History of the Downey Plant

Those of you who have walked the aisles of the Downey plant have walked the aisles of history. You’ve been part of, and witness to, the site and creative center of more major space programs, initiatives, developments, and accomplishments than any other place in the nation.

Getting Off the Ground

Originally, the 90-plus acres of land between what are now Lakewood and Bellflower boulevards were a ranch covered in orange groves, owned by a man named James Hughan. In 1929, Hughan sold 72 acres of this land to industrialist E.M. Smith, who was one of many young Americans who had caught “flight fever” after Lindbergh’s flight in 1927. Smith was a very successful entrepreneur who headed a number of companies, including the Emsco Asbestos Products of Downey and an oil drilling manufacturing company in Santa Fe Springs.

His most recent acquisition had been the Albatross Company in Long Beach, which designed a 36-horsepower monoplane. Smith, with the aircraft designer Charles Rocheville, formed the Emsco Aircraft Corporation and immediately set about converting Hughan’s ranch into a two-runway airport (the landing strips were 3,000 and 2,000 feet long) with a manufacturing facility and rooms for a flying school. The new airport opened on May 3, 1929.

Smith didn’t waste any time in getting his new little airport moving. In less than 5 months from the purchase of the ranch, in August 1929, the first Emsco-built monoplane had its initial test flight. And in no time flat, Smith was busy producing three-engine and two-engine passenger aircraft and drawing up plans for a 30-plus passenger aircraft with four engines.

But then in October the unthinkable happened. Wall Street “crashed.” And down with it came the hopes and dreams of many young industrialists like Smith. He tried to maintain his optimism for a number of months, but finally the realism of the devastation of the crash set in.

In 1931, Smith had a glimmer of hope when a youthful, veteran pilot-designer, Jerry Vultee, joined the Emsco team as chief of design. But Vultee didn’t stay long—a year later, he left to form his own company at the Burbank airport, and the Downey plant became idle again. In the first terrible months of 1932, Smith leased the little plant to Champion Aircraft Corporation, but Champion’s attempt to revitalize the plant also failed, and the facility switched hands again to Curtiss Manufacturing of Los Angeles for the assembly of trucks, buses, and airplanes.

But absolutely no one was buying.

In February 1933, W.B. Kinner, who had designed two aircraft for Amelia Earhart, formed the Security National Aircraft Corporation and took over the Downey facility, primarily to build a special folded-wing, single-engine aircraft that fit in a normal garage and sold for about twice the price of an automobile. Although the aircraft captured attention, only three were sold, and Kinner moved elsewhere. The Baker Oil Tool Company took over, but was able to do little more than keep the plant open.

Then, in 1936, Jerry Vultee returned. He had reorganized into the Aviation Manufacturing Company and created a small division called Vultee Aircraft. He brilliantly predicted a new marketplace: while the Civil Aeronautics Agency had banned the future use of single-engine aircraft for commercial passengers, Vultee knew where to get customers. He knew that the increase in civil uprisings in Spain, China, the Middle East, and Latin America would bring in customers who wanted small, armed, and inexpensive aircraft. He prepped his V-11 attack bomber...
and opened for sales.

Just two years later, in 1938, the Vultee division had 1,500 workers producing aircraft for half a dozen nations. Just as Vultee was nearing recognition in aero industry acclamation, he and his wife — while returning from Washington, D.C. — were killed in an aircraft accident in Arizona. Nonetheless, the Vultee division continued to thrive. As America was entering World War II, Vultee acquired a large minority interest in Consolidated Aircraft of San Diego. The acquisition became known as Convair, and the two plants — San Diego and Downey — produced more than 13,000 aircraft during the war. To camouflage the busy plant during wartime, Convair painted the aerial-view “orange groves” on the roof of the Downey facility to match the surrounding countryside, allowing the Downey plant to experience a brief return to its “roots.”

During the war, the Downey site expanded from its original 84,000 square feet to 906,700. Most of this expansion occurred between 1940 and 1941, when the U.S. Army Air Corps acquired 93.7 acres of land adjacent to the Vultee (Convair) site and constructed 644,700 square feet of factory space. Vultee, in turn, added 178,000 square feet to its working area.

At the close of the war, however — at the double armistice of May and August 1945 — the doors of the Downey plant began closing down too. And, just 10 months later, the plant closed completely. A small side street that runs perpendicular to Stewart and Gray still bears the name of Vultee, paying tribute to a man who helped get the Downey plant off the ground.

Shooting for a New Market

Although production at the Downey plant ceased dramatically at the end of the war, a new interest had been created and, with it, a new industry: rocketry.

American and British troops began “liberating” scores of German rocket engineers and scientists, along with Germany’s V-2 ballistic missile components and literature. Most of the human and hardware elements of this technological treasure were distributed among America’s defense centers and contractors, which became the nucleus of the nation’s burgeoning rocket capability. Downey was on the brink of rebirth.

Downey’s first brush with rocketry — a Consolidated Vultee undertaking in 1946 called Project MX-774 — failed when the government canceled the contract. The plant was closed and remained unoccupied until North American Aviation (NAA) moved in, not to develop rockets but to accommodate the overflow of aircraft production at its headquarters in Los Angeles. It was 1947.

Meanwhile, at NAA’s Los Angeles plant, a small group of engineers had been assigned to investigate the technology of the future — rocket propulsion, electronics, nuclear power, and aerodynamic space-type hardware. In 1948, needing more room for its burgeoning expertise, this group — the Aerophysics Laboratory — moved to the Downey plant. Eventually, the lab’s missile, rocket propulsion, and guidance and control experts split into four divisions: a rocket division (Rocketdyne); an electronics and avionics division (Autometrics); and commercial nuclear power generation (Atoms International). The fourth division, which was the Downey division, was called the Missile Division to signify its authorship of the Navaho missile. However, the aerodynamic Navaho was soon canceled by the government (the shrinking of the hydrogen warhead size had made nuclear-tipped intercontinental ballistic missiles [ICBMs] feasible). This cutback was so severe and abrupt that the Downey plant’s cafeteria and outdoor tables were used for termination processing. To make matters worse, just 3 months later, the Soviet Union startled the world by orbiting Sputnik 1.

After the Navaho cancellation, hopes rose again when North American received a contract award from USAF for Weapon Systems 131 (the Hound Dog), an air-to-surface nuclear missile carried under the wings of B-52 bombers. Although the Soviet Union had stunned the nation with its space orbit, the U.S. government placed a low priority on its efforts to achieve a “space spectacular.” It instead concentrated the bulk of its defense budget on ICBM systems. Even so, the idea of the “new frontier” and the need for space leadership became “hot” political issues. As if to underscore the problem, the Navy’s initial efforts to develop a new satellite and booster (Project Vanguard) for launch sometime in 1958 resulted in dismal failures.

A positive change occurred when Congress passed the Space Act of 1958, which created the National Space Council and the National Aeronautics and Space Administration (NASA). By then, the Soviets had landed a probe on the moon and space had become much more than a place where the stars hung out at night. America was scrambling to catch up and Downey was poised to take on an awesome new challenge.

Heading for the Stars

Fortunately, the federal government had delved seriously into space technology for more than 12 years. Although few people knew it, North American Aviation had successfully developed the propulsion systems, the guidance systems, and the aerodynamic structures that could have placed a vehicle in Earth orbit months before (if not a year earlier) than the Soviet’s Sputnik. In fact, after the Navy’s Vanguard failures in the closing months of 1957, a Redstone missile with a Rocketdyne propulsion system put America’s Explorer satellite in orbit in
January 1958—equipment that was available as much as 2 years earlier.

By 1960, the Downey division had a new president and took on a new name to better describe its upcoming challenge: the Space and Information Systems Division. SISD studied things such as lunar landers and bases. Heading this effort was Harrison "Stormy" Storms, who had led the company's efforts in developing the successful X-15 program. He was given a team of bright new engineering talents, including the engineers who developed the X-15 research craft and a core of experts in rocket propulsion.

The future seemed very bright. In May 1961, President Kennedy drew the nation's focus to aerospace by committing the country to a manned lunar landing before the decade was out. On the heels of that commitment came two fledgling programs full of opportunity: a contract to build the Saturn V lunar launch vehicle and a contract to develop and build the Apollo command and service modules (CSMs). These two new contracts made the Downey division the principal contractor to the 3-year-old NASA. It was a partnership to last a long time.

The Space Division became "Apollo Central" during the lunar program, serving not only as the industrial center for Apollo development, but also as host for a constant parade of VIP visitors. The increasing personnel requirements of both the Saturn and Apollo programs called for an expansion of facilities. (At the peak of the Apollo program in 1965, more than 35,000 people were employed by the division, about three fourths of whom worked at Downey.) Some 250,000 square feet of manufacturing and test facilities were added in 1962, and more than 500,000 square feet of office and laboratory area were added in 1963 with the acquisition of buildings formerly occupied by North American's Autonetics Division, which moved to Anaheim, California. In 1964, the main Downey building (Building 1), which had been called USAF Plant 16, was transferred to NASA as NASA Plant 1. Of the three major buildings on the south side of Imperial Highway (Buildings 2, 3, and 4, owned by North American), two (Buildings 2 and 5) were sold to the Los Angeles County government in the early 1970s. Building 4, located on Clark Avenue, and a fourth structure on the north side of Imperial (Building 3) were retained for company use. By the early 1970s, the government facilities encompassed some 1.7 million square feet of enclosed area while the North American Rockwell property totaled 450,000 square feet. Overall, the Downey facility exceeded 200 acres—a figure that remains about the same today.

In the midst of this hubbub of development (the division was building 15 Saturn S-lls and 15 Apollo CSMs, and modifying the CSMs that transported three crews to and from the Skylab workshop), the Space Division was suddenly awarded another historic NASA contract. In July 1972, Rockwell was asked to design, develop, test, and evaluate the Space Transportation System (STS), more commonly called the Space Shuttle.

As soon as the last Apollo command module and crew splashed down in the Atlantic in July 1975, Downey turned to the next workable to begin assembling the four reusable orbiters: Columbia, Challenger, Discovery, and Atlantis. (There was also a fifth orbiter, Enterprise, used only as a test craft.) These four original Shuttle spacecraft were built from 1981 to 1986, and, after the tragic loss of Challenger and its crew, the division received a new contract to build a replacement Shuttle, Endeavour, which was delivered in May 1991.

Expanding Our Horizons

Currently, the Downey plant has an extended scope of studies. Now called the Space Systems Division, Downey, along with the Seal Beach complex (also part of SSD), has delved into studies in several areas, including lunar-Mars robotics, and strategic defense systems for the military. NASA is still hard at work on space transportation systems and has set many long-range goals for transportation studies and designs: the Extended-Duration Orbiter (which will extend the orbiter's mission from 10 days to 16), a heavy-lift launch vehicle that can carry massive items into space, an assured crew return vehicle (which is like a "life boat" for the crew members on Space Station), and concepts to assemble Earth-orbital platforms and lunar and Martian bases.

The head count of the Downey division is now in the neighborhood of 5,457. (This is part of the total SSD head count—9,495—which includes Huntsville, Houston, Florida, and FHEC.) In 1988, Downey's head count was at about 10,000—a figure that remained fairly constant for several years. Employment at the Downey facility in 1957 (the Navaho program) was also in the same 10,000-person neighborhood, but it dropped drastically after program cancellation. While building upward from 1958 through the 1960s, Downey employment peaked in 1965 (the Apollo program), when the head count in California was in excess of 29,000 (and SSD had an additional 6,000 people located at out-of-state facilities). That number dropped again, drastically, in 1972, when the Apollo program ended (a cutback that rivaled that of the Navaho in size and shocking speed). The head count in 1972 bottomed out at approximately 5,000 employees supporting the Skylab program and the Shuttle proposal. In 1973, the slow buildup in employee head count began again as work started escalating on the Shuttle program; by 1976, employee numbers reached approximately
12,000. Now that the orbiters have all been built and delivered, the population has experienced its third major drop, dipping to its current low.

The facilities arrangements, too, have changed over the years to accommodate the varying needs of changing programs. During Downey's rapid expansion for the Saturn and Apollo programs, the company leased buildings on Bellflower Boulevard (Buildings 302 and 305) and, a year later, another on Lakewood just south of Firestone (Building 318). These were vacated in the early 1970s; however, one (305) was later purchased by Rockwell and renovated for use on the Space Shuttle program. During 1972 and 1973, dozens of large trailers were added to the Downey facility, housing offices for approximately 1,000 Shuttle engineers.

Although the Downey plant is not currently increasing in size, changes are constantly being made. After the October 1987 Whittier Narrows earthquake, Rockwell, NASA, and an outside engineering consultant surveyed the Downey facility for high-risk buildings to minimize future damage and risk to employees.

Building 305 was seismically retrofitted throughout, and Buildings 6 and 290 were repaired. NASA also approved funding to retrofit the large central core of Building 1. This project, currently under way, involves over 320,000 square feet in Building 1 and the relocation of some 2,000 occupants. Construction is scheduled for completion in May 1993.

The Seal Beach plant, which was part of the Space Division for many years, has also gone through many changes. It opened in 1967 and became its own division in 1984 (the Satellite and Space Electronics Division). The plant spanned 707,000 square feet and usually housed about 3,800 employees. In 1977, the Information Systems Center moved in to share some space, and in 1988, another 218,000 square feet were added to accommodate the new Strategic Defense Center, owned by Rockwell and built for strategic defense studies and programs. In 1992, the Satellite and Space Electronics part of Seal Beach came again under the umbrella of the Space Systems Division. Meanwhile, Rockwell's corporate offices moved from El Segundo to the Seal Beach facility to form the fourth major division sharing the real estate. Currently, the Seal Beach plant consists of 11 major buildings on 104 acres of coastal land.

History of NMA

World War II had been under way only about 6 months when the North American Aviation (NAA) Foremen's Club was organized to facilitate communication among management in a company that was bursting at the seams to meet wartime requirements for combat aircraft.

With membership open only to foremen at first, the organization expanded rapidly. In early 1943, it affiliated with the National Association of Foremen, which later became the National Management Association (NMA). Membership eligibility was broadened to include those above foremen and, later, to include assistant foremen.

After 1945, the club, like the company, experienced a rapid decompression as the assembly lines came to an abrupt halt. Then membership gradually built up again under an aggressive development program.

As North American management addressed the challenges of the postwar aircraft industry, they saw it was actually becoming an aerospace industry. The diversification of NAA that resulted not only expanded employment but also expanded the geography of the company to cover an immense stretch of Southern California.

In 1957, a study by the club led to the formation of the present chapter structure, a move which also reflected the growth and restructuring of the company.

Today, as through the past 50 years, the Rockwell Southern California NMA chapters are leaders locally and nationally. With membership that spans a broad spectrum of the people of Rockwell, the tradition of service, training, communication, and good fellowship is carried on proudly.