

HISTORY FROM OHA

An Air-Conditioned War: Carrier Corporation Goes to War

■ BY THOMAS HUNTER

In 1902, Willis H. Carrier, a young mechanical engineer working for the Buffalo Forge Company, launched air conditioning when he installed a system in a printing company in Brooklyn. The proprietor found that on hot, humid days his paper wrinkled and Carrier's air conditioner solved that issue.

Other commercial companies heard about Carrier's air conditioner and wanted their own. Six years later, Carrier Air Conditioning formed as a subsidiary of the Buffalo Forge Company. By 1915, Willis Carrier had formed his own company, Carrier Engineering Corporation.

In the early 1920s, Carrier switched from piston power to the centrifugal chiller, so that much larger spaces could be cooled. After two years of testing, Carrier sold the first centrifugal refrigeration machine to Onondaga Pottery Company in Syracuse. That machine lasted for 26 years, providing air conditioning in the lithography department until 1950; the compressor is now at the Smithsonian Institution. Soon, Carrier air-conditioning systems left the confines of industry and cooled movie theaters, the ape house at the New York Zoological Park, the White House, U.S. Senate Chamber, and even a gold mine in South Africa. By the late 1920s, air-conditioning systems were regularly installed in hotels, stores, businesses, and restaurants all around the world.

In 1937, Willis Carrier consolidated his business from five plants in New Jersey and Pennsylvania and moved his entire operation to Syracuse, settling in the abandoned H.H. Franklin Manufacturing Company on South Geddes St., now the site of Fowler High School. One of the first components Carrier installed in his new building was an air-conditioning system. Carrier developed the Conduit Weathermaster system, less heavy and bulky air-conditioning equipment that was installed in tall buildings. Combined with the elevator, Carrier air conditioning is credited with changing the face of the world's cities.

The New York World's Fair opened in April 1939 [in Flushing Meadows-Corona Park in Queens], with its vision of the future and its slogan, "Dawn of a New Day." Inside Carrier's pavilion, shaped like a giant igloo with walls coated with snow, visitors learned about the marvels of air conditioning and refrigeration.

That same year, as visitors flocked to the World's Fair to glimpse the newest technological spectacles, war erupted again in Europe. U.S. businesses and workers were called upon to step up and support factory production to defend America. With the Lend-Lease policy — "An Act to Promote the Defense of the United States" — formally adopted on March 11, 1941, American businesses supplied European allies with much-needed food, oil, and war material, while temporarily abstaining from entering the war. Just one month after the passage of Lend-Lease, several Syracuse businesses published a declaration of support for the U.S. government in the *Syracuse Herald American*. Promoting strength through efficiency, adequate production, Americanism, and faith in God, Carrier and others encouraged good business through buying and selling durable goods and American ideals.

By late April 1941, Carrier acquired one of its first

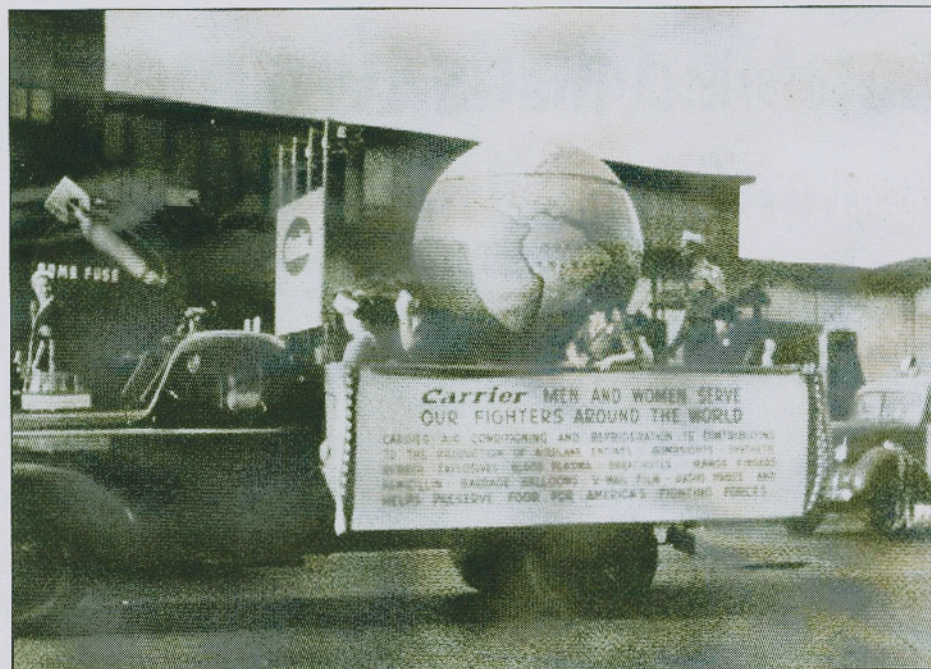
war-production contracts, worth \$1 million, to produce parts for gun mounts for the U.S. Navy. All told, 44 percent of orders obtained by Carrier within the first quarter of 1941 were for wartime products. However, most of those orders were filled with air conditioning and refrigeration equipment. Carrier president, J. Irvine Lyle, stated to stockholders that overseas exports had actually increased by 11 percent despite the war raging in Europe.

In January 1942, Cloud Wampler, executive vice president, announced at a meeting of company executives and production supervisors that "the business of Carrier is now the production of war essentials" and "all effort is to be confined to the obtaining of business that will aid in winning the war." Wampler also stated that Carrier's goal was to seek sufficient business to keep Carrier busy seven days a week and machine tools in operation 24 hours a day. At the same meeting, George Landry, representing the federal Office of Personnel Management, and onsite to inspect the Carrier plant to determine the kinds of additional production to which the plant could be best adapted, also stated that Carrier was an important link in war production. "The nation is safe in having an organization like Carrier to handle its part of the defense program," he said.

In early 1942, about 90 percent of Carrier's production was devoted to wartime equipment essential to fighting the war. However, unlike other businesses that completely retooled to manufacture wartime products very different from their civilian products, Carrier remained largely focused on producing air conditioning and refrigeration equipment. Helping the Allies achieve their wartime goals meant creating air-conditioned environments inside steel factories to increase production, as well as in other factories that made plastics, chemicals, synthetic textiles, rubber, and precision instruments. Air-conditioned environments also allowed for the construction of windowless, black-out factories, and underground bombproof shelters. Carrier also supplied air conditioning or refrigeration units for more than 250 Navy ships during the war.

As the war persisted into 1944, Carrier extensively assisted the Allies. That year, Carrier generated more than \$27 million (almost \$363 million in 2015 dollars) in war business, shipped \$16 million in war products from Syracuse, trained 750 sailors in Navy refrigeration techniques, released 200 men and women for military duty, and was recognized for its fourth E for excellence award in wartime production. Carrier was one of only 14 companies to add five E stars to its original award. Carrier equipment was also instrumental in aiding with producing penicillin, and with laboratory experiments seeking to eliminate malaria.

By the end of 1945, Carrier announced its postwar plans to expand to meet the demand for civilian products. By the end of the following year, Carrier



purchased manufacturing facilities from the U.S. government along Thompson Road near Syracuse for \$4 million. The massive 660,000-square-foot plant was named TR-1 (for Thompson Road) and there the company began to make its centrifugal refrigeration units. In October 1947, Carrier hosted an open house at TR-1 to commemorate its 10th anniversary of being in Syracuse. About 20,000 curious visitors came to see a vast array of commercial and consumer equipment on display. As guests snaked their way along the 1-mile tour route, they were treated to music, sweet treats, soft drinks, and balloons for the kids.

On Oct. 7, 1950, Willis Carrier, the founder and namesake of the company passed away while in New York City. It was the end of one era and the beginning of another as Carrier continued to grow in the worldwide air conditioning and refrigeration market.

Through the 1950s, Carrier forged ahead with making new products, as well as providing a more accepting work environment for women. Since World War II, women had worked at Carrier in an array of capacities, including as crane operators, forklift drivers, radio dispatchers, as well as engineers. Margaret Ingels, the first American woman air-conditioning engineer, worked for Carrier from 1917 until her retirement in 1952. Ingels became an expert on residential air conditioning and wrote more than 45 technical papers. She also wrote, "Petticoats and Slide Rules," an article about American women in the engineering field.

Carrier had an eventful year in 1959. That year, the company air-conditioned the Vatican, cooled Great Britain's first nuclear-powered submarine, and unveiled an air conditioner that also purified and humidified the air. By the end of the year, Carrier employed 5,700 Central New Yorkers in its Syracuse plants.

For the next 20 years, Carrier continued to develop new air conditioning and refrigeration equipment. Then in July, 1979, United Technologies acquired Carrier Corp., dramatically reshaping the global market for all building and industrial technology.

During the early 1980s, the Walt Disney Company hired Carrier to cool its new Epcot Center in Orlando

and much of Tokyo Disneyland. At the same time, Carrier cooled Sydney Tower, the tallest building in the southern hemisphere at that time.

In the 1990s, Carrier introduced non-ozone depleting refrigerants, outpacing the timetable for eliminating chlorofluorocarbons set by the U.S. government by two years. Carrier used the new refrigerant to cool the Great Hall of the People in Beijing, China. The previous year, Carrier had installed a customized climate-control system to preserve the ceiling of the Sistine Chapel painted by Michelangelo between 1508 and 1512. In 1997, Carrier celebrated three milestones: the 50th anniversary of acquiring the first plant on Thompson Road, the 60th anniversary of its presence in Syracuse, and the 75th anniversary of Willis Carrier's introduction of the first centrifugal chiller.

In July 2002, Carrier celebrated the centennial of Willis Carrier's invention of modern air conditioning. The company had grown to \$8 billion in revenue. Today, Carrier is an essential part of an integrated industrial network serving a global community.

While growing in other parts of the world, Carrier's presence in Syracuse has dramatically decreased since the turn of the 21st century. The company's focus has shifted from manufacturing to development; it stopped making air-conditioning equipment in Syracuse in 2004. The workforce had dropped from 7,100 in 1980 to about 1,000 in 2012. TR-1, the first building that Carrier purchased from the federal government back in 1946, was demolished in 2011 and converted into a green space. However, Carrier has maintained its engineering and design center in Syracuse. These employees develop refrigeration systems for shipping containers and trucks, cooling systems for store display cases, air conditioning for buildings and homes, as well as software to operate the equipment. The engineering and design center is the largest of its kind within Carrier Corp.

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