San Diego and The Pacific Theater:  
Consolidated Aircraft Corporation Holds the Home Front  
By  
Natalie Nakamura

But in spite of its size, its importance and its expansion, the Navy is not the chief reason for the San Diego boom. That reason is the aircraft industry, of which the biggest local producer is Consolidated. Until slightly more than a year ago Consolidated was making a small number of big flying boats for the Navy. Now it has a backlog, from the U.S. and England, of over $684,000,000 worth of airplane orders, and its planes, rolling out at a rate of one a day, are daily flying for the British Navy, bombing Germany for the R.A.F., or patrolling the Atlantic for the U.S.—“Boom Town: San Diego,” Life, July 28, 1941.¹

Chaplain Kenneth G. Stack, born and raised in San Diego, suffered an unusual bout of homesickness at his post “somewhere in the South Seas.” Deployed in early 1942, Stack was part of the American spearhead in the Pacific. On a march through the jungle with his fellow marines, he heard a hum, and soon a roar, that caught his full attention. “I saw a B-24,” he wrote to his seminary mentor in San Diego. “He spotted us, wiggled his wings and kept on...The thought struck me that you were probably hearing the same sound in your office so many thousand miles away.”²

Back in Stack’s hometown, residents were familiar with the roar of airplanes produced by Consolidated Aircraft Corporation. By 1944, thirty-six percent of

Natalie Nakamura is a graduate student in the School of International Relations & Pacific Studies at the University of California San Diego. She earned her Master of Arts in twentieth century U.S. military history from California State University Fullerton. Her research interests include strategic bombing and the political economy of California’s aircraft industry.
the county’s working population operated the assembly lines at Lindbergh Field, turning out military aircraft such as the B-24 Liberator at the rate of eight per day. As the second largest employer in San Diego County after the Navy, the company offers a lens into the history of San Diego’s wartime experience. Consolidated Aircraft not only made its name as an exporter of patrol and heavy bombers, but also facilitated the creation of a shared regional identity among its workers.

Consolidating a War Asset

“The way to stay in business with the Army and Navy,” Major Reuben H. Fleet, founder of Consolidated Aircraft, imparted to his associates, “is to give them your best without any holding back. Sometimes we gave them what was best before they knew it themselves.” Fleet reached the rank of major in the Army Signal Corps Aviation Section, predecessor of the Army Air Forces of World War II. In the spring of 1917, he trained on a base later known as Naval Air Station, North Island. Just as the military appreciated the city’s temperate climate and accommodating people, Fleet recognized how it “was not difficult to understand why the War Department had selected San Diego for the Aviation Section’s pilot training school.”

Fleet founded Consolidated Aircraft Corporation in May 1923, a year after retiring from military service. An amalgam of his personal investments and the
Gallaudet Engineering Company, Fleet’s aircraft wielded a portfolio of blueprints from the Dayton-Wright Airplane Company. Proceeds from the U.S. Army’s first purchase—the PT-1 Trusty—allowed the company to move to Buffalo, New York, where a skilled labor pool had congregated during World War I. In the late 1920s, the Navy sought a flying boat design with long distance patrol capabilities. Frozen waters on the Buffalo plant’s neighboring Lake Erie and Niagara River hindered testing of patrol plane experimental models, causing Fleet to look for a new and more temperate home.6

Fleet scoured the Florida coasts and looked at Seattle, Los Angeles, and Long Beach before heading south to San Diego, where he had earned his wings. In November 1927, San Diegans had passed a $650,000 bond to develop an airport, Lindbergh Field, on the tidal flats adjacent to San Diego Bay.7 Fleet embraced the qualities of the bay to test flying boats such as the new Model 28 patrol bomber, later known as the PBY Catalina.8 It also seemed fitting for the production of the Catalina to begin where aviation pioneer Glenn Curtiss had made the first hydroplane flight twenty-five years earlier.9

On May 29, 1933, Consolidated’s board of directors passed a resolution that authorized a conditional fifty-year lease with the City of San Diego at Lindbergh Field.10 The company made the transcontinental move by train with 311 select employees. At the time of the plant’s dedication ceremony on October 20, 1935,
the company had grown to 874 employees. Given the backlog of orders from the Army, Navy, and foreign militaries, Fleet projected another 2,000 new hires within the next six months.11

The initial factory covered 247,000 square feet of continuous flow along the Pacific Coast Highway and included an unfinished parking lot and landing field that, at the time, were nothing more than grassy lanes. At their open house, company officials welcomed 30,000 curious visitors through Building One where the production of patrol bombers would begin in October 1936. Another Navy order prompted the expansion of the factory, which included outdoor assembly areas where workers completed overflow manufactures in the mild San Diego air. In 1938, federal investment added another 450,000 square feet of building space.12 Consolidated employed 3,700 people by August of that year.13

In December 1939, the Navy’s Bureau of Aeronautics awarded to Consolidated its largest and most expensive order since World War I in a contract for two hundred PBY-5s. This $20 million contract necessitated greater factory floor space, and the construction of Buildings Two and Three began in the spring of 1940. The federal government’s Emergency Plant Facilities resources also financed a parts plant in Coronado, a mile from the home factory.14

Congestion in the city necessitated the creation of subcontracting plants across
the state of California. Feeder shops, or what editors of the company newspaper fondly referred to as “Little Convairs,” popped up at Laguna Beach, Corona del Mar, Riverside, and Anaheim.\textsuperscript{15} By 1943, San Diego assembly lines produced B-24s with parts from almost one hundred different plants. By the end of the war, eleven local feeder shops employed 1,700 workers who constructed bulkheads, upholstery, electrical harnesses, and Plexiglas moldings—all of which were shipped to Lindbergh Field for final assembly. War Production Board-military-labor-industry cooperative conferences inspired design changes that translated to greater efficiency and labor productivity.\textsuperscript{16}

Federal guidance, and in some cases, direct intervention, was deemed necessary for peak production. Douglas Aircraft managed the Tulsa factory, and Ford Automotive operated the plant in Willow Run for the production of B-24 Liberators. This seemingly free flow of information in the form of educational contracts, guided by the government, made many business magnates such as Fleet worry about the end of free enterprise under such “bureaucratic supervision.”\textsuperscript{17} For example, Consolidated was obligated to give Ford Motor Company the secret heat-treatment methods for Liberators’ aluminum skin. Unable to replicate the process, Ford’s airplanes leaked fuel, which reduced operational range and scarred Fleet’s good design in the eyes of the U.S. Army Air Forces.\textsuperscript{18}

Consolidated responded to President Roosevelt’s May 1940 call for 50,000 planes
by further expanding the plant. At the cost of $3 million, another 650,000 square feet brought the site total to 1.5 million square feet of workspace, not including the outdoor 1.2 million square feet for assembly and final fitting. The patriotic trills of the Consolidated Glee Club and Orchestra’s opening acts accompanied the dedication of an entirely new plant, which locals greeted with enthusiasm. The occasion’s program informed those present that “Today, less than five years from its inception, we have the largest integrated covered and uncovered aircraft plant in America, designed and built especially for the construction of modern aircraft.”

On March 17, 1943, Consolidated merged with Vultee Aircraft of Los Angeles, which created the conglomerate Convair. By that time, ten states boasted facilities under Consolidated’s guidance, which included thirteen manufacturing, modification, research, and operating divisions and maximum employment of over 100,000 workers in December 1943. That same year, Consolidated workers produced 10,496 aircraft. They built a total of 28,004 airplanes over the course of the war, not including the spare parts production of the equivalent of 5,000 planes. In early 1944, the War Production Board cited Convair and its subsidiary shops as the world’s largest airplane manufacturer. In that year alone, Convair
delivered “over 12 percent by number and over 16 percent by weight of all aircraft built in the United States.”22 By the end of the war, Convair was the fourth greatest recipient of wartime contracts (in dollar value), behind General Motors, Curtiss-Wright, and Ford Automotive.23

The San Diego plant became the integral heart of the machine. In January 1944 alone, workers constructed 253 B-24s and 74 PBYS.24 Journalist Alistair Cooke, reporter for the BBC, described the scene of “throbbing industrialism” on the coast:

I came into San Diego, and fronting the ocean was the low, vast plant of Consolidated Aircraft, the ominous flat roofs stretching a mile or more down to the sea, with only a dull glow coming from the blackened windows and at the fence gates high, hooded sodium lights. Tramping in the semi-darkness all around were groups of men and women in overalls, banging the frame-doors of diners and lunch-counters. From inside the buildings and mingling with the gentle wash of the waves was a low sort of roar. It was an actual effort to recall the day’s ride, the mountain background to this throbbing industrialism.25

Setting the Plants to Full Speed Ahead

Camouflage over buildings and materials, October 6, 1943. ©SDHC 84:15213-5.
In the summer of 1943, an English teacher and an art teacher sacrificed their vacations to work the Consolidated swing shift. With no prior experience in manufacturing, Constance Bowman and Clara Marie Allen found themselves assigned to Minor Installations on the B-24. In his orientation speech, their first supervisor emphasized, “We’re war workers,’ he said, capitalizing the words with his voice, ‘and we’re proud of it. No matter what people on the outside say, we’re on the inside and we’re proud of it.’ He said several times, aggressively, that we were proud of it, for in wartime San Diego there are only three kinds of people: the service people, the civilians, and the aircraft workers.”

The two teachers were at first skeptical of the narrative and the ongoing attempts to persuade the new hires of their importance to the cause, but were soon converted.

The company’s shifts demonstrated the growing demands of the foreign war. Before July 1940, the firm instituted a one-shift 40-hour week. Following Pearl Harbor, the company altered its schedule to a two-shift, 53-hour week and,
two months later, instituted a three-shift, 48-hour week that maintained peak production. The hours were long and the days repetitive. For many, the end of their shifts inconveniently fell around midnight. “The truth of the matter,” Bowman and Allen wrote,

was that most people on the Swing Shift ate all the time .... Another vicious cycle was trying to get the grease out of our clothes, the metal dust out of our hair, and the dirt out of our nails so that we could go to work and get more grease on our clothes, more metal dust in our hair, and more dirt under our nails .... That was the Swing Shift for you! Sleep. Eat. Work. Wash. Sleep. Eat. Work. Wash.28

While soldiers fought on the battlefronts with conventional weapons, war workers faced the rigors of home-front industrialization at their posts on the assembly lines.

**Women in the Work Force**

The urgency of finding more women in the workforce to staff the processes grew increasingly desperate as the war progressed. In July 1941, women trickled, then flooded, into the ranks until they reached 42 percent of the workforce in May 1944. Part-time workers made up about 1.2 percent of the total employment, and some military personnel worked on a casual basis. One day when the labor pool

Mrs. Edgar A. Luce, Board of Directors of Consolidated Aircraft, 1940-1949. ©SDHC 1997:42-5-n.
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ran deep, approximately 1,200 individuals were hired at once. Consolidated’s Western District Supervisor forwarded expectations throughout the company from the Under Secretary of War, demanding four goals, specifically, at the opening of 1942:

1. It is essential that our procurement be put into highest gear at once. All steps must be taken to increase the speed with which contracts are let and speed up maximum production of ammunition.

2. All officers and civilian employees should be required to work as many additional hours each day as is necessary to get the day’s work done.

3. You are directed to take all necessary steps to boost munitions manufacture to the highest possible level.

4. You are requested to report promptly to me any delays outside of your control in the procurement procedure.

Although defense-related industries benefited from deferments, necessary workers still could be drafted. With an 88.7 percent annual turnover rate, Consolidated suffered the effects of a protracted foreign war. Manpower commissioners from Los Angeles frequently traveled south to assess the local situation and assist San Diego’s U.S. Employment Service. As the labor market problem grew more acute, “the company considered practically no one as unemployable.”

Serious manpower shortages continued well into 1944 when James L. Kelley, division manager, announced: “We will fail to meet schedules for production of Liberator bombers, for the first time in 18 months if absenteeism does not stop and if workers continue to quit their jobs.” He attributed the problem to war weariness, young men joining the military, and other workers retiring with their earnings. Kelley stated, “Today we have fewer people in the division than at any time since Pearl Harbor.”

The Industrial Relations Department reported in early 1944 that the prior month saw 72,554 workdays lost to absenteeism. Women led men in absenteeism for reasons such as illness or injury, family and personal issues, medical-dental services, and seeing their military spouses. Some could not handle the stresses and demands of the industrial setting, despite the perquisites that came with
their jobs. When Bowman fell into the assembly line routine, she described the exhausting reality:

> For every [safety belt] holder I had installed, I had squatted, kneeled, bent, and sat on the floor. I had gritted my teeth, clutched my motor, and pushed as hard as I could push. I had stubbed my toes, cracked my shins, and knocked my head three times on the metal sill above the safety belt holders. I had broken my fingernails, I had cut my fingers, and once I had almost bitten through my tongue, which in moments of stress I stick out and curl around my right check [sic].

In response to the attendance problem, the company had introduced a health care system. Built at Plant One, the two-story “hospital” promised first aid units, emergency organizations, laboratories, physical exam rooms, and food evaluations. Fifty registered nurses aided the company by determining who was actually sick. To make sure all employees could afford the services, Consolidated collaborated with Aetna Life Insurance Company to provide a hospitalization insurance plan effective on June 30, 1942. Eighty-five percent of all employees took advantage of the benefit.

In September 1941, at the Office of Production Management’s bequest, Fleet had hired forty women to help construct B-24s as an experiment. Their careers began at the Covering and Upholstering department where they worked the sewing machines to create the bomber interior. By 1942, women moved from clerk positions to the factory floors, demonstrating their “natural ability … toward such masculine work” without previous training. That same year, two women earned positions in the engineering department as draftswomen, making freehand drawings for service manuals and engineering diagrams. Myra Ford, a parts runner, gave the impression that she got the job done. Described as using her “winning smile and twinkling brown eyes, to say nothing of a ‘gifted tongue,’” her trade entailed “bring[ing] back the goods, whether it’s rivets or rudders.” Women proved necessary to the war effort, though were largely contained in acceptable roles and particular departments such as Inspection. Their work set the stage for the “Double-V” committees of the 1940s—victory on the battlefield against the Axis and victory at home against prejudice and discrimination.

Hard times and difficult hours necessitated company-funded support, especially for women employees who shouldered the heavy burdens of the home front. Female counselors catered to the women of all departments in all divisions, including workers at the feeder shops and vocational schools. Bowman and Allen...
described their Women’s Counselor as “an exotic creature … She tried to impress her gentility upon our little group by talking in such a low voice that nobody but C.M. and me in the front row could hear her.” With their androgynous uniforms, Bowman and Allen had come to resent “women who could wear skirts to work.” Their counselor “warned us not to try to do a full day’s work at home before we came to work; she told us about a special exercise devised by the company to relieve cramps; and she said that we would be allowed to work while pregnant if we had the permission of our own doctors.” Other services offered to the general working population of the factories were counseling and guidance for President Roosevelt’s Social Security Pay-Go system and state income tax returns.

President Franklin Roosevelt’s Executive Order 8802 had banned hiring discrimination in June 1941. Roosevelt’s Columbus Day Speech of 1942 reinforced the message: employers who discriminated against women and minorities impeded the war effort against foreign military dictatorships. The War Manpower Commission stated that black employees at Consolidated numbered about 800 in early 1943; total employment at the company reached nearly one hundred thousand. By 1945, the city’s black population had doubled from 2 to 4.5 percent. John P. Davis, secretary of the National Negro Congress, estimated that there were seventy thousand skilled African American craftsmen available for hire in the shipbuilding and aircraft industries. In his letter to Senator Harry S. Truman, however, Davis quoted W. Gerard Tuttle, the manager of industrial relations at Consolidated, who claimed the company supported the policy of “Caucasians only.” Vultee Aircraft, meanwhile, openly admitted to hiring no African Americans.

Union Negotiations

Fleet and his union negotiators made efforts to maintain cordial relations between capital and labor despite the 1937 unionization of plant workers by the International Association of Machinists (IAM), a subsidiary of the American Federation of Labor (AFL). After the union demanded a 10 percent wage increase, Fleet signed off on the increased
pay rates with relatively painless collective bargaining agreements. Industrial peace, however, did not last. In June 1938, the IAM Local 1125 demanded another 10 percent wage increase. Fleet denied their request, citing the Vinson-Trammel Act that placed a ceiling of 10 percent company profits on military contracts. Afterwards, the chapter wrote a letter to the Navy’s Bureau of Aeronautics at the attention of Rear Admiral Ernest J. King, describing shoddy workmanship on PBys and asserting, “Navy inspectors need to be disaplined [sic] very urgently.”

In December 1940, negotiations resumed between capital and labor and quickly reached a consensus: management promised automatic increases from the starting wage rates until a base of 60 cents per hour was reached. From then on, additional raises could be earned by merit. Fleet was proud to have closed the deal within three weeks without a single missed day of work. He stated in a public relations campaign, “Our 50 hour work week, with two shifts, gives the lowest paid daytime beginner a weekly pay of $27.50 (with automatic raises to $33). It is enough to enable him to live in decency and comfort, permits him to have off Saturday and Sunday and recognizes the 40-hour work week with a penalty of 50% for the overtime necessitated by the national emergency.” In return, the 14,500 workers at the time would not strike or stop work for any reason. The San Diego Labor Leader reported on the completion of the Consolidated wage-review board on behalf of the AFL to determine whether pay injustices still existed. Before meeting with Fleet, an IAM representative announced, “Employees who feel that inequalities exist should contact the AFL shop committeemen in their
departments as soon as all wage increases won for employees through the AFL efforts have been made effective!” and reminded readers that “increases are constantly being won by the AFL for Consair men.”

In June 1941, management and labor renewed their vows with another two-year agreement. Consolidated agreed to match pay rates of Lockheed-Vega, a ten-cent hourly increase, but failed to keep its promise, claiming it did not have the required $82 million to pay the extra wages. As a result, the IAM granted full sanction to the rallying employees who overwhelmingly voted to strike. The bombing of Pearl Harbor on December 7, however, tabled the shop-floor quarrel before the parties could arrive at an acceptable bargain.

While some workers managed to accrue savings, others fell short. Bowman and Allen sacrificed their summer tans to work at Consolidated, but found themselves disappointed when autumn cut short their time at the swing shift: “The dollars that we made this summer were not many. We added them up the night before we quit and C.M. said, looking glumly at the total, that anybody who thought we had been motivated by anything but patriotism in its purest form could just look at our pay-checks after the government got through with them.” Nevertheless, the fruits of their labors gave them satisfaction, just as the foreman had promised on orientation day. Bowman and Allen recalled, “We ate our sandwiches outside by the field where we could watch the finished Liberators warm up. From the first, we looked at them critically and proudly, much as a mother would look at her children.”

At Shift’s End: Out of the Plants and into the Home

The war disrupted life for all San Diegans. Soldiers, sailors, and war workers crowded the city’s streets, queued in long lines at restaurants and movie theaters, and overwhelmed every municipal resource. As the war progressed, the city made headlines in Life and National Geographic as the place where war mobilization and regional resources collided. Despite a steady income for the first time in their lives, many workers found little on which to spend their hard-earned money. Bowman recalled, “When I asked the clerk at the hardware store for a midget ratchet set, she looked at me curiously and said didn’t I know there was a war on.”

In 1942, Consolidated News explained to workers why automobiles had to be sacrificed for the war effort: “A four engine bomber, fully loaded, burns as much gas in one hour’s top-speed cruising as the average family auto burns in six months” and “rubber used to make garden hose[s] in the last three months of 1941 would have bullet-proofed gas tanks on 400 Consolidated bombers.”

Housing shortages, however, could not be rationalized. Between 1942 and
1945, the city’s population jumped 75 percent due to the presence of military and aircraft jobs. The influx of 1,500 workers per week overwhelmed the housing market. Before long, there was nowhere to live, and people slept in shifts in hotel rooms. Certain groups of people found it particularly hard to find housing. The Tolan Committee reported that between 75 and 80 percent of rentable houses would not accept children occupants, even though fines discouraged such discrimination. The city responded with temporary fixes, such as the Farm Security Administration renting of trailers for $7 a week. Single women also found it difficult to rent a private room and, as a result, often had to share space with other women workers. Some women led the lives of service personnel in transit, sleeping in hotel lobbies, city park benches, cars, and theaters that allowed such individuals to stay after the late show.

In 1940, Congress authorized the National Housing Agency to build the Linda Vista Housing Project for war workers. The Lanham Defense Housing Act made possible the construction of the country’s largest planned community located on the plateau northwest of Mission Valley. Using assembly-line techniques, workers erected streets of houses overnight. Linda Vista Road became the main axis for the community that would initially house 3,000 families. By 1942, the housing project promised an additional 6,000 new homes in a sprawling suburban overflow into the adjacent area of Chesterton.

Consolidated played a significant role in the leisure time of its employees, especially as many could not return to the comforts of a permanent home. Workers organized sports teams with names like “Anodize,” “Parts Plant,” “Navy Wing,” “Hull Uprights,” and “Colored Maintenance.” The Consolidated News and daily radio broadcasts reported biweekly the standings of the clubs, which included baseball, golf, bowling, tennis, basketball, and swimming. As the Southern California aircraft industry expanded, intercompany rivalries erupted. For example, Consolidated employees matched up against Los Angeles’s North American Aircraft on the tennis court. The company also organized family events such as “Beach Days” at Mission Beach with treasure hunts, beauty contests, and dancing accompanied by the Bud Lovell Orchestra, free of charge. On December 16, 1943, Consolidated hosted a crowded tour through the plants on what became known as “Family Day.” While such events emphasized normalcy, the war dominated both the leisure and labor lives of San Diegans.

**Fruits of their Labors: The B-24 Liberator and the PBY Catalina**

With the growing acceptance of the strategic bombing doctrine, which required long-range heavy bombers to take the war to the enemy’s homeland, Consolidated
stepped forward with its innovative B-24 Liberator design to supersede Boeing’s B-17 Flying Fortress. The B-24 model, with advanced flying range and modifiable structure, became the most manufactured combat airplane in U.S. history. In thirteen cities, modification centers managed by other aircraft and automotive plants ensured export-ready Liberators and Catalinas by the spring of 1941. The San Diego plant provided the location for final assembly of the airframe and its components, the nucleus of the network. 73

Fleet’s engineers envisioned greater bomb stowage capacity than the B-17, better handling, and an innovative fuselage, hybridized with the past successes of the characteristic twin fin and rudder of the Model 31 seaplane. 74 The Davis wing, built in a low-drag teardrop shape, provided lower drag than any wing designs already in use and represented a drastic advantage over its predecessors. The design was successful for the Model 31 flying boat model because it provided substantial lift, even at a small angle of attack and made takeoff and landing from the water more efficient. 75 The high-lift airfoil wing provided greater flight range than the B-17. 76 Additionally, the innovative tricycle landing gear enabled the Convair bomber to gain altitude several hundred yards shorter than the Flying Fortress. Utilizing stronger alloys Fleet referred to as duralumin, and a new sealant called “duprene,” the original design lacked fuel tanks: gasoline swished within the ribs of the wing tanks. 77 Avoiding excess weight on the airframe allowed for extra flying time—a powerful selling point for both the Army Air Corps and the Navy.
The design allowed Consolidated to respond quickly to the USAAF’s request for a new bomber in December 1938—within two months, the company signed a contract with the Army Air Forces for the production of Liberators in earnest.\textsuperscript{78}

Even the simplest of airplanes necessitated a minimum of 587,000 pieces, which meant that subcontracting was necessary.\textsuperscript{79} In 1942, the subject of rivets caught the attention of Consolidated’s Production Board. The procurement follow-up department outlined the need for 270,000 rivets for each Catalina flying boat produced and 340,000 rivets for a single Liberator. With the projected Plane Delivery Schedule in 1943 of 60 PBYs and 128 B-24s, the rivets required for such orders necessitated a 153 percent increase over the previous year’s numbers. Rivets were a hot commodity and the company’s Aircraft Production Board expressed concern that new sources of rivet supply “must be located” to maintain acceptable levels of output.\textsuperscript{80}

The B-24 Liberator went through multiple major model changes and designations from 1941 to the end of the war. Depending on the combat theater’s needs, different model numbers denoted varying armament installations such as the number of .50 caliber gun turrets and their placement, as well as engine and propeller upgrades. Modification centers across the United States produced the different model numbers, such as Fort Worth’s production of the C-87 “Liberator
Express,” a B-24D variant modified for the transport of personnel and cargo. The only model to be produced at all five Consolidated-Vultee plants—San Diego, Fort Worth, Willow Run, Tulsa, and Dallas—was the B-24J, of which 6,678 were built.\(^8\) The B-24J, introduced in August 1943, boasted a new autopilot and upgraded bombsight. It later supplemented the B-17’s nose to improve forward visibility, the best of two generations in one deadly machine.\(^8\) Modification continued even on the front lines, where mechanics refitted and revised according to varying mission needs. In the end, over twenty-five B-24 types flew sorties around the world, including test, transport, and Navy versions.\(^8\) The mass-produced, versatile design contributed to almost every theater in the war.

The operational requirements of the Liberator varied depending on where they were used. Over Europe, U.S. Army Air Forces worked in tandem with the British Royal Air Force, primarily making daylight precision raids. In the South Pacific, the B-24 replaced almost all B-17s because of its superior flying range. The first Liberator in combat arrived in Hawaii on December 5, 1941, and exploded in the crosshairs of Japanese fighter fire two days later on the runway of Hickham Field.\(^8\) Subsequent Liberators demonstrated greater combat efficiency, especially under the Navy’s direction. B-24s executed a variety of missions ranging from close-air support, anti-shipping and anti-submarine reconnaissance, to search-and-rescue, while additionally implementing traditional strategic and tactical bombing sorties. Liberators equipped with search radar intercepted Japanese shipping over the Pacific, and played roles as convoy escorts and U-boat hunters against German wolf packs in the Atlantic.\(^8\)

On a typical mission over Europe or the Pacific, a ten-man crew flew a Liberator for a round trip of 2,500 miles over a span of nine hours. At the end of the journey, both the 6,000 to 8,000 pounds of bombs and 2,000 to 2,700 gallons of fuel were expended.\(^8\) Unlike over Europe, B-24s in the Pacific island-hopping venture flew near ground level, or just above small-arms fire and below anti-aircraft guns. Leigh Lights, wielding 500-million candlepower and mounted under the starboard wing, facilitated night missions.\(^8\)

Liberator operations in the Pacific began in earnest on November 16, 1943, in the attack on Bougainville (Solomon Islands) against the Japanese empire. Based in Darwin, Australia, Liberators demonstrated their strategic bombing abilities in the New Guinea campaign by disabling Borneo’s Balikpapan oil refineries, while Consolidated-made Catalinas flown by the Royal Australian Air Force sowed mines to wreak havoc on oil shipping lanes and picked up the crewmembers of downed B-24s. As the war continued, Liberators participated in the China-Burma-India “hump” missions, the recapture of the Philippines, and the invasion of Okinawa. At the end of 1944, more than six thousand operational Liberators
equipped forty-five air groups in the U.S. Army Air Forces.\footnote{88}

The commanding officer of the Middle East Air Force and later the 9th Air Force, Major General Lewis H. Brereton, lauded the B-24 bomber in a letter to the Commanding General of the USAAF, General Henry H. Arnold: “The B-24 will take a phenomenal amount of punishment from both ack ack and enemy fighter attacks … It is a magnificent hunk of a bomber, and I am going to write to Reuben Fleet and tell him so.”\footnote{89} A modification of the Liberator, the PB4Y, was a hybridized heavy bomber and patrol boat that demonstrated a successful augmentation according to a specific theater’s needs. The Navy Department cited this class of Liberator as possessing “superior qualities” in the South Pacific on reconnaissance and scouting missions. As the “most valuable big patrol-bomber of the service,” the Japanese equivalent, Mitsubishi’s Betty, “simply could not stand up to the concentration of the superior fire-power of the Liberator.”\footnote{90}

Consolidated’s flying boat model, the PBY Catalina, was the first design produced at the automated assembly lines at the San Diego plants. The Catalina functioned efficiently in reconnaissance roles, hospital transport, and as small target bombers, which made it a popular model among almost every American ally in all theaters of the war. Winning their claim to fame in air-sea rescues, USN Catalina crews flew through the terrible weather conditions from the Aleutians all the way south to the campaign off Australia. Fondly referred to as “Dumbo,” the thick-winged Catalinas facilitated the saving of hundreds of downed Navy pilots floating in the Pacific or stranded on hostile beaches.\footnote{91} During one of the bloodiest battles of the Pacific campaign, PBYs occupied a vital role in finding downed pilots off the shores of Midway Island.\footnote{92}
Lightly armed, Catalinas operated effectively against individual enemy ships. Crews flew on the forefront of the lines supported by seaplane tenders. In what became known as Black Cat operations, fourteen Catalina squadrons sank 112,700 tons of merchant shipping and ten Imperial Japanese Navy warships from August 1943 to January 1944. In his memoirs, General George Kenney, commander of the Pacific Air Forces, wrote that fifty fighter pilots volunteered to fly escort to a B-24 bombing sortie to Balikpapan. The fighters were well aware their P-38s could not make the return trip for want of gas, but were willing to bail out “if I would just send six or seven rescue Catalinas out to meet them.” The pilots were utterly confident in the successful records of the Consolidated-made aircraft.94

While the Consolidated News anticipated another PB4Y-2 contract for $45 million on February 8, 1945, the company foresaw that drastic cutbacks in the aircraft industry would be unavoidable in peacetime. Employment at Consolidated San Diego dropped from its peak of 45,000 workers in 1943 down to 3,760 in 1945. Still, the Consolidated labor force produced more aircraft than any other collective in the world.95

Consolidated played an important part in San Diego’s civilian contribution to the war effort. The company alone employed 36 percent of wage earners in the city, many of whom made sacrifices on the assembly line and in their day-to-day
lives. The B-24 Liberator—the most-produced heavy bomber model in U.S. history—helped ensure victory in the war. Consolidated, later known as Convair, laid the foundations for San Diego’s aerospace industry, stimulated federal investment, and fostered a regional wartime identity. “Some people complain about the airplane noises in San Diego,” Major Ruben H. Fleet, the company’s founder remarked, “but I sort of like it. The only time I look up is when I hear an engine missing.”

NOTES

5. Ibid., 41.
6. The Trusty brought reliability to the company’s reputation as a renowned designer and provider of training planes. The first airplane to land on the newly christened Lindbergh Field was a Consolidated Trusty, a model named for its most valued quality in a time when flight was a perilous undertaking. Bill Yenne, Into the Sunset: The Convair Story (Lyme, CT: Greenwich Publishing, 1995), 8-10; Katrina Pescador and Mark Aldrich, Consolidated Aircraft Corporation (Charleston, SC: Arcadia, 2008), 17.

7. Ibid.

8. PBY stands for Patrol (P) Bomber (B), made by Consolidated (Y).


10. Fleet originally agreed to move his plant to the Los Angeles area when the city offered 22.5 acres near the municipal airport free of charge. San Diego aviation booster Thomas Bomar claimed the area was underwater during the winter, and Fleet subsequently switched gears. Wagner, Reuben Fleet and the Story of Consolidated, 176.

11. Ibid.


13. Pescador and Aldrich, Consolidated Aircraft Corporation, 45.


15. Corona del Mar’s shop in particular employed two hundred people and was classified in the Electric Bench Department. Typically, suburbs popped up around the feeder shops because of the promise of jobs. “Assembly Lines to be ‘Fed’ by 3 New Shops,” Consolidated News, December 16, 1943.


17. Auto manufacturers were partnered with Southern California airframe giants. Ford teamed with Consolidated in B-24 production, General Motors and North American in B-25s, and Chrysler and Martin on the B-15. Wagner, Reuben Fleet and the Story of Consolidated, 220, 211.

18. Ibid., 226.

19. Ibid., 214.


21. The name “Convair” was not registered until 1954, though generally accepted in 1943. Employees also referred to Consolidated as “Consair” for short, even after the company merged with Vultee.

22. The difference between numbers and weight in percentage figures is because the company produced more heavy four-engine bombers than any other manufacturer. “Convair is World’s Largest Manufacturer of Airplanes: San Diego is Most Efficient Plant,” Consolidated News, January 20, 1944.

23. In 1936, Vultee Aviation founded itself as a military manufacturer. Its Downey plant utilized the moving assembly line characteristic of the automotive industry. Fleet sold his shares to Vultee in 1943, mostly over frustrations with the Navy Department, the federal government, and oppressive tax laws. This led to Fleet’s retirement from Consolidated in November 1944 to become President Roosevelt’s consultant on the aviation industry. John Wegg, General Dynamics Aircraft and their Predecessors (London: Putnam Aeronautical, 1990), 173.

24. War Plans Survey, Convair Papers.
27. War Plans Survey, Convair Papers.
30. War Plans Survey, Convair Papers.
31. Robert P. Patterson, Under Secretary of War to All A.C. Resident Representatives, Inspectors in Charge, Section Heads, District Office, memorandum, January 1, 1942, fol. B.36, Convair/General Dynamics’ Company Papers, San Diego Air & Space Museum, CA.
34. War Plans Survey, Convair Papers.
36. Ibid.
39. “85% Enrolled in Hospital Plan,” *Consolidated News*, July 2, 1942. As an alternative strategy to avoid absenteeism, the company devised the Work-to-Win campaign, which offered cash incentives in exchange for a perfect attendance record, which amounted to $140,000 awarded to employees over the period of one year. Work-to-Win benefits not only padded the pockets of the workers, but lifted their morale as well. Lotteries for those who boasted perfect attendance records could win a worker $10,000 or more in 1943, and in 1944, loyal employees received silver Liberator trophies. Other methods of rewarding workers included the original suggestion awards. Manuel Torres, a major assembly interchangeability specialist, won $1,876 for suggesting subassembly of Liberator turbo-superchargers.
43. “She Gets there Fastest with the Most: Use of Feminine Wiles Great Production Aid, Says Myra Ford, Experimental’s Pretty ‘Chaser,’” *Consolidated News*, August 27, 1942.
50. Nash, American West Transformed, 90-91.

51. In theory, profits were not guaranteed when dealing with federal government agreements, though military contracts assured steady work through the mobilization and war periods. Wagner, Reuben Fleet and the Story of Consolidated, 230. On June 9, 1941, President Roosevelt intervened in the North American plant strike when picketers clashed with police by calling in the Army, which demonstrated what he believed needed to be a unified industry. For further discussion of unionization in California’s aircraft industry, see chapter five of Kevin Starr, Embattled Dreams: California in War and Peace, 1940-1950 (New York: Oxford University Press, 2003).

52. “Consair Shop Committees to Thresh out Remaining Pay Inequalities,” San Diego Labor Leader, June 10, 1940.


54. Ibid., 236.

55. “Consair Parley in Washington,” San Diego Labor Leader, October 3, 1941. In 1942, management inaugurated continuous wage reviewing to institute an ongoing system rather than biannual review sessions to further employee-employer relations. New hires and rehires made such bureaucratic processes difficult.

56. Bowman and Allen, Slacks and Calluses, 173.

57. Ibid., 55.


61. Starr, Embattled Dreams, 152. As the local labor pool became insufficient to keep the planes flowing out of Consolidated, recruiters traveled beyond San Diego and even to the East Coast. As early as 1941, Fleet’s recruiters sought defense workers from the Mississippi and Ohio Valleys for factory workers.


67. At times, however, even those building the houses did not have their own places to stay. After 650 dormitories and demountable houses were erected for the construction workers, work on housing could begin. Killory, “Temporary Suburbs,” 38.

68. In spring 1943, the Congested Areas Subcommittee of the House Naval Affairs Committee completed a series of congressional investigations, and only reaffirmed the decision to build defense housing on remote sites despite almost unavoidable chaos in the future. And San Diego still asked for more housing, as the Chamber of Commerce begged the National Housing Agency for 5,000 more homes in July 1943. Some 4,500 workers, recruited from outside the city under the authority of the War Manpower Commission, needed places to stay. “New Dwellings For 6000 Begun at Linda Vista,” Consolidated News, June 25, 1942.

69. “47 Teams Join Softball League,” Consolidated News, April 9, 1942. Women’s teams were also prevalent and boasted their own meet programs.
71. “Consolidated’s Own Beach Day,” Consolidated News, August 20, 1942.
73. Pescador and Aldrich, Consolidated Aircraft Corporation, 58.
74. The Army signed Boeing to research the feasibility of flying fortresses, and the first B-17 design took wing in July 1935. The new Chief and later Commanding General of the Air Corps H. H. Arnold immediately spread enthusiasm about the B-17, but developed concerns that in the event of war, Boeing’s Seattle plant did not possess the production capabilities to mass-produce large quantities of aircraft. Wagner, Reuben Fleet and The Story of Consolidated, 207, 228.
75. While the thickness of the wing made the design obsolete in the postwar era, the space allowed for greater fuel storage. K. C. Khurana, Aviation Management: Global Perspectives (New Delhi, India: Global India Publications, 2009), 49-50.
77. Ibid., 208-11.
78. Ibid., 55.
79. Starr, Embattled Dreams, 142-3.
81. All five plants were officially called the Liberator Production Pool. Wagner, Reuben Fleet and the Story of Consolidated, 257.
82. Wegg, General Dynamics Aircraft, 85.
83. General Dynamics, Consolidated-Vultee Liberator: The Need, the Plane, the Crew, the Missions (San Diego: General Dynamics, 1989), 17.
84. Wagner, Reuben Fleet and the Story of Consolidated, 265.
85. Pescador and Aldrich, Consolidated Aircraft Corporation, 78.
86. Yenne, Into the Sunset, 39.
87. General Dynamics, Consolidated-Vultee Liberator, 55.
88. Yenne, Into the Sunset, 25, 39-40. In the Battle of the Atlantic, Liberators equipped with microwave radar formed the backbone of antisubmarine forces. Of particular importance on the Liberator combat record is the participation in the Ploesti oil field raid over Romania in 1943. Wegg, General Dynamics Aircraft, 89.
92. Wagner, Reuben Fleet and the Story of Consolidated, 259.
93. Pescador and Aldrich, Consolidated Aircraft Corporation, 64.
94. Yenne, Into the Sunset, 25.
95. General Dynamics, Consolidated-Vultee Liberator, 58.