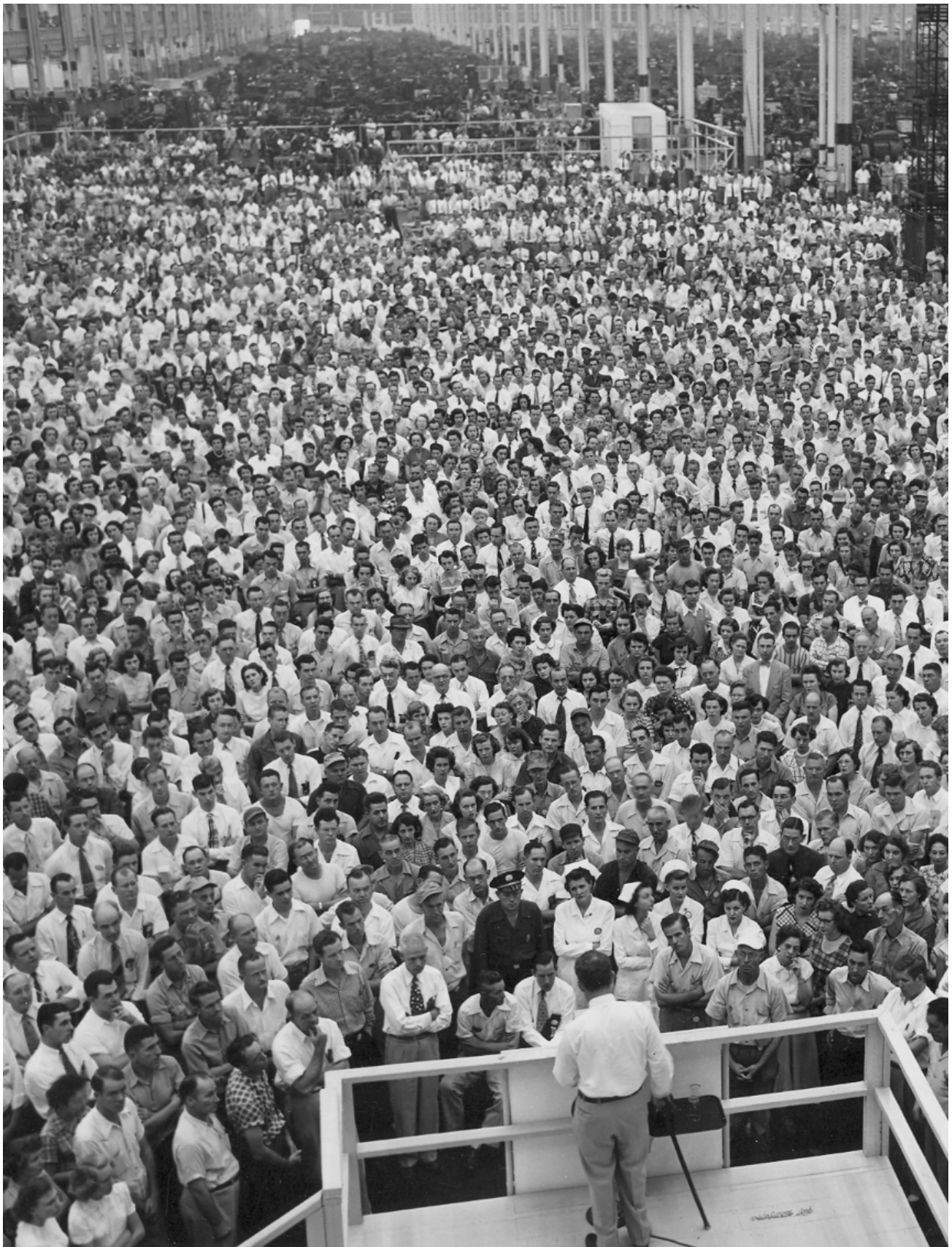
There were many skeptics at the beginning of the project who questioned if an endeavor as complicated as

producing hundreds of sophisticated aircraft could be carried out by Southern workers. Although there were bumps in the road, Mariettans and Georgians from all parts of the state had proven the skeptics wrong. The Bell bomber plant had been a success, and it is credited with providing more impetus for the development of the New South than hundreds of stump speeches and short-term efforts to bring manufacturing to the South. As plant manager James Carmichael pointed out to the *Atlanta Journal* in September 1945, Bell had given tens of thousands of Georgians skills that they did not have before and had left an “army of valuable workers as an invitation to progress.” Certainly Marietta and Cobb County would never be the same.

There remained, however, the problem of how to put the massive facility to use in peacetime. The Cold War with the Soviet Union would prove that the peace achieved in World War II was a fleeting one, and that Marietta would once again be called upon to serve its country by producing military aircraft to be used around the world in the cause of freedom.



Women working on an electrical assembly, ca. 1952.



Jimmy Carmichael addresses employees at the second all-plant assembly, September 1951.

CHAPTER TWO

A New Life for Government Aircraft Plant 6 (1946–1961)

Marietta Copes with the Loss of Bell

When the last workers left the Bell bomber plant in 1946, they must have felt that it would be a long time before such a facility was needed again. They had helped make the world “Safe for Democracy,” and most were more than happy to settle into normal lives.

With new skills and money from veterans programs, savings bonds, and long hours worked during the war, many former Bell employees found work in Marietta and the Atlanta metropolitan area. Former plant manager, Jimmy Carmichael, and his old law partner and Marietta mayor, Rip Blair, opened an aluminum furniture factory in the old Brumby Chair Works in Marietta to provide jobs for former aircraft workers. Bell Aircraft managers and engineers who had relocated to Marietta from Buffalo and the Midwest found the hospitality and the climate to their liking and decided not to move back north. They went to work for construction contractors, machine shops, automobile services, and companies supplying consumer goods to the more prosperous Southerners that were returning home from the war.

Although some former Bell workers struggled to find jobs that provided for them as well as Bell, the anticipated unemployment crisis did not materialize. Many of the women got married or returned to domestic duties and started families. Several small factories were established in Cobb County during or immediately after the war that provided jobs as well. In 1950, five years after the layoff of some 15,000 workers, the population of Marietta was still more than double what it had been before the war, and the population of Cobb County had increased more than 60 percent.

In order to keep up with this rapid growth, Cobb County officials pushed ahead with programs to pave roads, upgrade utility services, and build schools. These projects were financed primarily through bonds and revenue certificates issued against future receipts. In 1946 the county voters approved a program to pave over 100 miles of rural roads, and between 1946 and 1960, the county invested more than \$5 million into improving water and sewer infrastructure. The county school system before World War II was woefully underfinanced. In 1952, three new high schools opened in the

county. The Marietta school system added three new elementary schools in the 1950s.

Marietta Mayor Rip Blair had proved during the Bell years that he could manage city services to keep up with the increased demand, but his style had been old-fashioned. Marietta was still being run like a small town. The mayor wielded considerable power and worked through a network of trusted friends and associates to get things done. He could also be aggressive and combative with those who disagreed with him—in short, a politician in the “good ole boy” tradition. Marietta voters ousted him in 1947 in favor of Sam Welsch, a more retiring politician, who promised to appoint a city manager and adopt a more responsive, open government.

The Cold War Heats Up

As former Bell workers were settling into their peacetime lives, trouble loomed on the horizon. The Soviet Union had been an ally in the fight against totalitarianism, but it became clear even before the end of the war that the Soviet leadership had imperialistic designs of its own. The war on the Eastern Front had allowed the Soviet Union to set up communist governments in Eastern European countries, and in the settlement agreed to at the Potsdam Conference, they were able to maintain control of most of the territory that they occupied. In addition, they continued to undermine the governments of their weaker neighbors and attempted to establish Soviet-backed governments in those countries.

By 1947, President Truman and his advisors had concluded that U.S. security and economic interests were dependent on preventing the spread of communism. The Truman Doctrine, as it came to be known, was tested by the Berlin Crisis of 1948.

After World War II, control of Germany was divided among the four main Allied powers, with the U.S., France, Britain, and the Soviet Union each governing one of four zones. The capital of Berlin was within the Soviet controlled space, and was likewise divided. The Soviets had promised to allow access to the western part of the city, but by 1948, had completely cut off access, hoping to bring the entire city under communist rule.

With the U.S. and its allies unwilling to risk open warfare with the powerful Soviets by attempting to supply West Berlin over land through Soviet-controlled territory, Lt. General Albert Wedermeyer suggested an audacious plan to supply the besieged city by air. General Lucius Clay, who had helped guide the selection of Marietta as the site of Air Force Plant 6, was the military governor of the U.S. controlled portion of Germany and was skeptical that such an effort could be successful. Nevertheless, once it had been determined to attempt the Herculean task, Clay was instrumental in its success.

Heavily laden cargo planes landed in West Berlin at a rate of one every 3 minutes around the clock, and the Soviet Union finally acquiesced and allowed land access. The western part of the city remained under western control until the fall of the Berlin Wall in 1989. For his role in the Berlin Airlift, as well as for bringing the Bell bomber plant, Lucius Clay was honored with a parade in Marietta on May 26, 1949, which was declared Clay Day.

The airlift was a small victory, however, as the Soviet Union continued to support the spread of communism in other countries. In 1949, they detonated their first atomic bomb, setting up the long period of military buildup and diplomatic gamesmanship known as the Cold War.

Government Aircraft Plant 6 Gets a New Tenant

When communist troops from North Korea invaded South Korea, the U.S. was compelled to act to prevent the further spread of communism. With U.S. aid, the South Koreans were able to drive the North Korean army back, but the war became a stalemate when the Chinese came to the assistance of North Korea.

Among the units assigned to active duty in the Korean War was the 94th Bombardment Wing from Dobbins Air Force Base (AFB), which was equipped with Douglas B-26 Invaders. Dobbins AFB served primarily as a training site for the Georgia Air National Guard and Air Force Reserve during the war, and a number of new facilities were constructed at the base during that time. The Air Force served as host of the facility, providing flight support for the airfield, which was shared by Government Aircraft Plant 6, Dobbins AFB, and later, Atlanta Naval Air Station.

To carry out bombing raids in Korea, the Air Force (which was created as a separate military department in 1947)

needed to reactivate its bomber inventory. The B-47 Stratojet, a long-range, jet-powered bomber, was in the design stages at Boeing, but it would be some time before it would be operational. Although thousands of B-29s were built, many had been lost to accidents or had been severely damaged during their Pacific missions. The ones that could still fly had been shipped to the Pyote Air Force Station in Texas, where they were stored in the hot desert sun. Those that were in the worst condition were daily being scrapped for metal and parts. The dry climate discouraged rust, but it also dried out gaskets and left sand in the cracks and crevices. The Air Force decided to refurbish as many of these planes as possible and put them into service in Korea and the Far East.

Several companies and several sites were under consideration for this project, but eventually the nod went to Lockheed Aircraft Corporation of Burbank, California, which was to carry out the work at Government Aircraft Plant 6 in Marietta. Larry Bell was reportedly heartbroken at not getting the plant back for his company. The Air Force may have had questions about Bell's abilities after the shaky start during World War II, but Lockheed's experience with the B-17 during the war was more likely the reason for the choice. The B-17 was constructed under a joint agreement between Boeing, Douglas, and Lockheed's Vega Division. A similar arrangement was to be used for the production of Boeing's B-47, and Lockheed had a proven track record with such an arrangement.

It was announced on January 4, 1951, that Lockheed would be taking over operation of Government Aircraft Plant 6, with their first task to refurbish and update the B-29s for active service. They also hoped to eventually turn out new models built entirely in Marietta.

Lockheed Aircraft Corporation was founded by Allan and Malcolm Loughhead in 1913 when they built a seaplane in their garage in California. They renamed the company to a more phonetic spelling of their name to make it easier to pronounce, and later had their surname legally changed to Lockheed. The company went bankrupt in 1932 after a hostile takeover in 1929 and the Depression that immediately followed. The company was purchased at auction for \$40,000 by Robert Gross and a few associates. Gross turned the company around within a few years, developing the Electra series of planes that were used as commercial aircraft. A military version, the Hudson Bomber, was quickly developed on the eve of World War II, and the British ordered 200 of the planes, with a promise to buy up to 50 more if they could be delivered by December 1939. It was one of the largest aircraft orders to date and helped revive the company.

Jimmy Carmichael was lured away from Scripto Company to be the general manager of the plant, taking a leave of absence as president of the company. Although he was reluctant to take the job at first, he agreed when he was told by the Air Force that this would be the best way that he could serve his country. Because he had maintained many of his contacts from the Bell bomber days, he was able to hire back experienced personnel that had worked for him in those days.

Lockheed sent 150 of its Burbank employees to work under Carmichael at its new Georgia Division (also referred

to as GELAC). Daniel J. Haughton, an Alabama native who had joined Lockheed in the late 1930s, was appointed assistant general manager. He was a rigorous but respected manager and a close friend of Robert Gross' brother, Courtlandt. Another important member of the team was A. Carl Kotchian, assistant director of financial operations. Both Haughton and Kotchian were to play major roles in the future success of Lockheed.



Jimmy Carmichael (right) talks to two employees while Dan Haughton, Atlanta Alderman and Atlanta Aero Club President Jesse Draper, and Atlanta Mayor William B. Hartsfield look on, ca. 1952.

Before any work could begin, however, it was necessary to remove all the surplus machine tools that were then in storage at the plant. The military buildup that accompanied the Korean conflict created a demand for the machinery, which had been “pickled” in oil to prevent rust and other damage. The Tumpane Company began to pull the equipment from the floor of B-1 via the overhead cranes and carry it to a cleaning area

where it was prepared for shipment via rail and truck to companies that ordered it. Some of the machinery was selected by Lockheed to use in their B-29 refurbishing project. Two large warehouse buildings, designated B-27 and B-28, also were constructed by the Corps of Engineers to temporarily store the material until it was disposed of. The last machinery was cleared from the floor in early 1952—one year after the project began.

Even though the buildings were already in place, the task of reopening the plant was a massive one. Just as in 1943, employees needed to be hired,



B-27, Material and Fabrication Building, November 1986.

equipment purchased, neglected buildings and infrastructure remodeled or replaced, and tooling developed for the task at hand.

Remodeling and painting were done even as work got underway. In some departments, a scattering of desks occupied large expanses of unused space. A temporary employment office was also set up in Head House 1, with an office later set up in Atlanta as Bell had done, to process applications and interview prospective employees. Many former Bell employees left their jobs to return to work in the aircraft industry. Lockheed had access to the 70,000 employee personnel files accumulated by Bell. Those with previous experience with the B-29 moved quickly to supervisory roles, while new employees were enrolled in training classes at the



Desk workers in the Inspection Records Department go about their jobs while remodeling goes on around them in the mezzanine of the B-1 building, August 1951.



Workers in blueprint control just a few months after the plant reopening, May 1951. Notice the shuffleboard lines on the floor, probably left over from the Bell days.



A0150

Georgia Division's first employment office in Head House 1, January 1951.



A4578

Personnel Records File unit, December 1951. The records of about 70,000 Bell Aircraft employees, seen in the background, were available to Lockheed when it moved in.

plant or at other sites. By July 1951, as many as 2,000 people were applying each week at the Atlanta employment office. By the end of the first year there were 10,700 employees at the plant.

Lockheed Georgia Division Programs at Government Aircraft Plant 6 (1951–1961)

During its first decade of operation, Lockheed's Georgia Division moved from updating worn-out World War II prop-driven bombers to building the next generation of jet bombers and cargo aircraft for the Air Force. As its revenues increased, the company expanded into areas of nuclear research, experimental aircraft, and materials testing and development.

By the time President John F. Kennedy took office in January 1961, the Cold War had escalated into a nerve-racking battle of wills, and military spending had poured millions of dollars into the region, assuring a strong future for Marietta and Cobb County as a military-industrial center.

The B-29 Returns Home to Marietta

At the Pyote Air Force Station in Texas, Lockheed selected 120 planes for refurbishing, and after checking their systems and components for airworthiness, a team of pilots flew them back to Marietta one by one over the course of a year. The flights were often white-knuckle rides for the crews, as the engines frequently leaked oil or overheated, and it was necessary to land for emergency repairs. Eventually, the crews in Texas removed the old engines and shipped them via rail to Marietta, while temporary "slave" engines were put on the B-29s for the return flight.

Once on the ground in Marietta, the planes were cleaned off on the wash ramp and moved into B-1 to be dismantled. Individual parts from oxygen tanks to instrument panels were cleaned, inspected, repaired or replaced. Electronics and other equipment often needed to be updated with newer technology.

The first B-29 delivered to the plant, dubbed "Early Bird," was nearing completion by September 1951, and the last of the planes called for in the original contract with the Air



Refurbishing and updating a B-29 Superfortress, May 1951.

Force were completed a year later. A second contract for more modified B-29s kept that project moving until January 1953. The B-29 program provided invaluable training for the operatives at Government Aircraft Plant 6.

The B-47 Brings the Jet Age to Marietta

Almost immediately after Government Aircraft Plant 6 reopened, Lockheed announced that it would be manufacturing the B-47 Stratojet, a turbojet-powered medium range bomber. Like the B-29, the plane was designed by Boeing, but was to be built under a cooperative agreement with Boeing, Lockheed, and Douglas Aircraft Corporation.

The B-47 was about the same size as the B-29, but was heavier and could fly much higher and faster. This type of bomber was seen as critical to the Cold War strategic strike force. The six-engine, swept-wing bomber had a range of up to 3,000 miles and top speed of 600 miles per hour. This would allow it to take off from remote military bases and strike interior targets in the Soviet Union, or reach hot spots in the Third

World on short notice. And, because it could fly at 40,000 feet, it would be able to avoid heavy weather and anti-aircraft fire.

Lockheed began expanding its workforce for B-47 production in the fall of 1951, doubling the number of employees by March 1952. At peak production, which would not occur until 1953, it was expected that 25,000 people would be working in its Georgia Division, about 40 percent of the total number of manufacturing jobs in all of Fulton, DeKalb and Cobb counties in 1951.

To speed up the learning curve on the production of the B-47, Lockheed sent some skilled workers from its B-29 program—tool and die inspectors, jig and fixture fabricators, and mechanics—for training in Wichita, Kansas, where Boeing was already turning out B-47s. Boeing was in need of skilled workers, so it was a win-win situation for both companies.

In addition to workers, the B-47 program created the need for new facilities. The two largest projects were a flight line hanger (B-25) and an associated electronics building (B-24) constructed in 1952. These were located south of the runways and opposite the main buildings of Government



B-47 Stratojet, ca. 1953.

Aircraft Plant 6 in the area known as the Operations or Flight Line Area. The hanger was one of the finest of its kind in the country, with massive center columns that supported the cantilevered roof. The doors could swing completely open to accommodate the largest aircraft. The runways were also expanded in 1952, and new wells were dug for an emergency water supply.

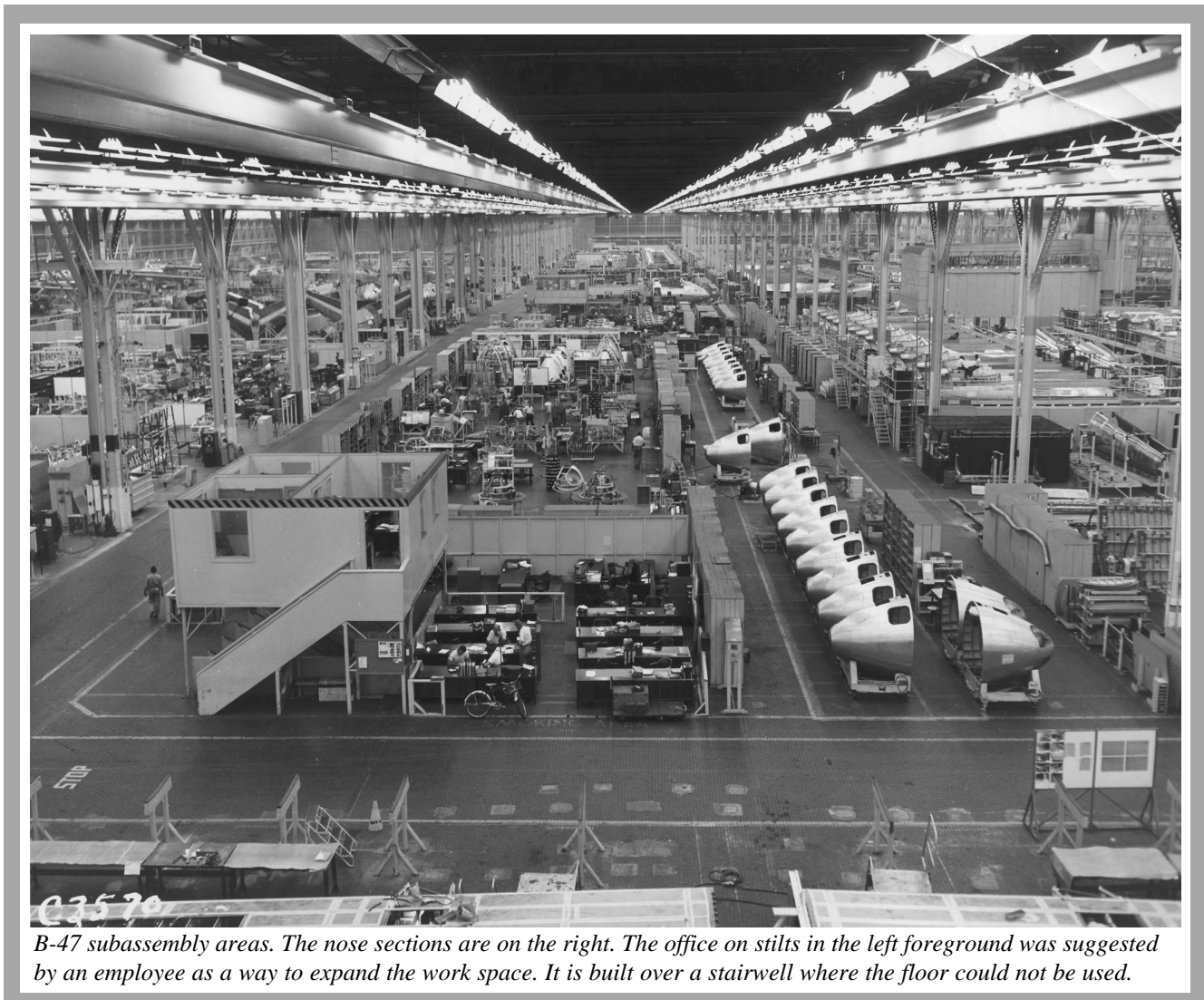
The Air Force wanted delivery of the first B-47 from Lockheed by February 1953, but in the summer of 1952, Georgia Division set a goal to be “Into the Blue in ‘52.” This was an aggressive goal, since the project was behind schedule in December 1951 and production did not begin until early 1952.

By April 1952, the jigs to hold the B-47 framework for subassembly were moved to the assembly line and the first sections of the plane were being built. The jigs had to be constructed to precise tolerances so that every piece would fit

exactly and all the pieces from different planes were the same size. Some of the components, such as the wing and tail sections of the plane, arrived by train and truck from other plants. The B-47 cockpit was stuffed with equipment, dials, and levers, making the production difficult. Each part of the plane had to be assembled in a particular order to ensure an accurate fit.

By May, the subassemblies of the plane were sprouting on the floor of B-1 like mushrooms. The same month, the Joint Chiefs of Staff announced that the B-47 was the military’s top priority project in all branches of the service. This assured the company that it would not likely face delays in obtaining materials or getting approvals.

The B-47 contract was one of the first to use a Cost Plus Incentive Fee structure, which allowed the company to keep profits generated by reducing costs. Dan Haughton convinced the Lockheed board to allow some of this money to



B-47 subassembly areas. The nose sections are on the right. The office on stilts in the left foreground was suggested by an employee as a way to expand the work space. It is built over a stairwell where the floor could not be used.



B-47 Stratojets undergoing final assembly in the B-1 building, ca. 1953.

go to the floor managers as bonuses. He believed that an incentive for keeping costs down would improve job performance. The incentive worked wonderfully, and about \$200 million of the \$750 million contract price was returned to Lockheed.

The first B-47B assembled at Government Aircraft Plant 6 took off from the Marietta facility in December 1952, meeting the company's internal goals and beating the contractual delivery date by two months. The B-47B was the first operational version of the B-47, and Lockheed-Georgia produced eight of these planes, primarily from assembled parts from other facilities.

Even before the first B-47Bs were delivered, however, the Air Force contracted for more planes, which were to be produced in-house at Government Aircraft Plant 6. The first of these was rolled out in April 1953. These improved versions, the B-47Es, were produced in blocks that were then returned to the plant for modifications several times. Inspection and Replace as Necessary (IRAN) modifications were conducted

from August 1954 until January 1957 to bring the planes up to date and conduct routine maintenance.

With the Mod-IRAN program, Lockheed now had three production lines on the floor of B-1, and it became necessary to install a hanger door at the west end of the building in order to get all the planes out. Prior to this time, all rollouts had been through the original hanger doors on the east end of the building.

One of the major modifications to the B-47 involved attaching external fuel tanks under the wings to increase the plane's range. As many as seven planes a day had the extra tanks attached at Government Aircraft Plant 6. They were flown in from their deployment locations, modified, and flown back the next day.

Although rumors of the plant closing circulated in the spring of 1953, and some layoffs did occur as orders for the B-47 were filled, production continued on the bomber at Government Aircraft Plant 6 through December 1957, when the last of 386 B-47Es rolled off the assembly line.

The C-130 Begins a Half Century of Service

While the B-47 fulfilled the Air Force's need for a strategic bomber that would be effective in the nuclear age, the Berlin Airlift and Korea illustrated the problems of supply and troop transport in the Cold War. Since all-out war would result in total destruction, world dominance would be played out in tactical movements of ground forces to trouble spots in a variety of locations. Previously, combat air support and supply transport had largely been separated. The Berlin airlift led to the notion that sometimes the non-lethal forms of airpower could directly achieve national objectives. The Korean War had shown that a transport aircraft was needed that was reliable, versatile, and designed to operate in hostile environments. The Air Force thus asked for a proposal for an aircraft that could take off from and land on short, unprepared runways even with one engine inoperable, carry transport vehicles and other large cargo, and fly high enough and fast enough to be used for combat situations.

Lockheed submitted a proposal for this practical, four-engine turboprop transport that became its most enduring product—the C-130 Hercules, affectionately called the “Herk”

or “Herky-Bird.” The design featured high wings to avoid obstacles and facilitate rough landings, and a wide, low-slung fuselage with a ramp at the rear for rapid loading and unloading of vehicles and cargo. Its turboprop powerplant, where a jet engine turns a propeller, allowed for short takeoffs and rapid climbs.

The Hercules was designed at the company's Burbank headquarters, and drew rebuke from the company's star designer Kelly Johnson, known for his high-performance aircraft designs. Perhaps working with the “rock stars” of the aircraft world had spoiled him to the yeoman qualities of the design, but the C-130 proved to be one of the most reliable, versatile, and inexpensive planes ever to operate. It would be produced in 70 variants for all kinds of missions, including scientific exploration, rescue, firefighting, airlift, paratrooper assaults, and its basic purpose: troop and material transport.

The Air Force awarded the contract for the C-130 to Lockheed in July 1951. The prototypes were built and tested at the Burbank facility, but Courtlandt and Robert Gross both visited the Marietta facility in the months after the contract award, and realized the Marietta facility could handle the production. The success of the B-47 program no doubt



Mercy Bird of the World: Royal Australian Air Force C-130A drops hay in northwest New South Wales to sheep stranded by floodwaters, ca. 1976.

influenced Lockheed's decision in October 1952 to build the C-130 cargo plane in Marietta.

Although not as glamorous a project as the Stratojet, the C-130 would prove to be the lifeblood of Lockheed's Georgia Division. The fifth major version of the aircraft, the C-130J, is still being built in Marietta. Its 50 years of service and continued production is a remarkable achievement for any type of aircraft.

Because all aspects of the production of the C-130 were to occur in Marietta, from fabrication to final assembly, as well as on-going engineering, the project staff was moved from California to Georgia. The move marked the beginning of Lockheed as a permanent, self-sustaining presence at Government Aircraft Plant 6, which was renamed Air Force Plant 6 in 1956.



C-130 production line, June 1959. Nearly 2,300 C-130s, in five major versions, have rolled out the doors at Air Force Plant 6 and are in service in more than 60 countries.

As the number of B-47s coming off the line began to decrease in 1953, production was ramping up on the C-130. A full-sized wooden mock-up of the plane was shipped by boat from California to Savannah, and then trucked in pieces to

Marietta with much fanfare along the way. The mock up was used to fine-tune the design and test new elements for fit and function before they were produced.

By the summer of 1953, the engineering, planning, and jig and fixtures work was underway for the new cargo plane. Project engineering took up residence in the mezzanine of B-1, which is over the assembly floor. After the drawings were perfected, the blueprints were taken to the engineering planning department, which carried out the complicated task of determining the manufacturing and assembly sequence, ordering the tools needed, and creating the layout of the assembly floor. The planning



Governor Marvin Griffin breaks a bottle of Chattahoochee River water on the first C-130 to roll out of B-1, while Dan Haughton and Colonel Edward McRae, Jr., look on, March 1955.

department's orders then went to the various specialized departments that designed and built the tools, jigs, and fixtures that were required to build the actual production aircraft.

The first production C-130 rolled out of B-1 Assembly in March 1955. Georgia Governor Marvin Griffin was on hand for the festivities, breaking a bottle of Chattahoochee River water on the nose to christen the ship. Lockheed received five separate orders for C-130s before the first operational planes were delivered to Ardmore AFB, Oklahoma, in December 1956. With the B-47 work being phased out, the C-130 production line was expanded.

The C-130B, with improved propellers and additional gas tanks for greater range, was developed and tested at Marietta beginning in 1957. The first test flight was in November 1958. A larger "stretched" version of the Hercules, dubbed Super Hercules, was announced in

1959. The larger version C-130 was capable of crossing the Pacific Ocean non-stop with a 32,000-pound payload.

In the late 1950s and early 1960s, the C-130A and C-130B were put into service with Tactical Air Command of the U.S. Air Force, U.S. Air Forces in Europe, and the U.S. Coast Guard. Herks performed such diverse missions as quelling riots in Congo, delivering cattle to orphans in Korea, and carrying crews and materials to the Florida Keys to repair the Overseas Highway that was damaged by hurricane Donna in 1960.

Specially modified "Ski-130s" with one-ton skis attached to the landing gear were delivered in February 1959. In 1960, they were put to good use shuttling 400 tons of supplies to the South Pole Station and rescuing an Eskimo boy near the North Pole.

The C-130 also drew the attention of military buyers from a number of foreign governments, many of



JetStar primary assembly line in B-1 building, ca. 1959.



Ford Motor Company JetStar in production, ca. 1960. Many JetStars were sold in advance and the name of the customer was placed on the side on the assembly line. A sign on one of these special orders reminded workers that future orders from that company depended on the quality of their work.

whom visited Air Force Plant 6 to check out the aircraft. The first of these countries to purchase C-130s was Australia, which ordered 12 C-130As in 1957 for the Royal Australian Air Force. The first of these was delivered in November 1958. In 1960, Lockheed delivered C-130Bs built at Air Force Plant 6 to the Indonesian Air Force and Royal Canadian Air Force, the first of many C-130B orders to countries around the world.

JetStar

In 1957, Lockheed began production and sales of the JetStar utility transport, a jet-engine passenger aircraft developed in Burbank in response to anticipated military

and commercial needs. At the same time, McDonnell Aircraft Corporation was developing a similar aircraft, the Model 119A. Executives with large national corporations relied increasingly on air travel to manage their operations, and Lockheed expected the 10-passenger JetStar to satisfy the needs of executive travelers. Sixteen of the aircraft were sold to the U.S. Air Force, and Lyndon Johnson used one as Air Force One, or Air Force One-Half, as he called it. However, most of the 200 or so of these planes built at the Marietta plant were sold to commercial customers. Continental Can Company ordered seven JetStars in 1959. Ford Motor Company, Corning Glass Company, and Hercules Powder Company also purchased JetStars.



Eight-plane modification hangar, B-54, ca. 1958.

New Construction Continues at Air Force Plant 6

With C-130s being put into service and B-47s returning for modifications in the late 1950s, improvements were necessary to the facilities at the newly designated Air Force Plant 6. An eight-plane modification hangar (B-54) was constructed in 1956 and featured an unusual steel exoskeleton that allowed the walls to be suspended, maximizing the internal space. It also featured special ports on the roof resembling dormers that could accommodate the 138-foot high tails of the C-130. Also in 1956, the east-west runway shared by Air Force Plant 6 and Dobbins AFB was widened and thickened in order to accommodate any aircraft in the Air Force fleet.

A new avionics (aviation electronics) laboratory was completed in 1960. The two-story building (B-64) was located on an eight-acre site northeast of the main assembly building that included outdoor ranges for model antenna tests and towers for rotating scale models. The facility was designed for research and development of antennae, radomes, and other electronic devices for aeronautics.

Diversification Expands Lockheed's Role

Lockheed's Georgia Division posted a record sales year in 1954, and all its programs were on schedule and under budget. With reassurances from the Air Force that it had long-term plans for production at the plant, Lockheed was confident enough to expand its programs outside of Air Force Plant 6.

In 1955, Lockheed purchased 140 acres on the southwest side of the runway between the Operations Area and Atlanta Road, which bordered Dobbins AFB land on the west. The following year, the company announced plans for a \$7.5 million research and development building on the newly acquired land. The building would house design engineering and test facilities that would be owned and operated by Lockheed to support its overall operations at Air Force Plant 6.

Lockheed also purchased about 10,000 acres in Dawson County, Georgia (which subsequently were deeded back to the state), some 45 miles northeast of Marietta, for a nuclear laboratory that would be built with Air Force funds. The Georgia Nuclear Laboratory (GNL) opened in 1958 and developed small nuclear

reactors to be used for research and power generation for specific applications. The first such generator was sold to the University of Texas at Austin in October 1958. In 1959, GNL delivered a compact reactor, capable of fueling industrial operations or 2,000 homes, that could be palletized and loaded on a C-130 in less than an hour.

During the late 1950s, Lockheed's Georgia Division also entered the field of missile ground support, producing special purpose trailers, pallets, dollies, and machine parts, as well as subassembly aircraft and missile structures for other companies.

Cutbacks Hurt Georgia Division at the End of the 1950s

The diversification of Lockheed's Georgia Division operations set the stage for future projects, but the 1950s ended inauspiciously, as defense spending on aircraft was reduced and several research and experimental programs in development did not come to fruition—including the nuclear-powered plane project, the B-70 long-range supersonic bomber, and the vertical take-off and landing (VTOL) XV-4 Hummingbird. Employment at Lockheed's Georgia Division fell from its high of about 19,000 in the mid-1950s, to just fewer than 15,000 at the end of 1959. Seven hundred Georgia Division employees were laid off just before Christmas 1959,



Georgia Division General Manager Karl Kotchian (right) examines a small nuclear reactor being delivered to the University of Texas, January 1959.

when the Department of Defense cancelled the expensive and controversial B-70 Valkyrie project. The mid fuselage for this exotic aircraft was built at Air Force Plant 6, using a circus tent erected inside B-1 as a classified area.

The cancellation of the B-70 was part of an overall decrease in defense spending in the late 1950s and early 1960s that would test Lockheed's resiliency. While the C-130 was an unqualified success by 1960, Lockheed could no longer rely on massive government orders for its aircraft. Instead, salesmen traveled around the world seeking buyers for the Georgia Division's two most versatile products, the JetStar and the C-130 and its variants.

At mid-year 1960, the company announced a \$55 million loss for the preceding two quarters. While orders for C-130s were expected to return the company to profitability, those deliveries were some time away and layoffs followed. At the end of 1960, employment had dropped to just over 10,000 people, its lowest point since the division's early days.

The company established an employment-in-reverse program to aid those dropped from the payroll. With assistance from the Georgia State Employment Service (GSES), the Lockheed Employment Office helped former employees locate



Lockheed Employment Office Manager Hugh Gordon greets Floyd Knight, a personnel chief at the Atomic Energy Commission's Savannah River Plant, October 1960. Lockheed's employment-in-reverse program invited government and corporate employers to come to Marietta to seek qualified workers during cutbacks.

suitable jobs by relaying information on worker skills to the service. Prospective employers likewise kept in touch with GSES to find skilled workers from Lockheed. Placement was especially high in the defense and aircraft industries.

The number of defense-related entities in the Atlanta area and the Southeast at that time testify to the influence of Lockheed on the economy of the region. With skills learned at Lockheed, employees might be qualified for work at Dobbins AFB or the Naval Air Station-Atlanta, which had relocated from Chamblee to the Dobbins military reservation in 1959. Other nearby government facilities included Robins AFB in Macon, Fort McPherson in East Point, Fort Gillem in Forest Park, Oak Ridge Laboratories in Tennessee, and the Savannah River Nuclear Power Plant in Aiken, South Carolina. Unskilled and semiskilled workers were harder to place.

With the threat of potential nuclear war with the Soviet Union and the uncertain future of Lockheed's operations at Air Force Plant 6, Mariettans must have looked to the 1960s with a great deal of anxiety.

Plant Operations

The task of designing, testing, and building complex aircraft required a massive organizational effort. Beyond the teams of engineers, craftsmen, and assemblers, a virtual army of support staff was employed to purchase materials, maintain equipment, track finances, handle shipments in and out of the plant, and disburse paychecks. These functions were organized by departments such as fabrication, assembly, payroll, and purchasing. The various departments were often featured in special sections of the company newspaper, with pictures of the work areas and the machines employed, and descriptions of the work performed. Some of these departments are examined in this section.

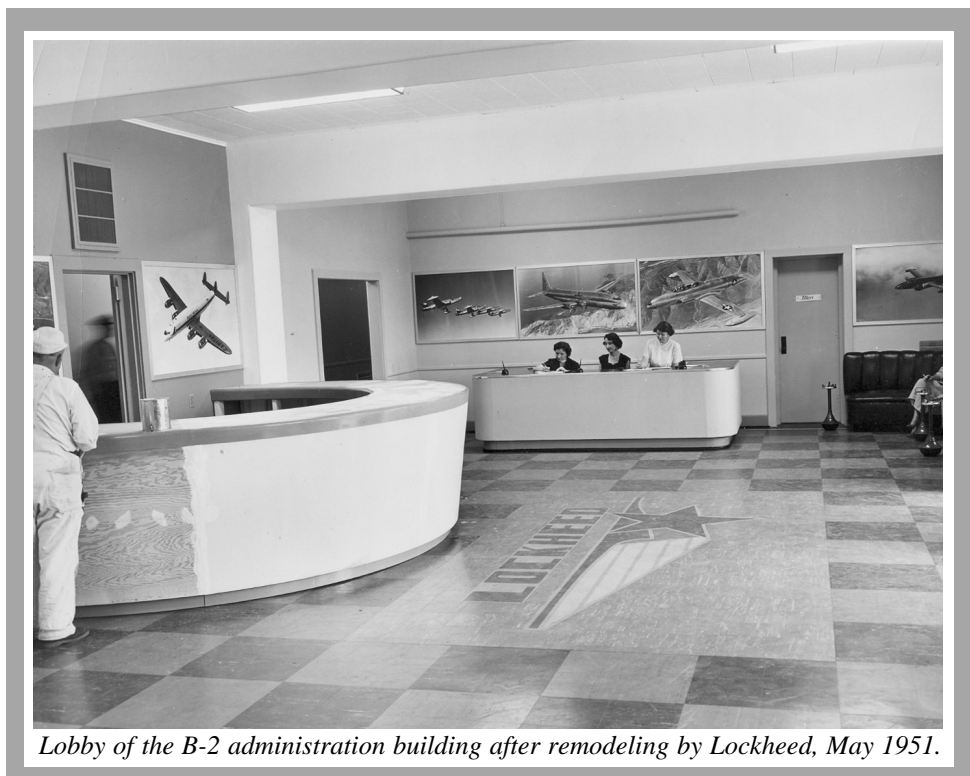
Air Force Plant Representative and the Systems Program Office. As the landlord for Air Force Plant 6,

the Air Force maintained a constant presence at the facility through the Air Force Plant Representative's Office, or AFPRO. The AFPRO was the liaison between the Air Force and Air Force Plant 6 contractors, charged with overseeing the projects under contract. In mid-1965, the AFPRO was administering over 150 contracts.

The AFPRO coordinated the activities of the Dobbins AFB, Lockheed, Tumpane Company, and any other tenants of the plant. Approval was required for significant changes to operations or production schedules. The Production Control Section of the AFPRO had responsibility for insuring that Lockheed and the other tenants at Air Force Plant 6 had all of the resources and the infrastructure that they needed to maintain production, such as power, water, machine tools, and materials.

The Air Force also owned all the property purchased with government money under a Special Facilities Contract. Therefore, the Property Accounting Department was charged with inventorying these items—as many as 80,000 of them—marking them with identifying tags, and keeping a record log of their location until such time as they were deemed no longer necessary and were disposed of by order of the Air Force. Over time, much of this property was purchased or transferred to Lockheed, reducing the Air Force's responsibilities at the plant.

Another branch of the AFPRO was the Air Force Traffic Branch. This group, which was comprised entirely of women in April 1953, tracked all shipments to and from the facility, as well



Lobby of the B-2 administration building after remodeling by Lockheed, May 1951.

as arranged for the transportation of civilian and military personnel at Air Force Plant 6.

The AFPRO worked closely with the Air Force's Systems Program Office (SPO) at Wright-Patterson AFB in Ohio, which directed individual projects. The SPO was a team of scientists, engineers, pilots, and military officers who influenced the design of many of the aircraft built at Air Force Plant 6. They assessed the needs of the Air Force, reviewed the proposals by the manufacturers, and made sure that the aircraft met the demands of the contract. Representatives of the SPO frequently visited Air Force Plant 6 to inspect the operations.

In the 1960s, most of the military's contract management was consolidated in the Defense Logistics Agency, but the Navy and Air Force wanted to keep separate control of its major weapons programs under the plant representative offices. In 1989, however, all Department of Defense contract management was incorporated into the Defense Contract Management Command (DCMC). All functions of the DCMC were transferred to the newly established Defense Contract Management Agency (DCMA) in 2000. DCMA currently oversees all contract work at Air Force Plant 6.

Purchasing. Because Lockheed needed to purchase large quantities of everything from paper clips to titanium, vendors from all over the country looking to do business with the company frequented the B-2 administration building. The main lobby was remodeled to present Lockheed's best face to the public, but by September 1951, it had become necessary to build a separate lobby at the west end of B-2 building just for vendors. With about \$50 million to spend in the first six months, Lockheed became the biggest buyer in the South. In only a few months from opening, over 13,000 individual orders had been placed. A staff of 71 buyers and 79 clerical workers were required to handle the volume of purchases.

Approximately 50 percent of the B-47 project was subcontracted to other firms around the South, providing a significant boost to the economy of the entire region. Lockheed subcontracted with companies in Miami, as well as Atlanta and Decatur. Robert Gross pledged to make every effort to bring both large and small industries in the South into the aircraft industry wherever possible.



Card-operated tabulating machines, July 1951. The Tabulating Department employed about 90 people.

Payroll. With 15,000 employees being paid weekly by the summer of 1953, the payroll department was dependent on a large staff, as well as the most sophisticated calculators available at the time. The "electronic calculator," as it was called, could perform 100 calculations per minute, a rate that was astonishing for the time, but became laughably slow within just a few years.

Timecards for hourly employees were distributed to and collected from racks by hand at 150 stations throughout the plant. At week's end, they were hand inspected for errors before being sorted and processed by an IBM tabulator that calculated weekly wages, tax withholdings, and payroll deductions. Clerks at rows of desks distributed vacation and sick leave checks separately. The printed checks were also reviewed for accuracy before being distributed to employees.

Of the 15,000 employees in 1953, more than 80 percent were hourly workers. As Lockheed's programs advanced, the percentage of salaried employees increased significantly, reaching more than a third by the 1960s.

Communications. Although the plant had 765 telephone lines, within months of opening the plant they were already jammed up. To make matters worse, the trunk system was at maximum capacity, meaning that the telephone company would have to make the changes in order to be able to get a line out to Atlanta. The office manager requested in July that workers keep personal calls to an absolute minimum. Problems

with telephone service continued into 1952, when the company announced internal improvements to the system.

To move documents around the vast Marietta plant, Lockheed operated mailrooms in B-1 and B-2 that handled 2.5 tons of mail daily by 1958, including interdepartmental mail. The mail carriers walked as much as six miles a day making their rounds. There was also a system of pneumatic tubes in place in B-1 similar to the kind used at bank drive-through windows that were used to carry mail through the building. It was one of the largest such systems in the world. Women in the blueprint department also used roller skates to get around the B-1 building with critical blueprints for the engineers.

Three-wheeled bicycles and motorized carts were required to move people around in B-1. The mail staff and other departments that frequently moved goods or papers around the plant employed a whole fleet of these vehicles. Shuttles and other vehicles were used to carry people and goods to other buildings that were part of



A system of pneumatic tubes carried mail through B-1 building, 1958.

Air Force Plant 6 and the larger government reservation that included Dobbins AFB. A regularly scheduled intra-plant shuttle system was initiated in November 1952.

Computers Come of Age at GELAC.

The “electronic calculators” and tabulating machines used by Lockheed to process data in its early years were replaced in the mid-1950s by the first generation of IBM electronic “computers,” which proved useful for any number of tasks at Air Force Plant 6 and within the Georgia Division more broadly.

In 1955 the company acquired an IBM Type 650 Magnetic Drum Calculator, or “electronic brain,” as the *Southern Star* referred to it. It worked not unlike a modern computer. A magnetic drum (basically a disc drive) rotated at 12,500 rpm, and up to 20,000 digits could be stored on the drum with tiny magnetized spots. The digits were retrieved in a fraction of a second to process the data.



New analog computer being installed in Engineering, northeast wing of B-2 building, January 1958. An opening had to be cut over the door to get the machine in the building.

The machine could add and subtract 10-digit numbers at a rate of 220 per second, and was used to predict manpower needs months in advance and compute production schedules.

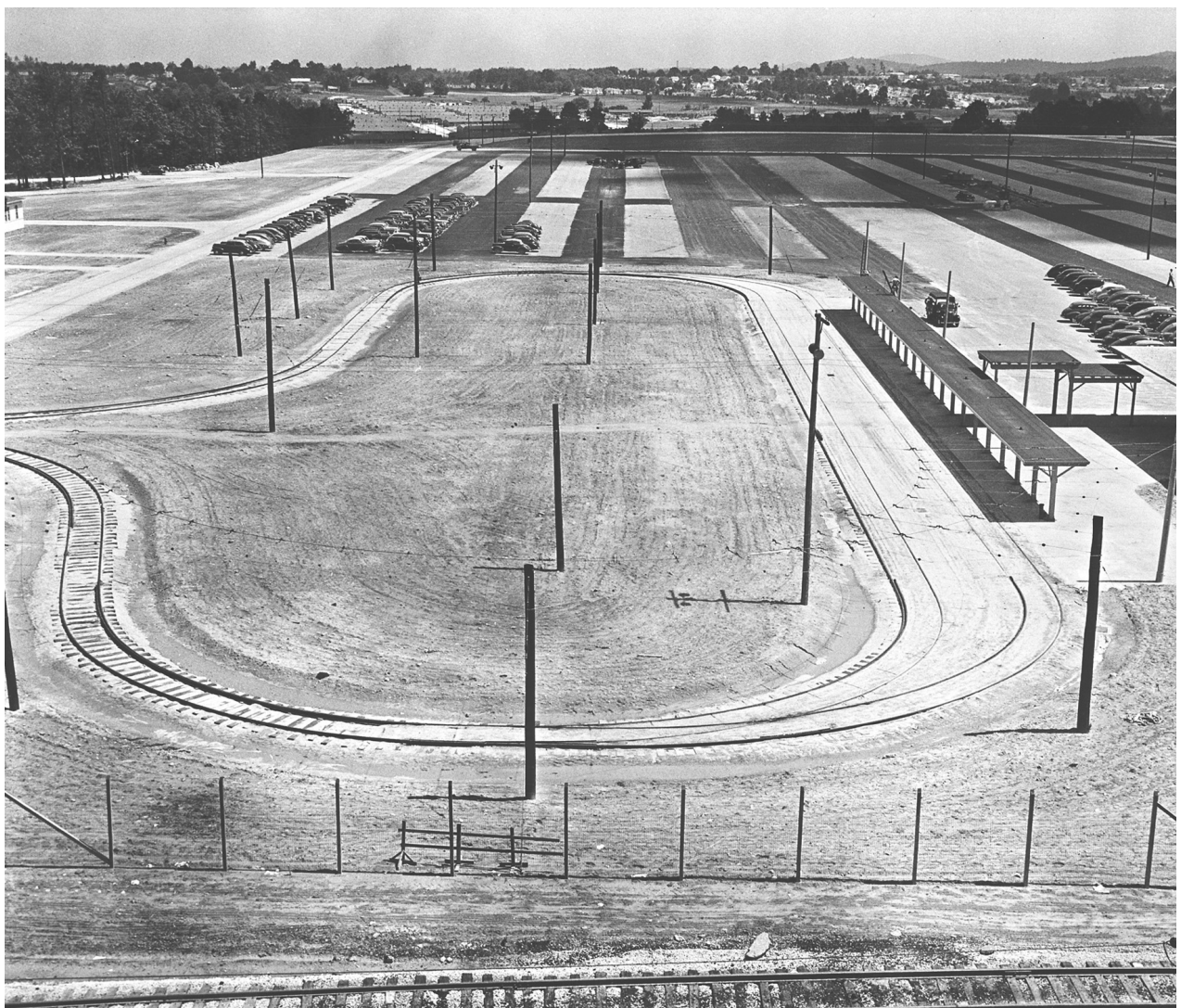
Two much larger computers, the largest in the South, were added in 1956, one for scientific and engineering calculations and one for business applications. The IBM 705 could calculate the payroll for GELAC's 18,000 employees including payroll deductions in 45 minutes.

A half-million dollar computer the size of a panel truck was installed in the Engineering Electronic Computer Center in the B-2 building in February 1958. Known as the Direct Analogy Electronic Analog Computer, the machine was used to calculate complex stress and flutter problems for high-speed aircraft then in development, with greater speed and economy than could be accomplished in conventional wind tunnel tests.

The ungainly machines were marvels of their time, but would continue to shrink in size and grow in sophistication over the next 40 years. Advances in computer technology were quickly adapted to all aspects of plant operation and were an integral part of day-to-day operations at Air Force Plant 6.

Working at Air Force Plant 6 in the 1950s

Getting to Work. The trolley between Atlanta and Marietta that had brought many Bell employees to the plant during WWII was no longer in service when Lockheed's Georgia Division opened. It had fallen to competition from Greyhound bus lines, as streetcars and trolleys were quickly becoming a thing of the past. Atlanta Mayor William B. Hartsfield viewed streetcars an impediment to traffic and had



Old Atlanta-Marietta trolley line in front of B-1 building, June 1943. Note the farmland in the background.

Buck-of-the-Month Club

The Buck-of-the-Month Club (BOMC) was a charitable organization intended to consolidate fund-raising for various causes under one umbrella. It was modeled after a similar club at the company's Burbank facility. Employees who signed up for the club agreed to have 25 cents per week deducted from their paycheck to support the organization. The money was used to help Lockheed employees facing financial difficulties because of health-related issues or unforeseen circumstances, as well as to make periodic donations to the American Red Cross and local community chests.

A committee made up of representatives of the unions, the company, and the Lockheed Employees Recreation Club decided how the money was to be distributed.

The Greater Cobb County and Atlanta Community Chests, to which BOMC contributed, supported a variety of organizations, including national organizations like the YMCA and YWCA, Girl Scouts and Boy Scouts, Salvation Army, and Good Will Industries, as well as local groups such as the Atlanta Urban League, Battle Hill and Happy Haven convalescent homes, A.G. Rhodes Home, Gate City Day Nursery, and the Community Planning Council.

The BOMC was organized in the fall of 1951 and by December it had collected over \$2,200 and had distributed \$950 to worthy causes. At that time, 1,800 of the company's approximately 5,000 employees were contributing to the fund. That level of participation would improve over time. Just six months later, the group reported disbursements of more than \$14,000, most to Lockheed employees.

In 1952, BOMC contributed money to James Phillips, an electrical mechanic at Government Aircraft Plant 6 who faced a crisis when both he and his wife both were hospitalized. BOMC's contribution to the Cobb County Community Chest topped \$12,000 in 1956. At that time, nine out of 10 Lockheed-Georgia employees were members of BOMC.

In 1959, BOMC launched a campaign to encourage employees to give more than the standard contribution of 25 cents per week. The four-day "Golden Opportunity" campaign kicked off with a parade featuring Miss Georgia 1958, Lockheed beauties in French maid costumes, and the Third Army Band. The campaign was a great success, adding \$96,000 to the BOMC's aid fund.

As the number of employees climbed to record levels at the plant in the late 1960s, the yearly contributions of the club continued to rise.

Lockheed-Georgia President Dick Pulver in 1966 encouraged employees to give their "fair share," providing a scale of giving based on income. For those making \$86-\$96 per week, the suggested fair share contribution was 50 cents per week. The highest salary on the scale was \$258 per week, for which the suggested payroll deduction was \$1.50.

To reflect the changes brought by inflation, in 1967 the Buck-of-the-Month Club changed its name to the Bucks-of-the-Month Club, with a suggested contribution of one percent of one's income. The following year, the club contributed \$540,000 to local charities.



BOMC Team Managers' "Sign Up" Campaign publicity photo, February 1959.

actively supported increasing motor vehicle lanes. By this time, many more people had automobiles and were clamoring for solutions to traffic-clogged streets. Atlanta Northern Railway, which operated the trolley line, re-emerged as Atlanta Northern Lines, abandoning the trolley line and purchasing busses to compete with Greyhound. They eventually decided to share the routes.

With no gas shortages and more disposable income for cars, though, many Air Force Plant 6 employees had already abandoned public transportation. Many thought little of driving great distances to get to and from work every day. It was reported in May 1953 that some 500

employees commuted 120 miles or more each way. Lockheed employees at Air Force Plant 6 could be found as far away as Banks County, in northeast Georgia, where two employees lived, and Lamar County, south nearly to Macon, where there were three employees. A significant portion came from the counties to the north and west of Cobb County—the “poor farm folk” that Bell had tapped into during World War II. Gordon, Pickens, Floyd, Bartow, Cherokee, Polk, and Paulding counties accounted for 1,781 employees. The majority, however, came from the Atlanta area counties of Cobb (5,743), Fulton (3,209), and DeKalb (788).

The large number of cars clogged the streets of Marietta and surrounding Cobb County, necessitating an on-going program of road improvements. In 1955, the first half of a clover-leaf intersection was constructed at the intersection of U.S. 41 and what is now South Cobb Drive.

The cars also clogged the vast B-1 parking lot at shift changes, creating lengthy delays. Directional signs were installed to improve the flow of traffic, and carpoolers were urged not to stop in front of the building to pick up passengers.

The B-1 lot on the north side of the plant had spaces for about 6,000 cars, but was routinely filled to capacity at the height of employment in the mid-1950s. Lockheed encouraged its workers to carpool or use public transportation to save



Shift change in the B-1 parking lot at Lockheed's Georgia Division, ca. 1955.

money and reduce congestion. A ride board was established to connect people from the same area so that they could share transportation. As is still the case, it was difficult to get Americans out of their cars. An article in the *Southern Star* noted that everyone seemed to be looking for riders to help pay for gas, but were unwilling to ride with someone else. In September 1951, the capacity of the B-2 parking lot was nearly doubled, from 300 to 735 spaces. Walkways were constructed between the rows of cars in the B-1 lot as a result of complaints that walking through the gravel lot was unsafe.

Once at work, employees in B-1 entered through the head houses, which led down ramps into the tunnels under the assembly floor. They could then make their way to their work station by various stairwells to prevent disrupting the progress on the aircraft. Those arriving for the swing shift, which lasted from 3:45 p.m. to 12:30 p.m., were asked to remain in the tunnels until it was time to clock in, to give the day shift employees time to get out. Shift changes could cause quite a log jam in the tunnels and parking lot. The starting times of the day shifts were staggered to help alleviate this problem.

By January 1952, there were three shifts working around the clock at Government Aircraft Plant 6. Although there were not as many people on the overnight shifts, most of the departments continued to function at night, including

engineering, purchasing, assembly, and planning. Some workers preferred the night shift because it was quieter. Others found that they could see their children during the daytime when working at night. It could put a strain in a marriage, however. One worker said that one drawback was that his wife worked the day shift. "We're trying to remedy that," he joked.

Unions and Wages.

When Lockheed began hiring workers for its Georgia Division, hourly workers were covered under an agreement with the International Association of Machinists (IAM), which had represented Lockheed's labor force since 1937. However, further negotiations were necessary because of Georgia's right-to-work laws, which allowed workers to choose whether they wanted to be in the union. There were also some negotiations regarding wages and benefits such as vacation and sick leaves.

The IAM secured an eight percent across-the-board pay raise for hourly workers in October 1951, and in December the Engineers and Architects Association negotiated a similar increase for salaried employees. The Wage Stabilization Board approved the increase in February 1952. Hourly rates were raised again, effective in August 1952, and salaried workers received a six percent increase. Company benefits at that time included free group insurance and two weeks vacation after one year's service. The union also negotiated a layoff policy based on seniority.

In 1956, the IAM won new labor grades for 20 factory jobs and across-the-board pay raises for all employees. Swing shift workers, about 5,000 employees, also received an increase in their bonus for working evenings.

One of the few instances of a union-sanctioned strike occurred in May 1958, when IAM members walked out after a new contract agreement could not



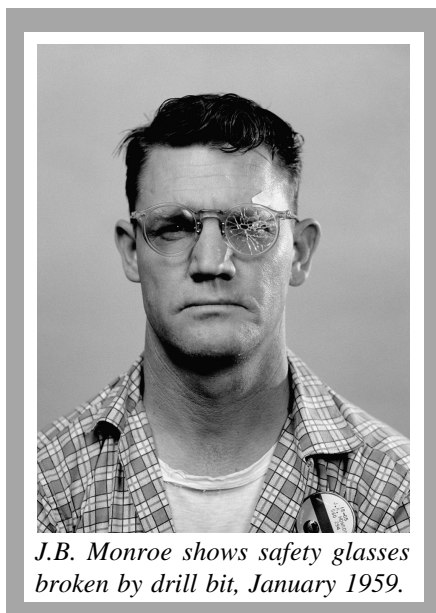
Members of Georgia Division and Plant Protection Lodge 615 negotiation committee sign a new two-year work agreement, July 1960.

be reached. The strike lasted only 10 days, however, and a two-year contract was approved that raised hourly wages anywhere from 18 cents to 30 cents per hour, as well as adding Christmas Eve as a paid holiday.

In 1960, the IAM and Plant Protection Lodge 615 negotiated a new two-year labor agreement, but in early 1961 because of the increasing number of layoffs, added a separate lay-off benefit plan that paid employees that were let go \$50 for each year of service.

The first three-year contract between Lockheed and the IAM was signed in September 1962. The agreement included a base increase for a cost of living allowance, as well as yearly wage increases of five cents to 11 cents per hour. The Friday after Thanksgiving was added as a paid holiday and new health insurance benefits included. The agreement was renewed for another three years in 1965 with the cost of living increases remaining and yearly wage increases added. Good Friday became the ninth paid holiday for employees beginning the following year.

Safety. By today's rigid standards, operational safety at Air Force Plant 6 was woefully lacking in the 1950s and 1960s. Workers perched on high wings and cowlings without hardhat, safety goggles, or harness. The *Southern Star* dutifully



J.B. Monroe shows safety glasses broken by drill bit, January 1959.

ran pictures of workers sporting the broken glasses that saved them from an eye injury, but as late as 1968, workers were not provided with glasses and had to purchase their own.

Georgia Division appears to have been more successful with its safety campaigns than Bell Aircraft. Few statistics are available on the number of injuries at Bell or Lockheed, but a Bell-era poster promoting hand safety noted that there were over 3,000 hand injuries in one month at the plant, and another poster urging eye safety revealed that there were 1,693 eye injuries “since June” at the plant. One female assembler who worked at Bell said that they were supposed to wear goggles, but she often did not.

To encourage good safety practices, Lockheed frequently presented departments with awards for most hours without a lost time accident, and best accident record. Banners were handed out that were displayed in the department. Many departments were able to accumulate one million man-hours without a lost time accident, and in 1956, the entire Georgia Division accumulated a record 12 million hours without a lost time accident.

Negative reinforcement for a poor safety record came in the form of a “White Elephant” award that was presented to the departments with the worst safety record each month. The department heads had to display the ugly statue in their work area until they were able to rid themselves of it.

Despite company efforts, perhaps not surprisingly considering the heavy machinery, dangerous chemicals, and constant activity, accidents did happen. In October 1955, James Childers, an electrical mechanic, was killed in an explosion while working on a fuel boost pump on a B-47 drop-tank modification (where an extra fuel tank was added under the wings to give the bomber better range). In 1957, Sims J. Juneau, Jr., a flight line mechanic, was apparently electrocuted while working in the bomb bay of a B-47.

One area where Air Force Plant 6 boasted a long record of safe operation was in test flights of aircraft built there. For eight years and nearly 20,000 Lockheed and Air Force flights there had not been a fatal accident or injury to a crewman in flight-testing. Over 3,200 planes had been delivered to the Air Force without the loss of a single aircraft.



Firemen survey the wreckage of a B-47 that crashed during a landing at Dobbins AFB, killing three crew members, February 17, 1959.

Unfortunately, that record was broken in February 1959 when three crew members were killed when their B-47 lost control on the runway during a landing and cart-wheeled into an adjacent pond. Two of the crew members were with the AFPRO and one was a pilot with Lockheed's Georgia Division. An accident in 1994 would also claim the lives of seven Lockheed Flight Operations employees testing the new systems for the C-130J.

Women on the Job Again. Because there were more men available for work than there were during World War II, fewer women were employed at Air Force Plant 6 during its first decade under Lockheed. Of the Georgia Division's 17,000 employees in May 1955, just fewer than 2,000, or about 11 percent, were women. Women still dominated the administrative functions such as secretarial



Three female employees with the company's first central duplicating unit, March 1951.

work, blueprint control, and record keeping, but at first, none were used on the assembly line. By 1953, however, women were to be found in many types of work.

Billie Redd was the only female engineer trainee in a group of 32 in 1951, but others certainly followed. Anne Bonds worked as an electrical inspector during Georgia Division's first year, negotiating the catwalks over the floor of B-1, checking the wiring and fixtures of the lighting system.

In the summer of 1952, four women became the first to work on the assembly line for the B-47 project. The women's supervisor said they had been trained "partly as an experiment to see that women could handle the assembly classification on the B-47." Apparently Lockheed had not learned anything from the original B-29 program under Bell. In any case, the experiment was seemingly successful, as more women went through similar training.



Dorothy Mauldin was one of four women to take up a job in assembly in June 1952. She graduated from electronics training and said she liked working with her hands.

Blood Drives

During World War II, when sick and wounded American servicemen needed a steady supply of blood, Bell Aircraft employees responded enthusiastically, and American Red Cross blood drives continued to be one of the major ways that Georgia Division employees contributed to the military and the overall community once Lockheed moved into Air Force Plant 6. The large number of people in one building provided a convenient stop for the Red Cross' bloodmobiles. Participation in the program was extremely high, and the company prided itself on breaking records for daily and yearly donations and beating out other large industrial companies for overall donations.

Blood drives were held several times a year, and many employees gave as often as was allowed. In December 1951, Georgia Division instituted a registration system for donors to pledge to give, allowing supervisors to schedule contributions in advance of the Red Cross visits. This streamlined the process, cut down on lost work time, and helped departments meet quotas. The company passed its yearly quota in 1953 on November 12, donating over 6,000 pints of blood. In 1955, it was believed that the more than 15,000 pints donated by the Georgia and California divisions combined was the largest contribution of any company in America.

Two years later, the Georgia Division was cited as being the largest contributor to the Red Cross of any industry in America, once again topping 6,000 pints. This amounted to one pint for every 2.6 employees, a remarkable participation rate. The California Division, which fell just short of Georgia Division's total, had only one pint for every 4.5 employees. The yearly record was topped again in 1962 with 8,271 pints.

In March 1959, a single day record of 683 pints was established, a record which stood for 13 years before being broken in 1972, when 754 pints were collected on the 20th anniversary of the company's blood donation program. The new record was quite a feat considering the significantly smaller number of employees in 1972.

During the peak employment at Lockheed in the late 1960s, the company routinely donated over 10,000 pints per year, the largest contribution by any industrial facility in the nation.



A.L. Spain gives the 8,027th pint of blood in December 1962, setting a new record for the plant. A total of 8,271 pints were donated that year. Spain had donated over four gallons during his employment there, and that year there were over 2,600 employees who had given one gallon or more.



The Red Cross Bloodmobile visits the day shift in July 1964.

In February 1953, a group of eight women graduated from a riveting and assembly training course and were assigned to the fuselage assembly line of the B-47 at Government Aircraft Plant 6. “We expect these women to do the same work as the men with the same treatment and the same pay,” said Pete Boynton, special course instructor.

Segregation Policy Continued. World War II was a turning point for the Civil Rights movement, as large numbers of black soldiers fought for and gave their lives for a country that largely kept them out of mainstream society. Many African Americans had left the South during the war seeking factory jobs in Northern cities. Still, they faced considerable discrimination in the North, where white workers feared that they would lose their jobs or that their wages would go down as a result of the increased labor pool.

The assertiveness of blacks following the war was troubling to old guard Southern politicians, whose hold on office was dependent on blacks remaining disenfranchised. James Carmichael had nearly defeated the race-baiting Eugene Talmadge for governor in 1946 with a more moderate platform, but he dared not suggest integration in Georgia at that time. He took the same position at Lockheed, although African Americans were more likely to be found in skilled positions than during the Bell years.

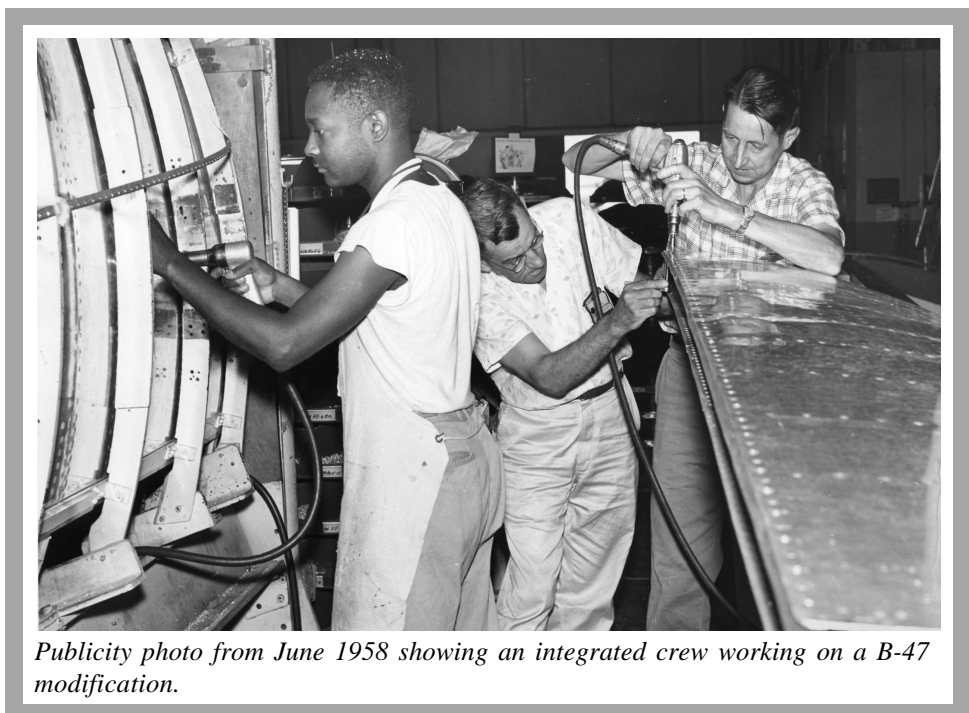
In September 1951, at a mass meeting of Lockheed’s 5,500 employees held at plant, Carmichael explained that Lockheed would follow the same policy that Bell had taken regarding African-American workers. “We will employ colored workers according to their ability but they will not be mixed on the assembly line with whites. They will be hired for work for which they are qualified or can be trained but in their own production areas. They will have equal but separate cafeterias and rest rooms.”

This policy was more or less adhered to for the next 10 years. The program started by Bell to train blacks for assembly jobs continued under Lockheed. If they passed the qualifying test, those African Americans who had received training for

manufacturing jobs were generally assigned to one of the two black crews that worked on the nose and rear fuselage structures of the B-47 in two shifts in a separate part of B-1 building from the white workers. The supervisors of the day shift were white. The crews finished their first assembly in March 1953 ahead of schedule. Harold Mintz supervised the nose section crew of the B-47, which was also comprised of African Americans. He recalled that the crew was poorly trained and inadequately supervised when he arrived, but by systematically rewarding good performance and punishing poor performance and absenteeism, he got good results. Charles Ferguson participated in the training program for blacks, attending classes at night. He started at Lockheed in 1951 in the buildings and grounds department and, after passing the test, went to work on the nose section of the B-47. He eventually became a supervisor on the C-130 nose section before retiring about 1986.

In March 1955, the 426-member crew of Department 21-13, composed of African Americans, received a safety award for working 2 million man-hours, nearly three and a half years, without a disabling accident. The group also set a departmental record for blood donation in December 1954 by donating over 100 pints of blood.

The *Southern Star* reported in May 1955 that 931 African Americans—all but seven of them men—were working on the assembly line of the B-47. This does not include the many black women who worked as janitors according to several



Publicity photo from June 1958 showing an integrated crew working on a B-47 modification.

sources. A large number of black women also worked in food service as cooks and servers, but were not technically Lockheed employees.

It was not until the C-141 program in the early 1960s that Lockheed's Georgia Division was completely integrated, although there is evidence that strict segregation was not followed at all times on the production lines prior to that. A 1958 photograph shows an integrated crew, apparently working on the C-130. Charles Bryant, who was featured in a story in *Southern Star* in 1971, had been with Lockheed since 1956 and was hired as an engineering technician in the mathematical analysis department. This is the only known African American engineer at Lockheed before the 1960s. Presumably, he worked in an integrated department.

Mintz, who was also a supervisor on the C-130 program, indicated that he personally took some steps toward integration as early as the mid 1950s. Mintz's department included a black crew that was separated from the rest of the department by large parts racks. "I started at night moving those bins to the edge of the department," Mintz recalled. "I just moved a few at a time, and started working it that-a-way. The first thing you know I had the blacks and the whites working together, and nobody even noticed it. Dan Haughton came down there one day, and he says, 'Harold, something's different. What have you done?' I said, 'Well, I might as well tell you. You're going to see it anyway. I'm working my whites and blacks together. They're going to have to work together. We have to handle the work together. They don't even know they're doing it. And I haven't had one complaint.' He scratched his head, and he said, 'My Lord.' Following that they did away with the black cafeterias, and they did away with the black restrooms."

While sources agree that integration was carried out quietly by management, with no formal announcement, most were cloudy on exactly when the change took place. Mintz may have been ahead of his time, because according to other sources, it was during the 1960s that the workers were integrated. That period is discussed further in the next chapter.

Food Service. Feeding thousands of people a day without long lines that would keep them off the clock proved a formidable task for Slater System, which operated GELAC's food service for many years. Cafeterias were expanded or closed based on fluctuating employment, and varying schedules had to be met around the clock.

Cafeterias were located in both B-1 and B-2 buildings, and staggered lunch periods were used to reduce the lines. In June 1951 a mobile canteen service was offered, bringing hot

food to workers near their stations. The same meat was served as in the main cafeteria, but in a bun.

By November 1952, there were five cafeterias at Government Aircraft Plant 6 serving 6,000 meals daily. That amounted to an average of 2,000 pounds of meat and 1,000 gallons of milk each day. Food was prepared at the central kitchen in the basement of B-2, then carted to the four cafeterias in the basement of B-1 and on the first floor of B-2. Mobile units also carried food to the support buildings and training areas. Slater employed 170 people to serve the plant.

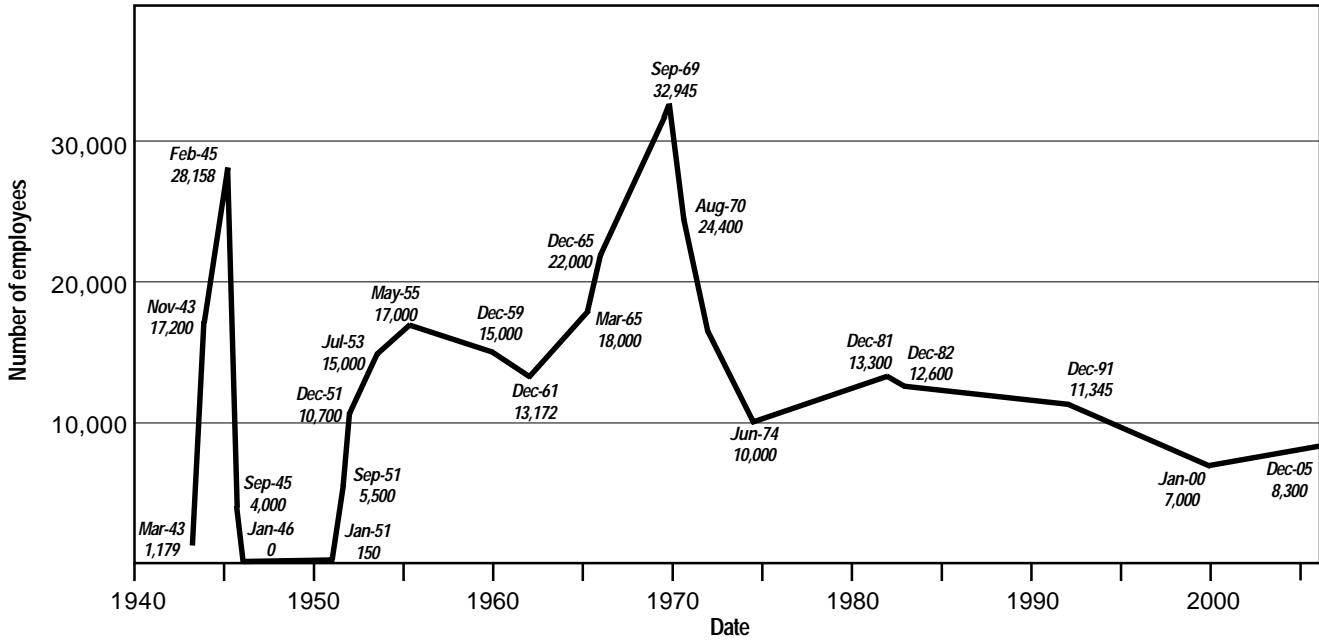
At the height of the B-47 and C-130 programs in the mid-1950s, the food service prepared 9,000 meals a day, at nine permanent locations, including a luncheon cafeteria in the administration building and cafeterias in the radar building and Tumpane warehouse building.

Effect of Air Force Plant 6 on Marietta and Cobb County

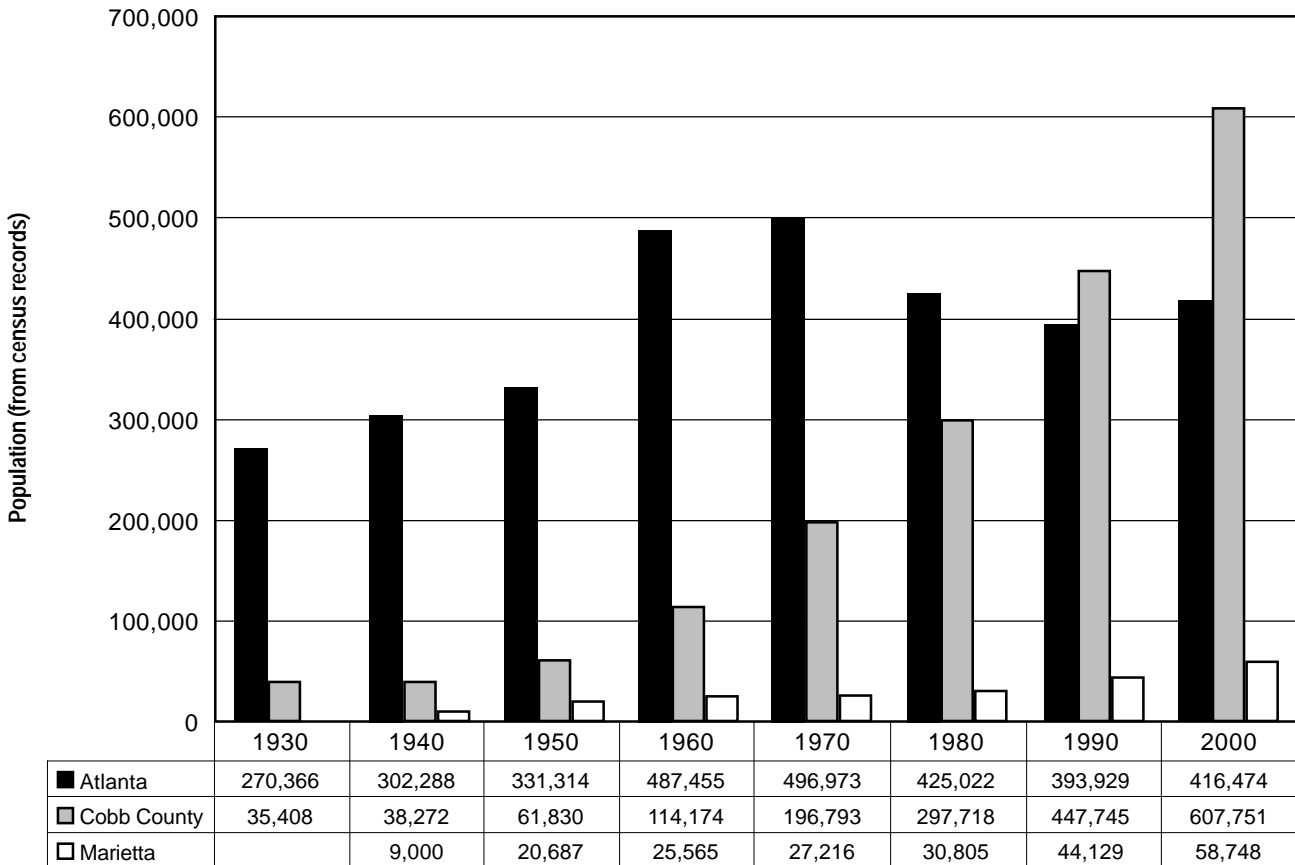
The Bell bomber plant brought nearly 30,000 workers into a town of less than 10,000 during World War II, but many of the employees came from outside the county to work. The population of Cobb County actually saw its greatest proportional increase in population in the 1950s, expanding nearly 85 percent to more than 114,000 residents, making it the seventh-largest county in the state of Georgia. Lockheed employment declined in the last part of the decade, but this seems to have had little effect on growth in Marietta and Cobb County, which by that time had established a more diverse economy that included more skilled workers and professionals. Many of those skilled workers were brought in to work at the Marietta plant, including 275 Lockheed employees transferred from the Burbank plant.

The influx of educated, well-paid professionals into Cobb County, the millions of dollars in payroll to thousands of unskilled and semiskilled workers each month, and the money paid to local companies for goods and services resulted in a rapid change in way-of-life for many in Cobb County. New schools, libraries, and public facilities were built, roads were paved, and sewers were installed. More and more county residents owned cars, had telephones, and used their disposable income for electrical appliances, clothes, and leisure-time activities. Shopping centers, designed to accommodate large numbers of cars, were constructed outside of town centers. Belmont Hills Shopping Center in Smyrna opened in 1954 and was one of the largest in the region. It contained two grocery

Employment at Air Force Plant 6 (figures are approximate)



Population Trends during Bell and Lockheed Tenure at Air Force Plant 6



stores, two department stores, and numerous smaller shoe stores and specialty shops.

As the Marietta assembly plant took on more design, testing, and engineering duties during the 1950s, it sought qualified workers from the local area. Georgia Division developed close ties to Georgia Institute of Technology in Atlanta, which had established an aeronautical engineering school in the 1930s with a grant from the Guggenheim Foundation. Many of Lockheed's engineering staff were graduates of Georgia Tech. Lockheed also took advantage of Georgia Tech's work-study program that gave Tech students a chance to work in an applied situation in a business atmosphere. In 1955, Lockheed's Georgia Division teamed up with Georgia Tech to modernize the school's wind tunnel to test new aircraft designs for Lockheed, as well as for applied research.

In 1958 it was announced that the Southern Technical Institute would be moving to Cobb County from its current home at the Atlanta Naval Air Station in Chamblee, which was relocating to the government reservation shared by Dobbins AFB and Air Force Plant 6. Southern Tech was a two-year school that was primarily concerned with training engineering technicians to translate research and design engineering into production plans. It was expected that many of its students would go on to work for Lockheed. The county purchased a 93-acre tract for the school and made significant improvements to the site, including utilities and housing. Classes started in 1961. The school is now known as Southern Polytechnic State University.

At the same time that plans were underway to move Southern Tech to Cobb County, a second technical school was being established there. The Marietta-Cobb Area Vocational Technical School was designed to provide job-specific training for technical trades such as welding, electrical and plumbing, and drafting. The school opened in 1961 and many of its graduates went to work at mechanical and electrical jobs for Lockheed-Georgia. The school was changed to Chattahoochee



Members of the Cobb County Chamber of Commerce outside the entrance of the B-2 administration building on a visit to the plant, 1952.

Technical Institute in 1987 and Chattahoochee Technical College in 2000.

Cobb County also built an airport at the end of the 1950s. Since Rickenbacker Field had been appropriated by the Department of Defense, Cobb County was still lacking a civilian airport. After a difficult struggle to get a permit from the FAA, Cobb County Commissioner Herbert McCollum pulled some strings and got the airport approved. For his efforts, McCollum Field in Kennesaw, which opened in 1960, was named for him.

For all its progress during the 1950s, Cobb County remained a rural Georgia county in many ways at the beginning of the 1960s. It did not have a liberal arts college, and its public school system had resisted the Supreme Court *Brown v. Board of Education* ruling ordering desegregation. The county government was still based on a one-commissioner system with strong ties to its rural constituency. While Mayor William B. Hartsfield had declared Atlanta the "city too busy to hate," Georgia's governors in the 1950s—Herman Talmadge, Marvin Griffin, and Ernest Vandiver—clung tenaciously to Jim Crow laws and were backed by the old guard politicians who supported them, even in areas like Cobb County that were rapidly modernizing. More dramatic changes were yet to come to what had become one of the fastest growing communities in Georgia.



President Lyndon B. Johnson speaks at the roll-out of the C-5A, Marietta, Georgia, March 2, 1968.

CHAPTER THREE

Air Force Plant 6 Becomes the Airlift Capital of the World (1961–1971)

By the time John F. Kennedy took office in January 1961, Nikita Khrushchev, who had replaced Stalin as leader of the Soviet Union, had solidified his hold on Eastern Europe with the formation of the Warsaw Pact in 1955, and had made it clear that he was prepared to use nuclear weapons against the U.S. In 1957, British Prime Minister Harold Macmillan declared that total war would now mean total destruction, and that military forces were needed to prevent an all-out war, rather than to wage one. Still, Kennedy vowed in his inaugural address, “Let every nation know, whether it wishes us well or ill, that we shall pay any price, bear any burden, meet any hardship, support any friend, oppose any foe, in order to assure the survival and the success of liberty.”

Kennedy was tested several times on his willingness to go toe-to-toe with the Soviet Union. Khrushchev continued to pressure the North Atlantic Treaty Organization (NATO) to abandon West Berlin, but Kennedy responded by beefing up the city’s defenses. In 1962, it was discovered the Soviet Union was building missile sites in Cuba that could deliver nuclear weapons to the United States and cripple the Strategic Air Command. Kennedy demanded that Khrushchev remove the missiles, instituting a blockade around the island and increasing the airborne alert force in the area until Khrushchev complied. This was perhaps as close as the world has come to nuclear war.

Knowing the military value of Air Force Plant 6, Mariettans kept an ear out for the air raid siren and took seriously the drills that they had been taught. At the 1962 Armed Forces

Day open house at Air Force Plant 6, a display of prefabricated fallout shelters attracted considerable interest.

Kennedy also believed, perhaps spuriously as it later turned out, that the U.S. had fallen behind in its nuclear capabilities, creating a “missile gap” that would give the Soviet Union a first strike advantage were it to launch an attack. In response, he stepped up military spending to achieve “parity” with the Soviets.

Although President Eisenhower sent armed “advisors” to Vietnam in the late 1950s, President Kennedy escalated U.S. involvement by sending 16,000 military personnel to the region prior to his assassination in 1963. Kennedy’s successor, Lyndon Johnson, continued to support South Vietnam. In 1964, Vietcong



James K. Hope and his family check out an igloo-type fallout shelter on display at Lockheed-Georgia’s Armed Forces Day open house, May 1962. The shelter sold for \$165.

forces allegedly fired torpedoes at a U.S. ship in the Gulf of Tonkin. The subsequent Gulf of Tonkin Resolution authorized the president to use armed force to deter further aggression from North Vietnam, beginning the U.S. military action in Vietnam that would result in the loss of more than 56,000 American lives.

The escalating costs of the war and its unpopularity at home led to gradual withdrawal from Vietnam beginning in 1969. The protests against the war were often accompanied by attacks on the “military-industrial complex” and wasteful military spending.

Throughout this decade, however, the employees at Air Force Plant 6 expressed pride in their contribution to the effort to contain communism and preserve freedom. In order to combat these various threats, the military required a steady supply of materiel, including transport planes.

Activities at Air Force Plant 6

The 1960s represented the period of greatest expansion for Lockheed’s Georgia Division. The facility was renamed Lockheed-Georgia Company in July 1961 and began a nearly decade-long expansion leading to the peak employment, under either Lockheed or Bell, of over 32,000 in 1969. In 1963, Lockheed reported its top earnings ever.

In 1961, Lockheed received a contract for the construction of the C-141 jet transport later nicknamed StarLifter. The StarLifter was designed and engineered in Marietta and represented a new level of accomplishment for Lockheed-Georgia. It featured innovative design features, and was considerably larger, more powerful, and more complex than the C-130.

The production of the C-141 and the subsequent C-5A Galaxy transports, along with the continued production of the C-130, would earn Lockheed-Georgia’s Marietta facility the title of “Airlift Capital, U.S.A.,” and later “Airlift Capital of the World.” At the same time, Lockheed-Georgia expanded into other areas of research and design, including missile systems, electronics, materials testing, and nuclear products development.

At the other end of the runway at Dobbins AFB, a number of host units came and went, with the primary mission being the training of Air Force reservists.

Air Force Plant 6 Expands Its Airlift Role with the C-141 StarLifter

Among Kennedy’s first acts as president was to order an all-jet transport with greater range and speed than the aircraft then in use. The Air Force’s requirements for the new aircraft



C-141A, ca. 1967.

were considerable. In keeping with the merger of strategic and tactical airlift functions of the Military Air Transport Service, the jet transport would need to perform at low altitudes in order to airdrop troops and supplies, have a range of at least 3,500 miles with a 60,000-pound payload, and be able to fly higher and faster than the Douglas C-124 and the Lockheed C-130.

Designed by the Lockheed-Georgia Company, the C-141A StarLifter beat out designs by Boeing, Douglas, and Convair (a division of General Dynamics), three of the leading players in the aircraft industry. The StarLifter featured a swept-wing design and four forward-mounted Pratt & Whitney engines that improved handling characteristics. The high-set wings allowed for more clearance in difficult landings or unprepared fields. The 25-degree sweep of the wings aided high-speed cruising, while powerful flaps provided for good low-speed field performance.

The interior design expanded on the C-130 Super Hercules, preserving the rear cargo door for drop capability and easy loading of vehicles and cargo, but with a more than 50 percent increase in payload capability and greater range

and speed. The floor of the cargo bay featured retractable rollers and retaining rails that could be raised for pallet loading or lowered for vehicle or personnel transport. The aircraft also featured a T-tail with a 50-foot span, four underwing TF33 turbofan engines, and integral wing fuel tanks.

Production of the C-141 was expected to expand Lockheed-Georgia's payroll by approximately 2,000 during the first year. The first test flight was scheduled to take place in late 1963, with delivery of operational aircraft in 1965. The first parts for the C-141 were being produced at the Marietta plant by the summer of 1962. A considerable portion of fabrication of the aircraft was subcontracted to other companies and conducted off-site. The massive wing structure was assembled by Avco Corporation in Nashville, Tennessee, while the tail sections (empennages) were manufactured by General Dynamics in San Diego, California. In all, approximately 60 percent of the aircraft was subcontracted to companies in 34 states, including Bendix Corporation, Bell Aerosystems, Beech Aircraft, Brunswick Corporation, and General Electric.



The first production C-141A StarLifter rolled out of B-1 building on August 22, 1963, when President Kennedy pressed a button in Washington, opening the doors at the Marietta plant.

The first completed C-141 rolled out of the B-1 assembly building August 22, 1963, ahead of schedule. President Kennedy pushed a button in Washington that opened the hanger doors via the Air Force's global communication system. The first test flight followed on December 17, 1963, the 60th anniversary of the Wright brothers' first flight. The first C-141A was delivered to Tinker AFB, Oklahoma, in October 1964. In July 1965, in a Navy exercise, a C-141 dropped seven pallets, each weighing more than 10,000 pounds, by parachute, landing all without damage within a half-mile area.

Lockheed originally anticipated an order of 100 StarLifters, but the aircraft proved to be such a workhorse for Military Airlift Command that a total of 285 were built between 1963 and 1968. The C-141 was utilized daily in Southeast Asia, carrying troops, equipment and supplies, returning patients to U.S. hospitals, and repatriating POWs from North Vietnam.

The C-130 Continues to Prove Its Usefulness

In 1960, Lockheed secured an order for 16 C-130Es, an extended-range version of the C-130B, with two under-wing fuel tanks added to increase its range. The new version was a success, and the Air Force ordered about 350 more, with the first deliveries by April 1962. By the end of 1962, Lockheed had delivered 112 C-130 aircraft, more than twice its yearly output for the previous four years, an indication of the Kennedy administration's belief in the need to modernize and build up

the military's airlift capabilities for the Cold War effort. In 1963, the C-130E output at Air Force Plant 6 was increased from 12 aircraft to 15 aircraft a month. Nearly 500 C-130Es were built at Air Force Plant 6, with the majority of those going to the Air Force and the Navy. Foreign sales were also important, however. Over 100 C-130Es were sold to foreign customers, including Sweden, Australia, Turkey, and Saudi Arabia. The Royal Canadian Air Force ordered 16 C-130Es to supplement its four C-130Bs.

Lockheed also developed a more powerful version of the C-130 with four Allison T56-A-15 turboprops, each delivering 4,900 horsepower. Designated the C-130H, the first of these were delivered to the Royal New Zealand Air Force in 1965. The C-130H was equipped with tracking equipment for locating spacecraft after re-entry and a nose-mounted recovery system that could lift up to 500 pounds.

Interest in the private sector led to the development of a civilian version of the C-130, designated the L-100, for air freighter service and other duties. The L-100 was based on the C-130E and was certified for service in 1965. Delta Airlines purchased three of these planes for its cargo service in 1966. Two stretched versions of the L-100 were developed in the late 1960s to increase cargo capacity and improve operating costs. Barrel sections were added to the fuselage in front of and behind the wings to increase the overall length of the plane.

In 1964, a modified KC-130F successfully completed a series of landings and take-offs from the aircraft carrier *U.S.S. Forrestal*, demonstrating its potential for logistical support of

Navy ships. The use of C-130s for carrier landings was not incorporated into normal Navy operations, however.

The C-130 Hercules displayed versatility in yet another way in 1968, when it was put to use in Vietnam dropping 10,000-pound Daisy Cutter bombs into the jungle to clear landing areas for helicopters and artillery positions. The bombs used were surplus weapons developed in the 1950s for use on the old B-36 bombers.

The Herks were used in myriad other ways in the Vietnam conflict where air resupply was



The Navy version of the C-130E, the LC-130R, equipped with Teflon-coated skis, was delivered to the National Science Foundation and U. S. Navy's VXE-6 squadron in Antarctica in 1974. Note the underwing fuel tanks.

crucial. C-130s flew as many as 50 missions a day during critical operations, taking antiaircraft fire, taking off and landing under fire on short unprepared runways, and returning riddled with bullet holes, leaking gas, or limping on shot-out tires, only to be repaired and returned to service.

As tough as they were, logging many hours in rough conditions in Vietnam took a toll on the C-130. Taxiing and landing on rough airstrips, especially with wing-mounted fuel tanks, caused the wings to flex, putting stress on the wing supports. The Air Force asked Lockheed-Georgia to modify existing C-130Bs and C-130Es by strengthening the center wing spars. The first of these modified "Long Life" Herky Birds was delivered in early 1969.

The C-5 Galaxy Sets a New Standard in Airlift Performance

As successful as the C-130 and C-141 were, the Air Force still needed a large cargo plane with intercontinental range and greater reliability than the Douglas C-133 Cargomaster, then the largest cargo plane in operation. In 1964, the Air Force requested proposals for the CX-HLS (Cargo Experimental-Heavy Logistics System), a jet cargo plane that could fly at Mach 0.75, lift up to 250,000 pounds, carry any piece of equipment in the army's arsenal, and take off and land on semi-prepared runways.

Lockheed began designing the C-5A in July 1964. Boeing and Douglas were also in the competition to build the CX-HLS.



The gaping cargo compartment of a C-5A during nose assembly, February 1968.

The winner of the contract stood to make \$750 million in development costs and another \$1 billion in the production of at least 56 planes.

Lockheed's design for the largest aircraft in the world was based on the successful C-141 StarLifter. However, the C-5 became bogged down in politics, contract disputes, and a need for a wing redesign. The controversy surrounding the project took a toll on Lockheed financially. Nevertheless, the plane exceeded expectations in terms of performance, and stood alone in terms of cargo-carrying capacity, breaking all records for transport planes.

The proposal Lockheed sent to the Air Force was an enormous document, reflecting one of the first examples of Secretary of Defense Robert McNamara's Total Package Procurement contracts. These contracts assigned the responsibility for the entire project—research, development, testing, evaluation and production—to the lead contractor under a single, fixed-price contract with negotiated incentives. The size and length of the resultant contract attracted considerable media attention and led to a public perception that the program was a white elephant that threatened to waste millions of tax dollars. Although the Total Package Procurement process was intended to cut down on wasteful spending, in practice it led to monetary losses for both Lockheed and the Pentagon, and cost both in terms of public trust.

The C-5A contract was awarded to Lockheed-Georgia in September 1965. Amid the great rejoicing, there was at

least one restrained face, that of Jack Ferguson, an engineer involved in the proposal. Concerned that the control to be exercised by the Department of Defense over the contract would lead to problems, Ferguson told people that day that there were two winners in the competition and Lockheed was not one of them.

Like the C-141, more than half of the airplane's subassemblies were manufactured by outside contractors and shipped to the Marietta plant for assembly. Structural assembly on the first C-5A began in January 1968 in the western end of the high-bay area of the B-1 assembly building.

Everything about the C-5A Galaxy, as it was named, dwarfed any plane in existence at the time. Its 222-foot wingspan nearly reached across the entire width of the main assembly line bay in the B-1 building. At 247 feet long—almost 80 feet longer than the C-141—its cargo bay was actually longer than the Wright Brothers' first flight. The massive cargo space was more than five times the size of the C-141 and was sometimes described as the Holland Tunnel with wings. It could carry six Greyhound buses driven in two abreast, or 700 combat-ready troops. The unique nose opening on the plane allowed cargo to be loaded from both front and back, or to off-load and load simultaneously. Even with its great bulk, however, the C-5A was considerably faster than the C-141, with a top speed of 564 miles per hour.

When the plane was pulled out of B-1, it was necessary to cut out the hillside opposite the western door of B-1 in order

for the plane to make the turn to the Empennage Mate Building (B-102) where the tail section was attached to the fuselage. This building was constructed specifically for the C-5 near the southeast corner of B-1 and adjacent to the taxiway to the flight line buildings. Since the tail section stood 65 feet tall, it could not be attached to the fuselage in B-1 because it would not fit through the 45-foot hangar doors. The spread of the rear stabilizer was nearly 70 feet, about half the width of the entire B-29 wingspan.

The first C-5A rolled out of the L-10 building, another facility constructed specifically for the



Visitors examine the unique visor-style nose cargo door on the C-5A, March 2, 1968.



The first production C-5A stands next to the 10-passenger JetStar outside building L-10 at the C-5A rollout, March 2, 1968. President Lyndon Johnson spoke at the ceremony.

Leo J. Sullivan, Lockheed's Prolific Test Pilot



When the world's largest aircraft lifted off the Dobbins AFB runway on June 30, 1968, a familiar face was in the cockpit, test pilot Leo J. Sullivan. Sullivan had test flown practically every aircraft developed at Lockheed-Georgia, starting with the first production C-130 Hercules in 1955.

"The aircraft did a phenomenally beautiful job on the first flight," said Sullivan of the C-5A.

During his service as a pilot and test pilot for the Navy during World War II, Sullivan flew nearly every type of aircraft in the Navy's stable. He came to Lockheed's California division in 1950, where he tested the P2V, Constellation, and T-33 series airplanes that were being developed at that facility.

Sullivan came to Lockheed-Georgia in 1952 and served as commander for the first flights of the C-130 Hercules, the XV-4A Hummingbird vertical takeoff jet, the LASA-60 single-engine plane, the C-141 StarLifter, and the C-5A Galaxy.

Sullivan went on to serve as a development test engineer and product safety design engineer at Lockheed in the 1970s.

program, on March 2, 1968. The rollout received extensive press coverage and was attended by President Lyndon Johnson, former Georgia Senator Carl Vinson, Governor Lester Maddox, Air Force Secretary Harold Brown, and Brown's wife, who christened the plane. In his remarks to the crowd, President Johnson joked that he was confident that someone had measured the hangar doors to make sure the plane would fit through. Indeed it did, and on June 30 it made its first flight from Dobbins AFB runway. The hour-

and-a-half flight was more than routine, given the chatter that the C-5 program was a boondoggle and that the aircraft might not even get off the ground.

In fact, the C-5A continued to set record after record in gross take-off weight, size of cargo, and other performance categories. It was the only plane capable of carrying such oversized equipment as tanks, missile containers, and armored personnel carriers. In July 1971, the C-5A demonstrated that it could carry not one, but two mobile scissors bridge launchers, the Army's largest piece of equipment. The tank-track launchers weighed 121,000 pounds each.

The first operational aircraft were delivered to Military Airlift Command in December 1969. The C-5A served the country's needs again and again in airlift operations, airdrops, relief missions, and the transport of items that could not otherwise be delivered by air. The C-5A was pressed into service in Vietnam less than six months after its delivery and was used for the remainder of the war and in support of the South Vietnamese after the U.S. withdrawal. The C-5 proved invaluable during the 1973 Operation Nickel Grass airlift to Israel in the Yom Kippur War.

Tragically, ship No. 1 of the C-5A fleet—the same one that had rolled out in front of the president in 1968—was lost in an explosion and fire on the Dobbins AFB flight line in November 1970. The plane was under-going routine maintenance at the time, and the incident was not considered a threat to continued testing and operation of the C-5A, of which there were 27 in operation already. Lockheed produced 54 more of the planes for the Air Force, the last one being completed in May 1973.



The C-5A takes off on its first flight, June 30, 1968.

Like the L-100 commercial version of the C-130, a commercial version of the C-5, the L-500, was developed in hopes of selling it as an air freighter, but the project was eventually cancelled.

The C-5 is still in frequent use and stands with the slightly larger Soviet-made An-124 Condor as one of the largest planes in the world. The An-225 Mriya, only one of which was ever built, remains the largest plane currently in use.



Firemen work to douse the flames of the first production C-5A after it exploded on the flight line during routine maintenance, October 24, 1970.

Other Programs at Air Force Plant 6, 1961–1971

While working on the C-130, C-5A, and C-141, Lockheed-Georgia was also continuing its research and development work through a number of projects.

Hummingbird. By 1959, research had begun for the Army on an experimental plane capable of taking off and landing vertically like a helicopter. The result was the XV-4 Hummingbird, which used diverted exhaust gases to take off, land, and hover. Two of these aircraft were designed and built in the B-29 building, originally dubbed the “Possum Works” as a play on the more famous “Skunk Works” at Lockheed’s Burbank plant. It was later renamed the “Hummingbird’s Nest.”

In November 1963, the XV-4 became the first U.S. aircraft to take off vertically, transition to horizontal flight, and then land vertically. The program suffered a severe setback, however, when one of the planes crashed in 1964, killing the pilot.

Lockheed rolled out a second version of the Hummingbird, the XV-4B, in June 1968. The improved



The XV-4 Hummingbird’s first vertical hover, May 1963. In November of that year, it became the first U.S. plane to take off vertically, transition to horizontal flight, and land vertically.

Hummingbird was equipped with both vertically and horizontally mounted jet engines that diverted exhaust as needed for conventional and vertical flight. The XV-4B was also equipped with “fly-by-wire” controls, which used electronic, rather than mechanical, input to control flight. The Hummingbird II completed a successful vertical takeoff and landing in October 1968. That aircraft also crashed, in March 1969, effectively ending the program.

Georgia Nuclear Laboratory. The Dawsonville facility expanded its program in the early 1960s to include testing on a nuclear-powered space vehicle. Wehrner von Braun, the famed former German scientist and the first Director at NASA’s Marshall Space Flight Center, visited the facility in January 1963 and predicted that it would play a vital role in the Reactor In-Flight Test that was also being studied at Marshall Space Flight Center in Huntsville, Alabama.

A decline in available work, in part a result of public concerns about nuclear safety, forced a temporary closing of the laboratory in 1970. The nuclear-powered vehicle projects were scrapped, and in 1971 the Georgia Nuclear Laboratory ceased operation permanently. The buildings and other improvements to the site were removed and the land was deeded to the city of Atlanta as a potential site for a second airport in 1972. The airport never materialized and the site is currently managed as Dawson Forest Wildlife Management area by the Georgia Department of Natural Resources.

Malfunctioning and Discrepancy Recording. Lockheed-Georgia was given the job of developing and flight-testing a monitoring system designed to compare pilot evaluations with instrument readings of aircraft during test flights. This helped identify where pilot perceptions differed from actual flight characteristics.



Wernher von Braun, former German scientist and the first Director at NASA’s Marshall Space Flight Center, visits the Georgia Nuclear Laboratory with Lockheed and Air Force officials, December 1962. Left to right are Dr. W. P. Walker, acting manager of GNL; Ernst Stuhlinger, chief of Lockheed’s research project division; Dr. Von Braun; GELAC President Dick Pulver; Karl Heimburg, chief of Lockheed’s test division; and Colonel Scott Fellows, chief of the nuclear vehicle project office, Marshall Space Flight Center.



Lockheed's new research center located across the runway from Air Force Plant 6, October 1965.

Saturn components. A number of components of the Saturn V first-stage rocket booster were manufactured at Lockheed-Georgia. The rockets were tested at Army Ballistic Missile Agency in Redstone, Alabama. Other space-related projects included manufacturing heat shields for NASA, fabricating nose cone fairings and Typhon rocket cases for the Navy, and building missile sustainer motors for the Army.

New Construction for New Projects

Both the aircraft manufacturing and research and development branches of Lockheed-Georgia needed new facilities in the 1960s to accommodate their unique projects.

In 1961, work was completed on a cryogenics laboratory north of the B-4 building. The lab was designed for testing the behavior of liquid hydrogen and liquid oxygen at extremely low temperatures for use as rocket fuels. The lab also developed storage tanks for rocket fuel.

In 1965, Lockheed opened a \$3.5 million research laboratory on land it had purchased between the flight line area and Atlanta Road, south of the runway used by Air Force

Plant 6 and Dobbins AFB. This property was known as the Lockheed complex, or South Campus, and a number of other buildings were constructed there in the 1960s and 1970s. The laboratory complex was made up of four buildings on a 20-acre site. The facility featured equipment for all types of scientific and engineering testing, including a hypersonic wind tunnel, electron microscopes, a ballistics range, and a human factors laboratory for evaluating ergonomics and human performance. In August 1962, 10 Air Force pilots emerged from a simulated space capsule in the human factors laboratory where they had spent 30 days testing the psychological effects of working in close quarters for extended periods.

The staff of the research laboratory was drawn from various universities, with over a third of them possessing doctorates. Another 45 percent had earned masters' degrees. Lockheed scientists worked closely with scientists from Georgia Tech, Georgia State, and Emory universities to conduct testing and development at the laboratory facilities.

Beginning in 1978, Lockheed began leasing the portion of the South Campus containing the research laboratories to Georgia Tech's Engineering Experiment Station, which used

the facilities to conduct electronics research. In 1983, the Tech facilities, which included five buildings and 45 acres of land, was sold to the Georgia Scientific and Technical Research Foundation, a non-profit organization created to support educational research institutions. The Cobb County Industrial Development Authority funded the purchase with public bonds in order to promote continued research at the facility and attract other high technology companies to the area. The property is now owned by the University Financing Foundation, Inc., which continues to lease the facility to Georgia Tech.

In 1962 an outdoor dining and recreation area was constructed between the B-1 and B-2 buildings. The concrete “patio” was covered by a metal roof and featured tables for seating almost 200 people. Adjacent to the covered area were two shuffleboard courts, two horseshoe pits, and two ping-pong tables.

The patio only lasted five years, however, as it had to be taken out in 1969 to make way for an ambitious updating of

the company’s food service facilities that began in 1968 to serve the growing number of employees. As the C-5A program was reaching full swing, as many as 21,000 employees ate lunch at the Automatic Retailers of America (ARA) cafeterias and canteens. ARA replaced Slater as the plant’s food service vendor.

The project included a new kitchen in the area occupied by the patio (now a cafeteria), a new canteen adjacent to B-1, a dishwashing facility, and the remodeling of the existing kitchen in the basement of B-2 with more modern food storage and baking equipment.

ARA had previously opened three new canteens in the engineering test center built for the C-5A program and was increasing the number of Servomation vending machines that were becoming more popular with employees. “More and more, the food industry is going to convenience food,” said Lockheed’s liaison with ARA. The vending machines were becoming more common in universities, industrial facilities, and government office buildings like the Pentagon. The proceeds from the sale of food from vending machines went to the recreation club.

The new kitchen, or Food Production Center as it was designated, between B-1 and B-2 was not completed until 1971. The layoffs that came in 1970 and 1971 apparently changed the plans for the project and the old kitchen in the basement of B-2 was no longer used.

In September 1965, Lockheed announced that it was building a low-speed wind tunnel on its land located at the southwest end of the runway. The wind tunnel, which opened in 1967, was the largest privately owned and operated wind tunnel in the United States. The low-speed wind tunnel was used to test aeronautical components and aircraft models, including the C-5 and the Vertical Take-off and Landing and Short Take-off and Landing aircraft then under development at Lockheed-Georgia. Automobiles were also tested under contract with auto manufacturers. The tunnel was used by racecar driver Bobby Unser in 1979, and has been used recently by NASCAR teams, as well. It was also used recently to test the Joint Strike Fighter, now in development.

In July 1966, two new buildings were constructed at the Lockheed complex for JetStar manufacturing (L-11) and the Logistic Support Department (L-12). Seven hundred employees of the JetStar program were moved from the B-1 building to make room for C-5A production there.

The C-5A project prompted the construction of no less than four major buildings and several smaller ones at Air Force



Ten Air Force pilots emerge from a space capsule simulator in the Human Factors Laboratory after a 30-day test of their ability to work in the space for an extended period, August 1962.

Plant 6 and on Lockheed property. The first of these was the C-5 Project Building (B-95) constructed to accommodate the design teams working on the plane and clear out room in the overcrowded B-1 mezzanine where project engineering had taken place for the C-130 and C-141. The one-story, steel-and-glass structure was erected in front of the B-1 building using modular units with built-in wiring, plumbing, and heating and air-conditioning systems. The first workers moved into the office building in January 1966, and when completed, it housed 3,000 workers and covered seven acres. B-95 will become the main office complex when B-2 is demolished in 2007.

As mentioned previously, the C-5 also required a separate building for mating the tail section with the fuselage (B-102), since the tail was too high to fit in B-1. This building was completed in 1967.

The largest project associated with the C-5A production was the engineering test center (L-10), where static tests were

conducted on the completed aircraft. Construction of the facility, located on the Lockheed campus adjacent to the flight line area, began in 1965 and was completed in August 1967. The \$11 million building featured a massive cantilevered roof rising five-stories high and an unobstructed interior space capable of accommodating the sprawling wingspan and towering tail section of four C-5A Galaxies. Altogether, the building contained floor space the area of 10 football fields and required 5,000 tons of steel to construct.

One of the more interesting test facilities in the L-10 building was a giant pool for testing pressure limits of whole fuselages. The tank had a capacity of 2.5 million gallons and was constructed of concrete and steel plate. To support the weight of the water and the plane, 250 reinforced concrete pillars were sunk 50 feet into the ground.

Although not technically new construction, several significant remodeling jobs were completed in the 1960s. In



Aerial view of C-5A Test Center (L-10) under construction, May 1967. The building was believed to be the largest cantilevered hanger in the world. Note the scale model of a football field superimposed in the upper left corner.

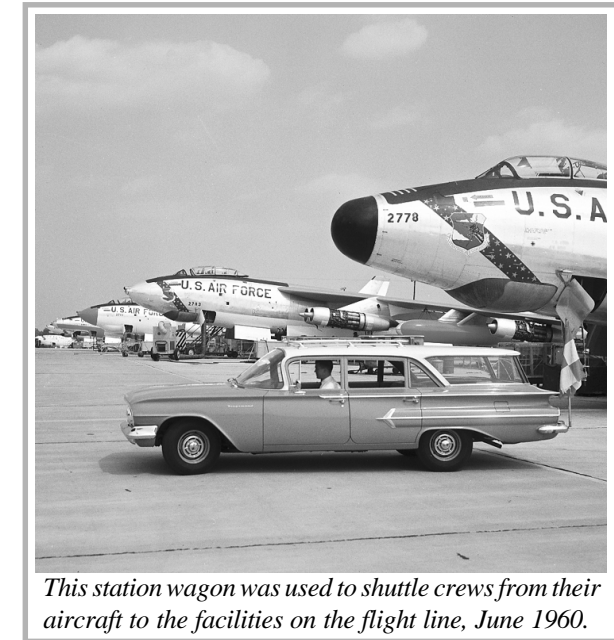
Carpools

Air Force Plant 6 employees were continually encouraged to carpool, but by the 1960s, Lockheed-Georgia was no longer working directly to match employees with others in their vicinity with whom to share rides. However, Employee Services did maintain 3,000 cards on file for drivers looking for riders. As car ownership increased and the number of employees at Air Force Plant 6 decreased in the early 1960s, carpool participation declined. In October 1965, soon after the announcement of the C-5A contract, cars in the B-1 lot were carrying an average of only 1.6 passengers, compared to 2.5 per car in 1963. As employment at Lockheed-Georgia expanded to nearly 30,000 in 1969, carpooling increased, almost as a necessity in order to get a parking place.

Many cars logged long hours shuttling employees from the far flung counties of Georgia. In the mid-1960s, Harold Rhinehart, an electrical bench assembler on the C-141 project, rode 140 miles from his home in Young Harris, Georgia, near the North Carolina border to get to work each day. He drove his own car 70 miles to Blue Ridge, Georgia, where he joined other employees from that area in a carpool to the plant. In order to make it to the plant on time for his 7:00 a.m. shift, he left home at 3:30 a.m. It was 6:30 p.m. before he arrived back home. At one time, Rhinehart had lived closer to the plant, but like many of his fellow workers from North Georgia, he loved his hometown mountains too much to move to the “big city.”

Perhaps the carpool workhorse award would go to a three-shift carpool from the Cumming, Georgia, area that in 1965 carried nine workers for each shift, stopping behind one of the head houses to unload its passengers and then carry those getting off the earlier shift back home. The car, a 1960 station wagon, traveled 80,000 miles per year and did not even need a parking space at the plant.

In 1968, Lockheed employees could be found in 85 of Georgia’s 159 counties, although about three-fourths were from the five metro Atlanta counties. Kenneth Beason made a living transporting Lockheed employees from northwest counties like Murray, Bartow, and Floyd in two limousines he purchased. He charged \$8 per week for each passenger. James Head of Lumpkin County carried a dozen passengers in his panel wagon. Some workers from distant counties had temporary residences in Marietta and returned home on the weekends. The Atlanta Transit Service began offering a special bus from Atlanta to the plant in 1969. The fare was 50 cents each way.



This station wagon was used to shuttle crews from their aircraft to the facilities on the flight line, June 1960.



These employees are promoting both carpooling and the metric system, July 1975.

The value of carpooling further increased in the 1970s as a result of gas shortages and increasing gas prices. A promotional photograph from July 1975 highlighted two efforts of the time to change the behavior of Americans. It featured a carpool that started over 100 miles from the plant in Lavonia, in northeast Georgia, picking up three riders along the way. The four riders posed with a sign that proudly declared that they carpool 338.605136 kilometers each day, reflecting a plant-wide effort to promote gas conservation, as well as conversion to the metric system.

1962, the T-400 building, an administrative building constructed during the Bell Aircraft days as a temporary facility, was remodeled with new lighting, floors, paint, and air-conditioning. A new reception lobby greeted vendors and customers. T-400 fell into disrepair and was demolished in the 1990s.

The massive B-1 building got a new roof, completed in 1964. The wooden roof that was installed originally on the building as a temporary measure due to the shortage of materials during World War II was replaced by the steel decking topped with tar and gravel as originally intended. To carry out the job, contractors constructed a 1,000-foot ramp up to the roof to carry the new materials up and remove the old materials. Four specially designed tractors, 50 farm wagons, and a 7-ton forklift were needed to move the material, which required 26 trips per day from the ground to the roof. Approximately 10 million pounds of decking and 4.5 million gallons of asphalt were used to cover the roof. Amazingly, work was able to continue in the assembly building with no delays while the 17-month project was going on.

Plant Operations

Plant Engineering. Keeping all of the mechanical, electrical, and waste disposal systems operational at Lockheed-Georgia was the equivalent of operating the utilities of a small town. The job was handled by the Plant Engineering Department (now Plant Facilities Department), which was on duty around the clock.

To keep the assembly lines going, as well as to support all the other operations at Lockheed-Georgia's Marietta plant, Plant Engineering had to supply over 2 million gallons of water, 10 million cubic feet of compressed air, and nearly 80,000 cubic feet of natural gas per day. In addition, water heaters, air-conditioning, heating, and sewage needed to be maintained.

Nine mechanical equipment rooms were located in the basement tunnels of the main assembly building, as well as in other buildings throughout Air Force Plant 6. The 12 air compressors were particularly sensitive and required constant maintenance to keep the pressure even in the lines.

Plant Engineering also included a Roads and Grounds Department and a Flight Line Maintenance Department.

Phone system. In order to improve communications among Lockheed Corporation's various divisions and to save money through consolidation, in 1961 the company launched a company-wide telephone system that operated on leased lines from 15 U.S. phone companies and linked 20,000 phones

throughout the country. The network constituted the world's largest private telephone system. The leased lines also made it easier to connect to other phone companies in the country, making long-distance calling faster and less expensive.

Parking and Traffic. Employment at Lockheed-Georgia had neared 20,000 around 1957, only to decline again by the end of 1960 as military orders were cut. The C-141 program, followed by the C-5A project, however, would push the number of employees past the previous levels, reaching its all-time high of nearly 33,000 in September 1969, and creating the need for improvements to plant infrastructure, food service, and transportation facilities.

In 1962, the parking lot was expanded to include 1,200 more spaces, and traffic flow rules were imposed to prevent congestion in the parking lot.

The extra traffic affected more than just Air Force Plant 6 property. Changes to the local road network were necessary to accommodate those going to and coming from Air Force Plant 6, Dobbins AFB, and the Lockheed complex. Portions of South Cobb Drive, which borders the government reservation to the north, were widened to four lanes prior to 1965, but the road narrowed to two lanes west of the L & N Railroad overpass. This created a serious traffic hazard at the intersection of South Cobb Drive and Atlanta Road (the old U.S. 41).

In 1966, the Department of Defense became involved in studying traffic problems, and a number of solutions were planned or were already being implemented. A dedicated carpool parking lot was established for cars containing at least four passengers. All but 100 of the 900 spaces allotted had been claimed by April 1966. Plans were being studied for an underpass on Fairground Street at South Cobb Drive and improvements to the Windy Hill-Atlanta Road intersection.

In May 1967, the parking plan for B-1 lot included a "lot full" light on South Cobb Drive that would alert arriving day shift employees to proceed to an overflow lot. Specific lanes were assigned to the different shifts to smooth the process of entering and exiting the lot.

Working at Lockheed

Integration Finally Comes to Air Force Plant 6. The C-141 program was the first to be fully integrated at Lockheed-Georgia. Company President Dan Haughton had received word from Board Chairman Robert Gross that he wanted the Georgia Division to comply with federal laws encouraging

desegregation. Haughton directed Dick Pulver to implement the changes, but the task was a difficult one, given that Georgia law still dictated segregated facilities. Although it had been six years since the Supreme Court had ordered the desegregation of schools “with all deliberate speed,” the state was considering ending public education rather than integrate, and Jim Crow laws remained on the books. While Ralph McGill, editor and publisher of the *Atlanta Constitution*, and Lockheed board member and former plant manager Jimmy Carmichael, among others, advocated moderation and cooperation in racial relations, most were not ready to advocate for racial equality in the workplace.

Charles Ferguson, an African American who worked on the nose section of the B-47 and later the C-130, recalls that they left work one Friday and when they returned on Monday the “white” and “colored” signs had been removed from the water fountains and replaced with paper cones for people to use. The company had even hired a person to make sure that the cups were kept replenished throughout the plant. According to Ferguson, when Lockheed realized the cost of going through thousands of these cups a day, it eventually abandoned this practice as well.

There was only one cafeteria in the B-1 building for black employees and it was located in Tunnel 2 at the western end of the plant, a considerable distance for those who worked on the eastern end. According to Charles Ferguson, eventually the black workers got tired of walking so far, especially since they only had 20 to 30 minutes for lunch, barely giving them time to eat, so they started going into the “whites only” cafeterias. The management responded by shutting down the cafeterias until the “intruders” left.

Nevertheless, Pulver had his orders. According to several sources, he made the change subtly and incrementally, with no formal announcement of a change in policy. No mention of the change was found in the *Southern Star* during the period. Instead, workers found bathrooms closed for renovation or repair and were forced to use other facilities. When all the work had been completed, the “whites” and “colored” signs were not replaced, and it was difficult to remember which ones were which.

Eventually, all the cafeterias were closed. Food was placed in the hallways on trays, or brought into the assembly building on mobile canteens, allowing employees to take their lunch wherever they chose. The official reason for the canteens was that it allowed workers to more easily finish their lunches in the 20 minutes allotted. Apparently there was little complaint.

As Harold Mintz, a supervisor of both black and integrated crews observed, “See, we as people are funny. We’ll do these things if we know they need to be done as long as we think we’re not being made to do it. It was worked real smooth. We didn’t have a problem.”

Mintz recalled that some efforts at integration had been going on since the mid-1950s, and this appears to be the case. A photograph of an April 1961 employee assembly just days after the C-141 announcement shows blacks and whites sitting together to receive their 10-year pins.

However, Mintz may have been underestimating the effort involved in bringing about these changes, both on the part of Lockheed officials and the African-American community, as well as the extent of the tension among white and black workers. One employee, R. C. Combes, recalls that some white workers threatened to take action against the policy. However, this apparently did not come to pass. Charles Ferguson does not recall any walkouts. He said that few of those who objected to the integration were willing to quit, because the pay and benefits were too good to give up. “People let you know” if they were unhappy about the change, but they



Harold Mintz worked for both Bell and Lockheed and served as a department manager in structural and primary installations for the B-47, C-130, C-141, and C-5 programs.

Lockheed Employees Recreation Club

One of the first clubs established by Georgia Division employees was the Georgia Lockheed Employees Recreation Club (GLERC). This was very similar to the recreation club started at Bell Aircraft during World War II. It was employee-run and had elected members that served one-year terms. GLERC sponsored a variety of recreational programs such as bowling, softball, baseball, and basketball leagues, as well as dances, choral groups, and other social events.

The athletic leagues were very popular. Teams competed against each other as well as against teams from other area companies. In the fall of 1955, there were 122 bowling teams from the plant in 11 different leagues.

In 1958, a new recreation center was built with Lockheed funds just north of the plant. The facility included two softball diamonds, tennis, volleyball and badminton courts, and shuffleboard.

The Recreation Club also sponsored the annual Family Day celebration in early May. Until 1967, the event was held at Lakewood Fairgrounds in Atlanta, which featured carnival rides, midway games, and food vendors. In 1967, the event was moved to Lake Spivey and in 1970 to Six Flags Over Georgia. About 50,000 employees of GELAC and their families attended the event in 1956.

Family Day also included field events organized by GLERC such as egg races, sack races, and wheelbarrow races. Other entertainment included shows, live music and dancing, and a beauty contest where Miss Lockheed was crowned. Although the name wasn't changed to Ms. Lockheed until the early 1970s, the contest was open to both single and married women who were employees of Lockheed. Miss Lockheed's duties largely involved public relations appearances at aircraft rollouts, posing for publicity photos with aircraft, and promoting bond drives, safety programs, and other Lockheed activities.

World famous bandleader Tommy Dorsey played GLERC-sponsored dances at Larry Bell Auditorium in December 1952 and January 1953 to enthusiastic response. Approximately 1,300 people attended the December dance.

By the 1970s, GLERC was sponsoring more specialized clubs including a scuba club, a motorcycle club, and a ceramics club. Sport participation included newer sports like karate and soccer, although softball, horseshoes, ping-pong and other traditional sports remained popular.



Lockheed-Georgia beauty pageant winners at Family Day, June 1965.



Family Day at Lakewood Fairgrounds, June 1965.



Batter A.E. McDermott and catcher Charles L. Seaman, both of engineering department 72-21, open the GLERC softball season, May 1962. There were 12 teams in the league.

were careful not to step over the line for fear of losing their jobs. Furthermore, while separate facilities and workplaces were eliminated in 1961, racial discrimination was a more difficult problem to tackle.

When the C-141 contract with Lockheed was announced in April 1961, the NAACP immediately protested to President Kennedy's Committee on Equal Job Opportunities, headed by Vice-President Lyndon Johnson, that Lockheed discriminated against African Americans in violation of federal policy. Johnson declared that the committee intended to see that the Marietta plant was integrated.

Lockheed officials met with the committee in Washington, where the two parties agreed to a "Plan for Progress." Lockheed Chairman Courtlandt Gross traveled to Washington to sign the plan with President Kennedy on May 25, 1961. President Kennedy hailed the agreement as "a milestone in the history of civil rights." It was, in fact, the first such agreement between the federal government and a private corporation and was followed by many others over the next three years with hundreds of major companies. These progress plans laid the groundwork for the Civil Rights Act of 1964, which eliminated racial segregation nationwide.

Hugh Gordon, Lockheed's director of personnel, was largely responsible for implementing the "Plan for Progress." The plan sought to increase opportunities for black workers by creating merit employment councils that provided vocational guidance in the black community, educating principals, teachers, and students about the skills and education needed to get jobs in the aerospace industry. The plan was updated and renewed in 1967.

Lockheed's "Plan for Progress" seems to have been successful. In June 1966, Lockheed Chairman Courtlandt Gross reported that the company had more minority employees in managerial and professional positions than in unskilled and service worker jobs. Approximately 6,500 minorities were employed in professional, managerial, clerical, and skilled and semiskilled positions. About two-thirds of these employees were skilled or semiskilled craftsmen, but nearly 1,000 were employed as scientists, engineers, accountants, and buyers. More than 1,000 performed technical or clerical work. Ninety-one were managers. The number of minority employees cited included those throughout the Lockheed Corporation. The number of minorities in these positions at Lockheed-Georgia was not provided.

The Plan for Progress and the programs it spurred in other industries in the Atlanta area may have helped defuse

some of the racial tensions that erupted in violence throughout other parts of the country at the time. Because Cobb County's black population was only about seven percent of the total population in 1960, protest and violence were not widespread during the Civil Rights movement. There were, however, a number of threats and at least one bombing in Marietta about the time that Lockheed-Georgia was integrating. Nonetheless, the relative calm did not deter some young, black Mariettans from protesting the continued segregation in the town. In 1963, they staged several sit-ins at lunch counters on Marietta Square. Neither Lockheed-Georgia's efforts nor the local protests resulted in any change in the local Jim Crow laws; it was the Civil Rights Act of 1964 that finally forced a change in Marietta and Cobb County.

An Employee Survey Documents Opinions. In 1967 Lockheed-Georgia hired a team from Georgia Tech's Department of Psychology to conduct an opinion survey of Lockheed-Georgia employees. The survey gauged employees' feelings concerning job satisfaction, wages and salary, benefits, facilities, management responsiveness to employee needs, and many other aspects of the company's operation.

Responses were received from about 43 percent of the Lockheed-Georgia's employees. About 90 percent of hourly employees rated as favorable their job satisfaction, their contribution to the company, and the company's reputation. These employees were less inclined to have a favorable opinion regarding the company's response to their ideas, the fairness of promotion procedures, and the treatment of employees. Wages and benefits were generally regarded as favorable, with 61 percent regarding pay as better than at other companies and 60 percent or more expressing satisfaction with the vacation policy, sick leave policy, insurance plan, and savings plan.

Non-supervisory salaried employees gave similar responses, although they were somewhat less happy with the pay they received for their work individually and more satisfied with the opportunity for advancement. Both hourly and salaried employees were reasonably happy with their immediate supervisors' job knowledge and ability to get along with people, but less so with their bosses' abilities to communicate information about their expectations, respond to their complaints and problems, and plan and schedule work.

Supervisory and management personnel showed the most satisfaction, rating their pay, benefits, and immediate supervisors highly. Their most unfavorable responses related to the opportunity for promotion from their own jobs and the opportunity to change jobs within the company. Like the other

employees, they rated the credit union, the savings plan, and retirement plan highly.

Although the survey was taken during a period of high employment and a seemingly bright future for the company, a sense of the difficulties that might lie ahead is reflected in some of the workers' comments. Said one hourly employee, "The main disadvantage of working for Lockheed is that job security is almost non-existent." This sense of expendability is echoed by another worker, who said, "I believe when surplus time comes [layoffs], more concern should be given to those in the [lower] labor grades... It costs the Company to train a new group every time a new program comes around!"

Lockheed-Georgia's Zero Defects program, initiated in late 1964 to increase pride in quality workmanship, drew a few caustic comments. Its purpose, said one employee, was "to make awards to supervisors, friends, and pets." Others expressed the opinion that the program produced little tangible results considering the time and expense put into it.

Overall, the survey indicated a positive work environment for such a large organization, but the extent to which employees on all levels complained about a lack of response to individual ideas and problems seems to foreshadow the difficulties that the company would have accommodating its rigid management style to changes in the workplace and marketplace that occurred in the late 1960s and early 1970s.

Contract Troubles Nearly Sink Lockheed

The superlatives that followed the first flight of the C-5A Galaxy in 1968 seemed to prove the critics of the expensive program wrong, but a year after the first flight, as production models continued to roll off the line at Air Force Plant 6, it came to light that design life had been sacrificed to meet the performance requirements of the Air Force.

In 1966, while design, testing, and fabrication for the C-5 was going on, it became evident that the aircraft would be heavier



Right-hand outer wing of C-5A being lifted to wing dock by an aerial crane, November 1967.

than anticipated and would not meet the empty weight and range requirements of the Air Force. Testing of the General Electric TF39 engines had shown them to exceed expected performance, and so Lockheed suggested that the heavier plane could still meet the required numbers. The Air Force rejected the proposal, saying that the individual requirements under the contract needed to be satisfied. Lockheed was forced to launch an aggressive program of weight reduction on the Galaxy.

The weight reduction program rewarded engineers for weight-savings ideas, which included substitution of smaller gauge wires, redesign of interior features, and reducing wing weight by using higher design stress levels and reducing primary component thickness. The changes appear to have raised the specter of metal fatigue as a larger concern in the design as early as October 1966, when a series of articles in the *Southern Star* discussed metal fatigue, sonic fatigue, and structural reliability as it related to the C-5 design. The Air Force apparently became aware by early 1967 that the design left little margin for static overloading or metal fatigue, but no changes were made in the design and production continued on schedule, with the delivery of the first "Accelerated Test Aircraft" to Edwards Air Force Base, California, in June 1969.

Because of its massive wingspan and huge payload, the wing structures were particularly susceptible to fatigue fractures. One of the weight-saving measures used on the C-5A was to dip the wing components in an acid bath that removed a thin layer of material. The result was a slightly lighter, but also weaker, wing. Full-scale ground fatigue testing in July 1969 showed early wing cracking in the C-5A. The wings were found to have a fatigue life of barely 25 percent of the design goal of 30,000 flying hours and payload had to be restricted under normal peacetime operations to only 50,000 pounds, less than a third of the design payload. Although Lockheed devised a number of corrective measures, the Air Force lacked funds for their implementation and full resolution of these deficiencies had to await implementation of the Pacer Wing modification program in the 1970s.

In addition to the structural deficiencies, the Air Force and Lockheed-Georgia had to contend with alarming program cost overruns and ensuing severe criticisms from the media and Congress. Lockheed's original bid on the program was \$1.9 billion, compared to Douglas' bid of \$2 billion and Boeing's bid of \$2.3 billion. In the end, the C-5 cost over \$5 billion.

These overruns could be attributed in part to Lockheed and in part to the Department of Defense. To win the CX-HLS competition, Lockheed had submitted an overly optimistic bid, but its competitors had as well. The new Total Procurement Package contract had also required a lot of guessing, since the cost of all of the aspects of the production, over a long period of time, could not be accurately determined. After accepting bids based on the eventual delivery of over 100 units, the Air Force cut back its order by 34 aircraft to free funds for war operations in Southeast Asia. Lockheed thus was forced to recover development cost on a smaller production run.

The overruns were also due to significant inflation pressures in the U.S. during the late 1960s, a factor that was beyond control of either Lockheed or the Air Force. Inflation was particularly bad in the aircraft industry where the rapid increase in both military and commercial spending had brought about a shortage of skilled labor and drove up costs for materials, tools, and staff.

In May 1969, before the results of the fatigue tests were known, Lockheed executives responded to public criticism of the cost overruns on the C-5A, which by Lockheed's own estimate were as much as \$2.1 billion. Lockheed denied having any kind of "sweetheart deal" with the Air Force and argued that economic factors they could not have predicted had resulted in the increased costs that were magnified by the total procurement package. Board Chairman Dan Haughton said the criticisms had more to do with a general displeasure with the level of military spending at the time than with Lockheed specifically.

Indeed, any deal Lockheed had with the Air Force was not working to its benefit. The company renegotiated its contract in 1970 and agreed to a \$250 million loss on the C-5A Galaxy. To compound their problems, sales of the company's L-1011 TriStar passenger jet being manufactured in California were disappointing. Although well liked by pilots and passengers, the L-1011 faced a tight market against the similar McDonnell Douglas DC-10. Meanwhile, Boeing had taken its design for the CX-HLS heavy cargo plane and created the 747 passenger plane, which proved very successful for them.

Government Loan Guarantee

In 1971, Lockheed faced a dire situation when Rolls-Royce, the manufacturer of the L-1011 engines, declared bankruptcy. The British government was poised to step in and take over ownership of the company, but needed assurances

that Lockheed would continue to be able to pay for the engines. With cash-flow problems of its own, however, and lenders reluctant to bankroll the L-1011 project, Lockheed was not in a position to make such promises.

With thousands of jobs threatened and national security potentially at stake, President Nixon stepped in with a federal guarantee on loans to Lockheed. The loan backing created an uproar with the public, which was fed up with extensive military spending and lack of accountability. Senator William Proxmire of Wisconsin had been on a political crusade against wasteful government spending in the defense industry, and he attacked the loan security deal as another example of the federal government protecting industry at the expense of the taxpayer.

A disgruntled former Lockheed-Georgia employee, Henry M. Durham, compounded the attacks by claiming that he saw C-5A Galaxies come down the assembly line with missing parts and that supervisors were fabricating reports that all work had been completed. Lockheed claimed that Durham did not understand the system, and that often assembly proceeded out of order when parts were not available, but that they were eventually added. Still, Larry Kitchen, who would eventually become president of Lockheed-Georgia, admitted that when he first toured the C-5 assembly line in 1970, well into full production, he found great confusion resulting from Air Force change orders that were coming so fast that engineering could not keep up.

Lockheed-Georgia workers urged the President and Congress to approve the loan measure, collecting 250,000 signatures from supporters and sending them to Washington. A massive rally was held in July 1971 at the plant attended by 10,000 people, including many local politicians who spoke in support of the company.

Outside of Lockheed, the program was often characterized as a loan, but in fact it only stipulated that the U.S. government would pay back any loan that Lockheed could not. The loan guarantee was approved in August 1971, which helped keep Lockheed and Rolls Royce afloat, get back on firm financial footing in the early 1970s, and eventually make good on

all of its loans. The program had not only cost the taxpayer nothing, it had actually brought in \$31 million in guarantee fees paid by Lockheed, while keeping the aircraft industry competitive.

Marietta and Cobb County in the 1960s

The 1960s were a time of turmoil in the country, with assassinations of public figures, conflict over the country's role in Vietnam, and racial unrest. At Air Force Plant 6, the decade was a period of great optimism and success, as Lockheed-Georgia surged to its highest employment levels, only to be plunged into confusion and controversy as its aircraft and contract management were called into question. Meanwhile, Cobb County emerged as a true suburban community, with a modern form of government and a more metropolitan culture.

In 1960, Cobb County was the most populous county in the state without a liberal arts college. The University of Georgia (UGA) operated a branch school there called Marietta Center, which held classes at Southern Tech when it opened in 1961. However, the Board of Regents was trying to close UGA's branch schools and concentrate on opening new junior colleges in the areas of the state that were underserved by the university system. Although a



Buck-of-the-Month Club boosters visit Scottish Rite hospital, September 1979.

junior college had been promised for Paulding County, Marietta and Cobb County lobbied hard to have one there. By the early 1960s, the first baby boomers were reaching college age, and Cobb County's citizens were behind the effort. A bond issue was passed to help fund the school, tipping the balance to Cobb County. A site was selected near Kennesaw, and groundbreaking took place in 1964. Construction was slowed by a series of contractor strikes and classes were first held at Southern Tech in 1966. The campus of Kennesaw Junior College, as it was named, opened in 1967. It has since achieved full university status and has been renamed Kennesaw State University.

While Cobb County pursued higher educational opportunities for its citizens in the early 1960s, it continued to deny its black citizens equal opportunity in its public schools. The Marietta and Cobb County school boards managed to avoid dealing with the issue of school desegregation for 10 years following *Brown v. Board of Education*, but the Civil Rights Act of 1964 finally forced their hands. It allowed the Attorney General of the United States to file suit against and deny federal funds to school systems that did not comply with federal law. Marietta High School accepted two black students for the 1964–1965 school year to avoid a lawsuit, but full integration came slowly.

In 1965, students were allowed to choose which school they would attend. Lemon Street High School, originally established for black students (and the only high school for blacks in Cobb County prior to desegregation), continued to serve most of the county's African-American population for two more years. African-American communities in Marietta lobbied to keep open neighborhood elementary and junior high schools, but the county did not want to continue to fund these schools. Faced with a court takeover and the expense of maintaining predominantly white and predominantly black schools, the city gradually closed the former "colored" schools.

Compared to many places in the South, the transition to integrated schools in Marietta was relatively smooth, a fact due in part to the small black population (only 4 percent of the total population of the county by 1964), but also, perhaps, due to the integration of Lockheed-Georgia and other corporate institutions in the early 1960s.

At the same time that the Civil Rights Act was bringing change to the public schools, Cobb County's leaders set about changing the old county government to a

more representative and balanced system that would allow the increasingly diverse interests of the county's residents to be heard. In 1964, the voters approved a plan that called for four part-time commissioners and a full-time chair, who would serve as chief executive officer. Ernest Barrett, a laundry and dry cleaning business owner, was elected as the first chair of the five-member commission.

Barrett would serve as Cobb County Commission chair for 20 years, during which time Cobb County became one of the most prosperous and dynamic communities in the country. Fulfilling the promise of making county government more democratic, he worked hard to establish good relationships with the other commission members and work out solutions that were satisfactory to all parties.

One of Barrett's first acts as commission chair was to have the county's finances audited by a professional accounting firm. He also appointed a 100-member study group composed of the county's leaders and activists to discuss the needs of the county. The audit and study group both went a long way toward restoring faith in the county government. The study group's recommendations were incorporated into a \$15 million bond referendum that passed in 1965. Almost two-thirds of the money was earmarked for road improvements, but funds were also provided for libraries, parks, a juvenile home, and the completion of the new county courthouse.

Under Barrett's business-like oversight, Cobb County improved its credit rating, hired professional firms using sealed proposals to oversee road projects, created a parks department that acquired land and established parks and recreation areas throughout the county, and established a planning and zoning commission headed by a professional planner.

By the late 1960s, plans for a perimeter highway around Atlanta and the extension of I-75 north to Chattanooga made eastern Cobb County an ideal location for developers to build middle-class subdivisions for metro Atlanta's prosperous north side residents. The professional county departments set up by Commissioner Barrett in the 1960s helped to monitor the growth and streamline the process of expanding services to rapidly developing areas, setting the stage for the Cobb County to become a full-fledged suburb of Atlanta during the 1970s.



A row of C-5Bs on the ramp at Air Force Plant 6, ca. 1986.

CHAPTER FOUR

Air Force Plant 6 Serves the Air Force Mission through the End of the Cold War (1970–1989)

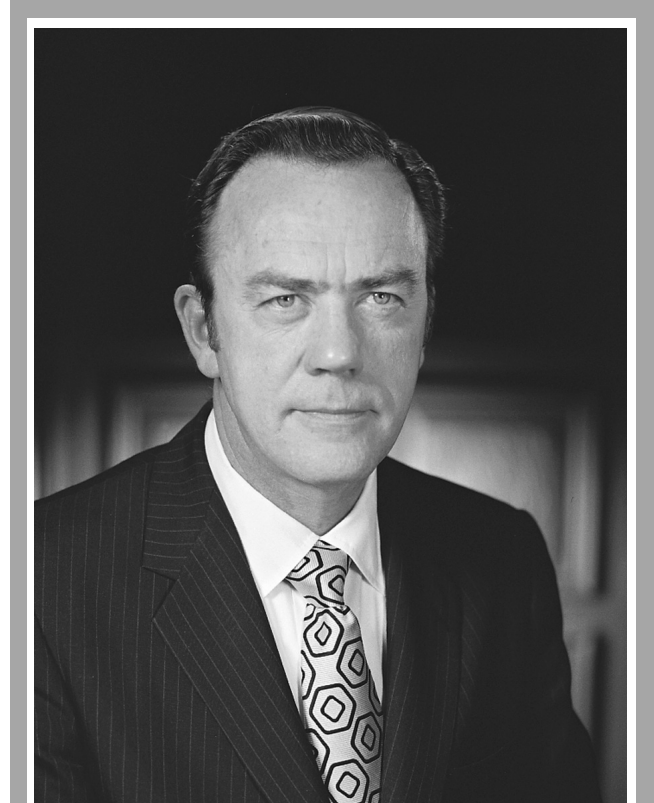
With the government loan guarantee making funds available to continue operations, Lockheed Corporation set about restoring its flagging reputation and adjusting its programs to meet the changing needs of military and commercial aviation. Lockheed-Georgia was but a part of the company's overall operation, but its success was critical to the success of the company as a whole, and Air Force Plant 6 remained at the center of Lockheed-Georgia's activities.

The recovery would not be easy or quick. Employment declined steadily from 1970 to 1974, falling from over 30,000 to fewer than 10,000. The forecast for the coming decade in the first issue of the *Southern Star* for 1970 painted a rosy picture of the company's prospects. However, many of the future programs outlined by President Tom May that would support Lockheed-Georgia were cancelled, scaled back, or not realized. For example, Lockheed-Georgia was counting on more sales of the C-5, a contract with Saturn Airlines for an advanced commercial version of the C-130 Hercules, commercial interest in STOL and VSTOL planes, and concept and design work on the space shuttle. Most of these programs failed to improve the company's bottom line. The last C-5A rolled off the assembly line in early 1973, the order reduced by the Air Force by 31 planes, and it would not be until the 1980s that the program would be revived. The commercial version of the C-130 sold slowly, although foreign governments continued to purchase the various modified versions of Lockheed-Georgia's most successful plane. A STOL design contract in 1971 never materialized into a new production aircraft. The shuttle design contract went to North American Rockwell.

Lockheed-Georgia President Bob Ormsby recalled in 1980 that at that time, there were rumors that they would have to close the plant. "But we were determined not to let that happen," he said.

Lockheed-Georgia Works Its Way Out of a Jam

That Lockheed was able to meet its obligations after the C-5A troubles and the downturn in the aerospace industry was due in large part to the efforts of Larry Kitchen, who took



Larry Kitchen, Lockheed-Georgia President, 1971–1975.

over as president of Lockheed-Georgia in 1971 after short terms by Tom May (1967–1970) and Robert Fuhrman (1970–1971). Kitchen began to scale back employment at Lockheed-Georgia using a better-organized assembly line that more closely matched the long-term needs of its programs. Although employment was at an all-time low by 1974, Kitchen noted at that time that overall productivity had increased by 25 percent.

Kitchen also nurtured other programs at the plant that would offset the losses of the C-5A Galaxy program. Although there were no new aircraft designs from the Marietta plant, a variety of modifications and redesigns kept the facility busy. Among the projects of the 1970s and 1980s were the JetStar II, the stretch modification of the C-141, a second stretch version of the L-100 commercial freighter, the L-100-30 Super Hercules, the C-5A wing modification, the C-5B, and the continued production of the C-130 and its variants for customers around the world. Lockheed-Georgia sold 46 C-130s in 1974,

about three-fourths of them to foreign customers, and production was increased from three per month to six per month.

At the core of his success was Kitchen's ability to establish an atmosphere of teamwork and cooperation, even as employees were laid off and the future of the operation was uncertain. Along those lines, he convinced Lockheed Corporation President and notorious taskmaster Dan Haughton to reduce his visits from corporate headquarters from weekly to monthly, freeing his management team from intense scrutiny and time-consuming reporting.

Kitchen's efforts boosted Lockheed-Georgia's profit margin as well as its morale, helping Lockheed Corporation to repay its debts by 1977. In October 1975, Kitchen was promoted to president of Lockheed Aircraft Corporation, and less than a year later was made president of the Lockheed Corporation, which included its Missile and Space division, as well as other subsidiaries. Robert B. "Bob" Ormsby was named as president of Lockheed-Georgia to replace Kitchen, serving in that capacity until 1984.

Even though the government-guaranteed loan was paid off in 1977, Lockheed-Georgia continued to face difficult times in the late 1970s and early 1980s. Sales of Lockheed-Georgia's "bread-and-butter" aircraft, the C-130, were hurt in the late 1970s by increased competition, government restrictions on military export sales, and worldwide inflation that hampered financing for nations with limited resources.

In early 1981, Lockheed-Georgia lost its proposal to the Air Force for its next generation cargo plane, the C-X. The contract went to McDonnell Douglas; however, the Air Force was still considering a variety of options in terms of the number of each type of transport in its fleet, leaving open the possibility of reviving the C-5.

Losing the C-X contract may have been a blessing in disguise since McDonnell Douglas' C-17 that was the result of the design competition ended up mired in contract problems and cost overruns similar to those that plagued the C-5A. The first C-17 did not fly until 10 years after the award of the contract. Meanwhile, Lockheed received the go-ahead to put new wings on the Air Force's C-5A fleet, a program that proved quite successful. A variant of the C-5A, the C-5B was also developed and accepted by the Air Force, providing a stable base for the company until the end of the 1980s.

The C-130 survived the pressures of the late 1970s, and by 1985, sales of the C-130 and its variants had reached 1,735 over its 30-year history. In 1982, Lockheed-Georgia took its largest number of orders for the Hercules in the previous five

years. Between 1981 and 1983, versions of the company's venerable transport went to Kuwait, Algeria, Oman, Thailand, Dubai, and Japan, as well as the Air Force and the Coast Guard.

The end of the Cold War is usually cited as occurring with the fall of the Berlin Wall in 1991, but it really began in the mid-1980s with Mikhail Gorbachev coming to power in the Soviet Union, the first leader of that country since World War II not to have been associated with the Stalin regime.

At the Geneva Summit in 1989, Gorbachev rejected the Brezhnev Doctrine that justified communist imperialism, stating that the "force or the threat of force neither can nor should be instruments of foreign policy." The Soviet Union began to loosen its grip on Eastern Europe, allowing Poland to hold elections in 1989 and other former Iron Curtain countries to establish their own governments. It began withdrawal of its troops from Afghanistan in 1987.

Although the end of the Cold War led the U.S. to reorganize the Army and Air Force commands and re-examine their missions and materiel, the basic needs of military transport remained unchanged. Instability in the Middle East, Africa, and Central and South America still demanded air mobility to deliver troops, supplies, and weapons where they were needed in times of crisis. As a result, Air Force Plant 6 continued to serve a vital role in the Air Force's acquisition program.

Lockheed-Georgia would also experience a series of changes in the 1990s and would become involved for the first time with building fighter jets, while continuing to turn out the irreplaceable Hercules.

Programs at Air Force Plant 6 in the 1970s and 1980s

C-141 Stretch

In 1975, Lockheed received a contract to "stretch" the C-141 Starlifter, adding about 23 feet of length by cutting the fuselage and inserting new sections fore and aft of the wings. The stretched version, the C-141B, had about one-third more cargo capacity than the C-141A. The stretched version was also given in-flight refueling capability, allowing longer non-stop flights and fewer fuel stops during worldwide airlift missions.

Nearly all of the Air Force's C-141 fleet received the stretch modification, 270 aircraft in all (out of the 284 built), effectively increasing the size of the fleet by 80



Extra fuselage sections and other modifications are given to a C-141A Starlifter as part of the "stretch" program to increase its cargo capacity, July 1976. The 270 modified planes were re-designated C-141B.

planes. The first C-141B was rolled out in January 1977, eight weeks ahead of schedule and \$3.5 million under budget. The Air Force received its first C-141B in 1979, with the last one being completed in 1982.

C-5A Wing Modifications

In order to bring the service life of the C-5A up to the standard originally called for by the Air Force, Lockheed proposed to redesign and modify the wings of the aircraft, rather than try to design a new plane from scratch to replace it. On Capitol Hill, Senator Proxmire opposed the idea, arguing instead that Boeing 747 could be modified for the job. However, design studies had indicated that the 747 modification would be just as expensive and would result in a less versatile aircraft. In December 1975, the Air Force approved a \$28 million contract for Phase I of the project, redesigning the wing; Phase II began in February 1977 with a \$1.3 million award to contract for the materials to build two wings through its subcontractor, Avco Aerostructures Division in Nashville. One wing was used for structural fatigue testing, while the other was installed and tested on a C-5A aircraft.

The test aircraft received its new wings in the L-10 building, and flight-testing began in August 1980. The new wing design performed flawlessly, and the Air Force began delivering C-5As to Marietta for the modification in 1981. All 77 remaining C-5As received the new wings, with the last being completed in 1986.

C-5B

With the design problems on the C-5A worked out, it became evident to the Air Force that they needed more of the aircraft, since they had cut the initial order short. In 1982, Lockheed received a contract to produce 50 more C-5s that incorporated all the modifications and improvements developed for the C-5A program, including improved turbofan engines, the longer-life wings, Bendix color weather radar, Delco navigation system, an improved automated flight control system, and a new, more advanced Malfunction Detection Analysis and Recording System.

The C-5B first took to the air in September 1985. Delivery of the 50 new aircraft commenced in January 1986 and ended in April 1989. These aircraft are still a major component of Airlift Mobility Command fleet.



Rollout of the C-5B, July 1985.



The JetStar II was an improved version of the corporate jet produced by the Marietta plant in the 1950s. This is one of 40 that were made, ca. 1977.

JetStar II

Between 1976 and 1980, Lockheed-Georgia produced 40 of the improved JetStar aircraft at Air Force Plant 6. This new variant, dubbed JetStar II, had new engines and a redesigned external fuel tank for transcontinental range. The first JetStar II was delivered to Allied Stores, Inc., in October 1976. The company decided to discontinue further production of the aircraft in 1979.

C-130-MP

The C-130-MP, also designated the PC-130H, was a specially equipped C-130H for maritime patrols and search and rescue. It featured more efficient engines for greater range, advanced radar capabilities, special navigation system, and cameras. The design was popular for government use around the world because of the enactment of extended offshore territorial limits that created larger areas to patrol. Three of these aircraft are currently in the Malaysian Air Force's inventory.

L-400 Twin Hercules

In January 1980, Lockheed-Georgia announced that it would begin development and testing of a twin-engine version of the C-130 that was lighter and less expensive to operate. The aircraft was to be designed and built at the Marietta plant; however, market conditions were determined to be unfavorable and the program was scrapped.

Plant Operations

The 1970s and 1980s at Air Force Plant 6 were characterized by a new emphasis on energy conservation and pollution control, as these issues gained prominence across the nation. Projects had to be designed to meet stricter environmental standards, and the energy crisis of the 1970s resulted in companywide efforts by Lockheed-Georgia, both at a corporate level and individual level, to conserve electricity and fuel.

The financial crisis of the company also influenced plant operations. A program of cost reduction measures was instituted, and the Buck Hunter Club rewarded employees for coming up with ways to save the company money.

Pollution Control Measures

Plant maintenance and facilities engineers at Air Force Plant 6 in the 1970s were not overly concerned about air pollution from the plant. The onsite steam plant was switched from coal to natural gas in 1958, greatly reducing emissions, and paint spray booths and metal treatment tanks were equipped with filters and other devices to limit airborne contamination. Instead, water pollution, particularly from industrial wastes, was the major issue facing the plant. Since reopening Air Force Plant 6 in 1951, the federal government had funded and Lockheed-Georgia had operated a wastewater treatment system that handled all of the water from the U.S. government reservation, including Dobbins Air Force Base and the Naval Air Station-Atlanta. The system had three routes for water, with sewage going to one treatment plant and industrial waste to another, while storm water runoff went straight into Rottenwood Creek.

It was clear by 1960 that industrial wastewater treatment was inadequate, but it was not until the passage of the Clean Water Act in 1964 that standards were established and a detailed planning process was set in motion. Lockheed-Georgia commissioned a study to determine the best solution to the problem in 1965, but the Air Force felt that it was too expensive. Lockheed rejected a second study's recommendations as inadequate. It wasn't until 1970 that Lockheed-Georgia, the Air Force, the Georgia Water Quality Control Board, and the Environmental Protection Agency agreed on a plan for a new system.

The first part of the system was a new \$3 million industrial wastes treatment plant for dealing with paints, thinners, oil wastes, acids, and alkalis used in the manufacturing process at Air Force Plant 6. When it was completed in 1972, Lockheed-Georgia urged workers to learn how to dispose of various liquid wastes and not to pour them in the storm drains, which led directly to Rottenwood Creek and the Chattahoochee River. Instead, receptacles were set up to receive the wastes, which were then carried to the new treatment plant.

In 1976, work was completed on an \$8 million final wastewater treatment plant funded by the Air Force. Water from the industrial waste and sanitary waste facilities, which were treated separately at two other plants, was then piped to the third facility to be combined and further treated to near-potable quality.

Energy Conservation

In June 1974, Lockheed-Georgia, in conjunction with Georgia Power, sought to lower their electricity consumption, particularly during the peak summer months. The company paid about \$2 million for power in 1969. Power-saving efforts included moving work areas to require fewer lights, operating heavy machinery during off-peak hours, and cutting off lights and machinery when not in use.

The Arab oil embargo of 1973 brought the energy situation to a crisis level, leading President Richard Nixon to create the Federal Energy Office, renamed the Federal Energy Administration under President Ford. A variety of energy-saving directives were approved for federal agencies, including Department of Defense contractors like Lockheed-Georgia. E.J. Docekal, the company's chief facilities engineer and chairman of the Energy Conservation Committee, reported in August 1974 that the company had to cut energy consumption by 15 percent in the third and fourth quarters of the year.

Because it helped cut overhead costs, Lockheed-Georgia was concerned about energy conservation even before the federal directives. In 1973, computer specialists in the engineering department, along with the facilities engineering branch, developed a computerized monitor that predicted peak loads that could result in higher power rates and requested departments to shut down unnecessary production that could be done later. As a result, heat treat furnaces, salt baths, hydraulic simulators, and certain compressors were turned off temporarily on a hot day in July 1974. The device saved the company \$81,000 the first year alone, more than covering the cost of its development and installation.

The energy conservation efforts paid off in 1974, as electricity consumption was cut by almost 15 percent, even as C-130 production was increased during the year from three per month to six per month.

In 1979, a new testing machine for aircraft generators was installed at Lockheed-Georgia that, compared to a typical test set, saved enough electricity in a 24-hour period to power a typical residence for a month.

Cost Reductions

A 1971 program soliciting cost-cutting ideas from Lockheed-Georgia employees produced 2,773 submissions, resulting in nearly \$70 million in savings. Each branch had a cost reduction coordinator, with representatives at the

department level to review the suggestions and determine the implementation costs and ultimate savings.

The Buck Hunter of the Month Club awarded U.S. Savings Bonds and other incentives to employees who were able to salvage material or equipment that was bound for the scrap heap, or devise simpler and less expensive ways to carry out a task. In the C-5 Project Planning and C-5 Refurbishment groups, supervisors made reductions in the amount of paperwork that saved time in the review process, as well as reducing paper and storage needs. The plastics department collected scrap parts to manufacture C-141 parts bins. In 1979 the cost reduction program doubled its annual goal.

Working at Air Force Plant 6 in the 1970s and 1980s

Despite the layoffs in the wake of the C-5 project and other program cutbacks, Lockheed workers continued to make a major contribution to the economy of Cobb County and Georgia in the 1970s and 1980s. In the mid-1970s, over half of the company's 9,500 employees resided in Cobb County, representing about \$100 million in payroll. Another \$50 million went to Lockheed employees living in other counties. Lockheed-Georgia also paid out over \$40 million to more than 1,200 Georgia companies, many of them small businesses, for products and services. By 1983, employment at Lockheed-Georgia had increased to 13,202.

Unions and the 1977 Machinists Strike

Lockheed employees continued to be represented by the expanded International Association of Machinists and Aerospace Workers (IAM&AW), which had originally represented Bell workers in the 1940s. Three-year contracts were negotiated in 1968, 1971, and 1974, with each containing new provisions for insurance benefits, wages and hours, overtime pay, holiday pay, retirement benefits, savings plan, periodic wage increases, and automatic cost-of-living raises.

In October 1977, however, Lockheed management and the IAM&AW failed to reach an agreement, and the union called for a strike. At that time, the IAM&AW union represented about 5,000 of the plant's 8,600 workers. The main point of contention was seniority as it related to layoffs. With the C-130 production being reduced in 1977 back to three per month from six per month as a result of the Export Control Act, employment was being reduced.

The union wanted seniority to control who was laid off, rather than particular job skills or program assignments. Thus, an employee on the C-130 assembly line with 10 years' experience whose job was being phased out could move to the JetStar line and "bump" an employee with less experience, regardless of his ability to work on the new program. Management objected to this procedure because it created significant turnover on the lines with new crews sometimes coming in weekly and having to be trained each time.

This strike lasted considerably longer than the 10-day strike in 1958 and was accompanied by some rancor among union members. In mid-November, approximately a month into the strike, Lockheed issued a statement saying that a number of union members had violated the company's property rights and had broken the law by blocking or delaying traffic around the plant to prevent workers from entering, as well as harassing and threatening employees. As a result, the company



The Southern Star asked Lockheed-Georgia employees how they were saving energy at home. L.H. Martin, a crane rigger in Department 23-12, C-130 assembly reported that he was burning more wood to save on fuel oil. He also had a home garden. Photo 1973.

filed a petition for a court order to establish a specific limitation on picketing activities, so that employees could come and go freely.

Lockheed management made another offer in late November, but union officials rejected it as inadequate. Tensions escalated to the point that an *Atlanta Journal* newspaper photographer was knocked down and spat upon by a striker (who was no longer an employee, but had gone to work as an agent for the union). When a Cobb County policeman tried to intervene, he was assaulted by another striker. The policeman was slightly injured, and the two picketers were arrested.

After seven weeks of striking, Lockheed reported that the plant was operating on schedule, that many union members (approximately 7.3 percent) had returned to work, and that overall, just under 43 percent of all employees (3,587 of 8,376) were at work. Finally, after more than two months, an agreement was reached over the Christmas holidays, and employees returned to work for the new year. Some job reassignments were necessary to bring the production lines back up to speed and to make sure deliveries continued on time, but significant problems were not reported.

Employees Make their Mark Outside of Air Force Plant 6

Over the years GELAC employees exhibited many talents in addition to their aircraft production skills. Here are a few of the more interesting stories of employees who achieved honors outside of the aircraft industry.

Harry Johnson, a tool designer at Lockheed for many years, was a dedicated body builder, and in 1959 was named Mr. America in his fourth appearance in the competition. He attributed his success to a strict training regimen, attention to diet, and clean living. Interestingly, his prescription for a healthy diet is very similar to what medical experts suggest today—plenty of protein and vegetables and less fats and starches. Of course he avoided alcohol, cigarettes, and staying up late. Johnson's title also netted him some monetary perks, including a cash prize, a monthly magazine column, and product endorsements. He appeared on a number of TV shows as well, including the "Ed Sullivan Show" and "Dave Garroway's Today."



Mr. America Harry Johnson poses with another "Hercules," ca. 1959.

"Uncle" John Patterson, a hydraulic tubing installer at his day job, was a national champion banjo player who won his first banjo competition at age 14 and went on to win many more. He toured briefly in 1952 with Smiley Burnette, the comic actor and singer who appeared in over 80 westerns between 1934 and 1953. He also played with Fiddlin' John Carson. He made a number of recordings and was featured on radio and TV. His songs included "Plains, Georgia Rock," "Old Hen Cackle," "White River Stomp," and "Flat Footed Charlie."

Lorena Pace Pruitt, elected as the first woman mayor of Smyrna in 1945, had been a cafeteria manager at the Bell bomber plant during World War II. She is credited with overseeing a program of improvements to Smyrna's roads, streetlights, and water and sewerage system. She served two terms as mayor before stepping down and returning to AFP 6 as a cafeteria manager for Slater System, which operated the food concession for Lockheed's Georgia Division.

Employment in Reverse and LEND Programs

As it had done during a downturn in business in the late 1950s, Lockheed-Georgia instituted an “Employment-in-Reverse” program in 1970, along with the LEND program for engineers, administrative, and production specialists. The Employment-in-Reverse program was in conjunction with the Georgia State Employment Service (GSES). If workers could not find jobs through the GSES, Lockheed-Georgia would offer additional assistance. An effort was made to place salaried employees in another branch or office of the company. The Lockheed-Georgia Employment Office could be used by recruiters from other companies looking to interview

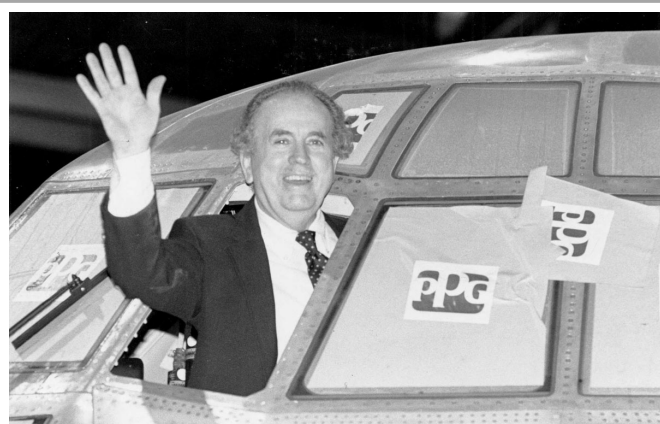
prospective employees. The program was re-instituted in 1971.

The LEND program (Lending Employees for National Development) sent scientists, engineers, and computer specialists to work for other companies while remaining on the Lockheed payroll. The specialists assisted companies like Coca-Cola, Bell Laboratories, and Georgia Tech with projects for which they were uniquely qualified. For example, several engineers worked with Coca-Cola to improve the efficiency of their vehicles using wind tunnel tests, facilities reviews, and other assessments. The program benefited Lockheed by finding work for employees to perform and generating potential business partnerships. Some of employees eventually went to work for the companies to which they were loaned.

Employees Make their Mark Outside of Air Force Plant 6

Wilbur Kurtz was a Midwesterner who came to Atlanta in 1903 to interview William Fuller, the engineer of a Confederate locomotive, *The General*, that was stolen from the Big Shanty (Kennesaw) depot by Union spies known as Andrews Raiders. They were pursued and caught by Captain William Fuller and were executed in Atlanta. Kurtz became enamored with the South, married Fuller’s daughter, and made a name for himself painting murals of Southern life under the WPA. In the mid-1930s, Kurtz also worked with two other artists on the diorama of plaster figures that forms the foreground of the Cyclorama in Atlanta. His depictions of Southern landscapes drew the attention of Hollywood, and he was hired as a consultant on the set of *Gone with the Wind*, where he was responsible for the appearance of the Tara mansion and other details. On returning to Marietta, he went to work at Bell Aircraft as a production illustrator. After the war he consulted on two other films, Disney’s *Song of the South* and *The Great Locomotive Chase*. In the 1950s he continued his research on the Atlanta Campaign of the Civil War. He wrote the text for most of the historical markers put up in the 1950s by the Daughters of the Confederacy along the route of Sherman’s Union army, including numerous markers concerning the Battle of Kennesaw Mountain and related events in Cobb County.

Joseph Earl (“Joe”) Dabney was the editor of the *Southern Star* from 1965 to 1975 and continued at Lockheed-Georgia as a public relations coordinator promoting the C-130 until his retirement in 1989. He is the author of *Herk, Hero of the Skies: The Story of the Lockheed C-130 and Its Adventures around the World*, which has recently been re-issued by Bright Mountain Books. In addition, he has written extensively on Appalachian culture. In 1974, after three years spending weekends talking to moonshiners and revenuers in the mountains of Georgia and the Carolinas, he released *Mountain Spirits: A Chronicle of Corn Whiskey From King James’ Ulster Plantation to America’s Appalachians*. He wrote a follow-up in 1985, *More Mountain Spirits: The Continuing Chronicle of Moonshine Life and Corn Whiskey, Wines, Ciders & Beers in America’s Appalachians*. His book on mountain cooking, *Smokehouse Ham, Spoon Bread and Scuppernong Wine: The Folklore and Art of Southern Appalachian Cooking*, won the 1999 James Beard Cookbook of the Year Award. In 2005, the Southern Foodways Alliance presented Dabney with a Jack Daniel’s Lifetime Achievement Award.



Joe Dabney waves from the window of a C-130 (courtesy Marietta Daily Journal).

Equal Opportunity

Photographs showing activities at Air Force Plant 6 in the early 1970s show an increasingly integrated workplace, with African Americans regularly found among department managers, committee representatives, and engineers. Lockheed-Georgia expanded its Plan for Progress to include an effort to recruit minority businesses for purchasing programs, increasing minority contracts in 1978 by 176 percent from the previous year.

Lockheed's Tehran Branch

In 1977, Lockheed Corporation began a company-wide effort to recruit employees with specialized skills for assignment to the Lockheed Aircraft Service facility in Tehran, Iran. The work was part of a three-year contract with the Air Force to provide logistics support to the Imperial Iranian Air Force. The company offered a number of incentives starting with a 30 percent salary bonus, and including extra vacation and home leave, a housing allowance, and company-provided utilities and furniture.

U.D. McDonald, a special industrial relations representative for the program, cautioned prospective participants that overseas

assignment could be very demanding and was best suited to stable families with a sense of adventure and a willingness to adapt to a new culture. "It offers a cultural broadening almost beyond price, an intimate knowledge of another country with its variety of customs, people and geography," McDonald said. Still, he continued, "if the wife goes into a snit because she can't find her regular brand of baking powder at the supermarket or the youngster can't find his favorite color of Earth Shoes... well, overseas work is not for this kind of people, unless they are prepared to adapt." Jobs were also available in Saudi Arabia for employees with C-130 experience.

Those employees who did sign up for duty in Iran got perhaps more adventure than they bargained for when Iranian extremists initiated an uprising in the fall of 1978 that ultimately resulted in the exile of the Shah of Iran, an American ally. Some of the employees and their dependents were evacuated in January 1979 at the behest of Lockheed, which felt that it could not guarantee their safety as the Ayatollah Khomeini came to power. Nevertheless, the wife of one of the employees who remained behind said that she was disappointed to have to leave. She had traveled extensively in the country and liked it. She said she would be returning as soon as it was permitted. Len Galati, another employee who was evacuated, agreed, saying, "most of the Iranians don't hate us."



Dobbins Air Reserve Base, home of the 94th Airlift Wing, ca. 2000.

Dobbins Air Reserve Base

In 1972, the 94th Bombardment Wing, which had left Dobbins Air Force Base in 1955, returned as the host unit, with the chief mission to train reserve units from all branches of the military. The base was renamed Dobbins Air Reserve Base (ARB) at that time. Dobbins ARB provided support for over a dozen organizations, including the Army, Navy, Marine Corps, and Coast Guard reserves; the Georgia Air National Guard and Army National Guard; Air Force Plant 6; and, Lockheed-Georgia.

In 1992, the 94th Bombardment Wing became the 94th Airlift Wing (AW) under the restructuring that followed the end of the Cold War. Since 1999, the main mission of the 94th AW and Dobbins ARB has been to support the 700th Airlift Squadron, which trains pilots, navigators, flight engineers, and load masters in C-130 aircraft operations and tactical airlift operations. The runways also handle traffic for Air Force Plant 6, which includes the delivery of completed aircraft, as well as receiving and delivering Lockheed-built planes for modification and servicing. As a result, Dobbins ARB is one of busiest air reserve bases in the world, handling more than 7,000 flights per month.

South Cobb County Moves from Bedroom Community to Edge City

By the 1970s, Marietta and Cobb County had established enough of an economic base that it was no longer dependent on Air Force Plant 6 and its associated operations to thrive. Even as employment at Lockheed-Georgia reached its lowest level ever in 1977, Cobb County continued to grow. Although the rate of increase was not as great as in the 1950s and 1960s, Cobb County grew by more than 50 percent in the 1970s, nearly topping the 400,000 mark. More significantly, many of these newcomers were from outside of Georgia, and most were well educated, white, affluent, and politically conservative.

Much of Cobb County's growth in the 1970s and 1980s could be tied to the growth of Atlanta and its accessibility by car, but jobs, shopping, and entertainment did not require driving into the city.

Cumberland Mall was the first phase of a larger development that included apartments, condominiums, and office space, setting the stage for the emergence of South Cobb as an "edge city," a term coined in 1991 by Joel Garreau of the *Washington Post*. Edge cities are typically unincorporated

areas of dense development near a major city, typically at the intersection of major highways, that are centered on office and retail complexes in landscaped settings surrounded by suburban amenities such as shopping malls, entertainment centers, hospitals, and schools. The area around the I-75/I-285 intersection fit this model perfectly and came to be known as the "Platinum Triangle," home to high-rise office buildings, corporate headquarters, and 30,000 jobs.

Along with regional offices of national companies, a number of local businesses rose to prominence during the 1970s and 1980s. John Williams established Post Properties in the early 1980s, which built landscaped luxury apartment complexes in Cobb County and metro Atlanta that attracted young professionals moving into the area. By the 1990s, Post Properties had become one of the largest publicly traded apartment companies in the country.

In the late 1970s, Bernie Marcus and Arthur Blank moved to Atlanta to launch The Home Depot, their chain of hardware and home improvement warehouses. By 1990, the company had 145 stores and was well on its way to becoming the world's largest home improvement retailer. The company's headquarters have always been in Cobb County, and in 1993 the company moved into a new office complex in Vinings.

The role of Air Force Plant 6 had become less vital to the economic health of Marietta and Cobb County in the 1970s and 1980s, and its employment just a fraction of the total for the immediate area. Nevertheless, it remained the largest manufacturing facility in the county, and its associated facilities and contractors contributed significantly to the overall strength of the Platinum Triangle. It was estimated that Lockheed-Georgia was responsible for at least as many jobs in the area outside of its direct operation as were actually employed there. Local leaders and political representatives at the state and national level fought hard to keep the company viable and Air Force Plant 6 operational. An acquisition, a major merger, and the production of the Air Force's most advanced fighter jet would ensure that viability into the 21st century.



Aerial view of Air Force Plant 6, ca. 1990.

CHAPTER FIVE

The Legacy of Air Force Plant 6 and its Role in the Post Cold War World (1991–2006)

Acquisitions and Mergers

The late 1980s and early 1990s would bring a great deal of change to Lockheed-Georgia, including several name changes and mergers. In 1987 a restructuring of Lockheed Corporation resulted in the creation of Lockheed Aeronautical Systems Company (LASC) from the Georgia and California divisions, with Lockheed-Georgia becoming LASC-Georgia. Three years later, the Burbank, California, plant was closed and 1,000 California employees were transferred to Marietta. Other Burbank programs were transferred to the company's Palmdale, California, facility.

The end of the Cold War marked a turning point for military contractors. In 1993, then Deputy Secretary of Defense William Perry invited a dozen defense industry CEOs to dinner at the Pentagon, at what came to be called "The Last Supper." Perry told them that U.S. military weapons systems exceeded the country's current need, and warned that half of the companies represented in the room would be out of business in five years. He encouraged the industry players to consider mergers that would improve their chances of survival.

The outlook was particularly severe for military aircraft manufacturers. The cost of high-tech aircraft that were being developed in the early 1990s raised red flags with the public and Congress, leading to protracted funding battles that threatened to bankrupt major players in the industry. In those years, Lockheed began to back off from its aircraft division and concentrate on its missiles and space division, including an increasingly profitable involvement in communications satellites.

Just as Lockheed was considering selling off its aeronautics division to generate cash and shift its focus away from government contracts, LASC-Georgia president

Ken Cannestra was approached by William Anders, the former astronaut and head of General Dynamic Corporation, to purchase the company's Fort Worth branch, where F-16 fighter jets were being manufactured. The General Dynamics plant, like the one in Marietta, was a GOCO facility built during World War II and designated Air Force Plant 4. Lockheed added the Fort Worth plant to its inventory in 1993 and is now building the F-35 Joint Strike Fighter for the Air Force there. The Palmdale, Ft. Worth, and Marietta facilities now operate more or less as a single entity called Lockheed Martin Aeronautics Company (LMAero) with headquarters at Ft. Worth. Lockheed's corporate headquarters were moved to Bethesda, Maryland, to be in close contact with the federal government and the Pentagon.

Lockheed expanded further in 1994 in a "merger of equals" with Martin Marietta Corporation. The merger was finalized in 1995, creating Lockheed Martin, one of the largest aerospace companies in the world, with combined sales in 1993 of over \$20 billion, and employing over 175,000 people. The merger did not come without associated costs in terms of downsizing, consolidation, and streamlining. Officials at both Lockheed and



The first operational C-130Js at Little Rock Air Force Base, Arkansas. Photo courtesy of the U.S. Air Force, March 2004.

Martin Marietta insisted that these changes would have come even without the merger, as a result of declining military contracts. In the 1990s, the defense industry saw some 20 mergers that reduced the number of major U.S. competitors to five: Lockheed Martin, Boeing, Northrup Grumman, General Dynamics, and Raytheon. Nearly 2 million jobs were lost in the defense industry between 1990 and 1997.

Historic Preservation at Air Force Plant 6

While the defense industry in general, and the aircraft manufacturing industry in particular, was facing a major reorganization, the period following the Cold War presented another challenge to Air Force Plant 6. Many of the buildings at the plant, constructed as temporary or semi-permanent structures during World War II, were reaching the end of their useful lives. For example, the T-400 administration building, reportedly the first building completed during the Bell years, was found to be unsuitable for occupation and was demolished in the mid-1990s. At the time, Lockheed-Martin also expressed the desire to initiate a modernization plan, which would upgrade the individual facilities and improve the overall appearance of Air Force Plant 6.

In 1995, the Aeronautical Systems Center (ASC) initiated a cultural resources program that would contract for inventories of historic buildings at the nine Air Force government-owned, contractor-operated plants that included Air Force Plant 6. The inventory for Air Force Plant 6 determined that the original core buildings constructed as part of the industrial build-up during World War II comprised a historic district. In addition, nine individual buildings were determined to be historically significant (B-1, B-2, B-3, B-4, B-6, B-7, B-21, U-124, and U-145). As a result of this designation, the Air Force and the Georgia State Historic Preservation Office established a Programmatic Agreement in 1999 outlining the procedure for the Air Force to follow in order to comply with the National Historic Preservation Act regarding the ongoing management of these historic buildings. The agreement established guidelines for rehabilitation of historic structures as well as documentation of any historic buildings that might need to be demolished.

One of the rehabilitation projects that fell under the Programmatic Agreement was replacing the corrugated asbestos tiles covering B-1 with new siding that included a bold blue stripe considered suitable to both the historic preservation community and Lockheed Martin. This color scheme was adopted for use for



Lieutenant Colonel James Hecker, commander of the 27th Fighter Squadron, banks his F-22 Raptor during a training sortie over Langley Air Force Base, Virginia. Photo courtesy of the U.S. Air Force, ca. 2005.

all buildings at Air Force Plant 6, including those within the district. Building B-6, the “Dead Storage Building,” had been vacant for sometime and it was found to have become structurally unstable and ill-suited for reuse. A minor fire in 2002 had also caused some damage. After historical and photographic documentation was carried out in accordance with the Programmatic Agreement, it was demolished in 2005. Also during this time period, significant structural problems were noted in portions of the main administration building (B-2), which resulted in emergency evacuations of those parts of the building. The building had been renovated many times, but several engineering studies were conducted that determined that energy inefficiencies in the old building and the costs associated with bringing the facility up to modern codes made further rehabilitation efforts unfeasible. Building B-2 is slated for demolition in 2007, necessitating the movement of administrative offices to other locations. Some staff were moved to B-27 in 2005, and the remainder are scheduled to move to B-95, the new “front door” of Lockheed Martin, in 2006. As part of the documentation process of this historic building, which was only of limited architectural interest, the State Historic Preservation Office asked that a popular history of Air Force Plant 6 be assembled and disseminated to interested parties. This book is the result of that request.

Air Force Plant 6 in the Twenty-First Century

Amidst the changes in the buildings at Air Force Plant 6, the work at the facility continues. Despite the significant cuts in military spending that accompanied the end of the Cold War, the role of the U.S. military in world affairs remains as prominent as ever. The U.S. has been involved in two major military actions in Iraq, as well as significant operations in Afghanistan, Yugoslavia, and Somalia. These actions can be attributed in part to the collapse of the Soviet Union, which has destabilized constraints on military and political power and left the United States to act as the world’s primary peacekeeping and humanitarian force. In addition, the rise of global terrorism has required on-going missions across the globe. These military actions, both large and small, require substantial airlift support, as well as air strike capability. The Department of Defense still has a need for cargo planes and fighters, and Air Force Plant 6 has the necessary facilities and a long record of service under the Lockheed name to fill those needs.

In 2006 LMAero is in the midst of producing 60 C-130Js and KC-130Js for the Air Force and Marine Corps at Air Force Plant 6.

First tested in 1996, the C-130J continues the impressive legacy of the C-130 family, while representing a complete overhaul of the earlier models. The external appearance of the plane retains the look of the classic utility transport, but performance characteristics exceed those of the older versions by a wide margin. The C-130J climbs twice as fast, cruises 20 percent faster, and has a range and cruising altitude 40 percent greater than the C-130E. It also has improved avionics, computers, reliability and maintainability.

The Air Force’s most advanced tactical fighter ever, the F-22, is also being built by LMAero at Air Force Plant 6. The program began in California in the early 1980s when the Air Force requested a new Advance Tactical Fighter (ATF) that would serve the attack needs of the military well into the twenty-first century. The F-22 design emerged from a heated competition between two groups of manufacturers that sought to reduce financial risks by combining efforts. Lockheed teamed with Boeing and General Dynamics and won the contract with a design that incorporated vector thrusting that delivered greater maneuverability than the Northrup-McDonnell Douglas design. It also incorporated stealth characteristics derived from Lockheed’s experience with the F-117 Stealth Fighter.

The F-22 Raptor, as it was designated, faced an uncertain future during the 1990s as a result of budget considerations. Funding was finally made available to begin limited production of the aircraft in 2001. Mickey Blackwell, who rose through the ranks of engineers at Lockheed’s Georgia facility under president Ken Cannestra, was put in charge of the F-22 program when Sherman Mullin took over the Skunk Works in California. Cannestra brought Blackwell and the F-22 back to Georgia, where LMAero is carrying out final assembly of the aircraft at Air Force Plant 6. The first production model was flown in September 1997, and Initial Operating Capability was granted in December 2005, authorizing the aircraft to be deployed into combat situations as needed.

While its contributions have certainly not ended, Air Force Plant 6 and its associated facilities made an enormous impact on Marietta, Cobb County, and the Southeast region over the last 60 years. The thousands of planes that have rolled out of the 45-foot high doors of the B-1 building have made their way to all corners of the globe and both poles, carrying out every type of airlift, scientific, and humanitarian mission imaginable. Meanwhile, at the local level, the plant provided jobs and training for thousands of Southerners of the kind that was not available before World War II, and which raised the education level, standard of living, and economic diversity of the community. While the future of Air Force Plant 6 may be uncertain, its past is tangible, and its mark will certainly be enduring.

Sources and Suggestions for Further Reading

This history was drawn primarily from three main sources. The first is the company newspapers of Bell Aircraft Corporation and Lockheed's Georgia Division. The Lockheed Martin Communications office has a complete run of the *Southern Star* in bound volumes that is an invaluable source of photographs and details about programs, employee activities, and business news. A fairly complete collection of the *Bell Aircraft News* can be found in the Carmichael Papers in the Manuscripts, Archives and Rare Books Library of Emory University's Woodruff Library. These papers also contained much valuable information on the process that led to the Bell bomber plant being located in Marietta.

The work of Dr. Thomas Scott was the second major source of information for the book. The Bell Aircraft Project website has many pictures from the Bell era, along with transcripts of interviews with former Bell employees (many of whom went on to lengthy careers with Lockheed). Dr. Scott's extensive research on local history has been synthesized in his book, *Cobb County, Georgia and the Origins of the Suburban South*, a detailed account of how a rural county in the Piedmont of Georgia became one of the fastest-growing, most dynamic communities in the United States during the twentieth century. Dr. Scott's book provided much of the context for the development of Marietta and Cobb County during the period covered here.

Finally, Walter J. Boyne's fascinating history of Lockheed Corporation, *Beyond the Horizons*, is filled with interesting anecdotes, as well as insightful historical commentary. Boyne's book, along with numerous military websites provided background on the primary tenant at Air Force Plant 6 for the last 50 years and the aircraft produced there. Among the websites, GlobalSecurity.org is perhaps the most comprehensive and best organized source for information on the history, development, and specifications of the military's aircraft. The Federation of American Scientists, Military Analysis Network also maintains a website with detailed information and photographs of U.S. military aircraft.

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