

## Chapman Field - The Evolution of a South Dade Army Airdrome

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Cobbled together to encompass more than 850 acres of pineland, scrub, marsh, and seashore, the army airfield that came to be named after the first U.S. flier killed in France during World War saw active service for only two months before the war ended. Thereafter local horticulturists and aviation interests vied for control of the property as development crept around its perimeter. With much of the acreage remaining parkland or agricultural through the end of the 20th century, Chapman Field has persisted as an identifiable entity in Miami-Dade County with a locally recognized name long after its airstrips have vanished.

Powered flight had barely passed its first decade when the war in Europe erupted in 1914, but German, French, and English governments quickly saw the strategic advantages to be gained from the airplane over the battlefield. During the first years of the war the United States had a chance to watch from the sidelines, and it, too, discovered that air power was a potentially great new tactic. The U. S. Army had few pilots, however, and few bases for training more; in Florida, only the Naval Air Station in Pensacola was operational. America entered the war on April 6, 1917, and, in a wave of federal spending, \$640 million was appropriated by Congress on July 24 of that year for military aeronautics. Many private schools of aviation were taken over by the military, such as Curtiss Field in Miami, and new airfields were established throughout the country. Several were built in Florida, including Carlstrom and Dorr Fields at Arcadia and the seaplane bases at Key West and at Dinner Key in Miami.

Along Biscayne Bay 15 miles south of Miami, the U. S. Army Signal Corps' Cutler Aerial Gunnery Field was pieced together from 195 acres owned by Walter H. Browne of Kings County, New York, and 695 acres owned by the Avocado Land Company of Jackson County, Missouri. Specifically, the site covered all but the southwestern quarter of Section 24, Township 55 South, Range 40 East, plus fractional section 19 of Township 55 South, Range 41 East, as recorded on page 44 in plat book 2, office of the Clerk of the Circuit Court for Dade County, Florida. The total cost to the government was \$71,500 for lands deeded in April, 1920. The tract occupied by the U.S. Army bordered the eastern edge of the Perrine land grant, and the northwestern corner is at the intersection of what would become SW 67th Avenue and Old Cutler Road.

During 1918, the army subsequently dredged a portion of the bayside marsh to create a marl landing field, a lagoon for water landings, and channels to Biscayne Bay. Roads were cut through the palmettoes and slash pines on the limestone ridge a mile inland. Water was pumped from underground, stored in three tanks of 20,000 to 100,000 gallon capacity, and distributed across the base by underground piping with hydrants for fire

fighting. Electricity was provided by lines to Miami, and steam was generated for heat.

The base was completed in September, 1918, under the command of Capt. William J. Pedrick, Jr. An article in the Miami Metropolis of August 20, 1918, described the deluxe conditions awaiting the fliers who would come to the school to finish their training in gunnery practices. The camp was a model town with electricity, waterworks and a sewage system. Constructed on a rock ridge, the base buildings were situated among pine trees and had a view of the bay to the east. A medical contingent had already arrived to man a hospital complete with operating room, a large airy public ward, and several private rooms. Nearby, officers' quarters and mess halls and the home of the commanding officer were built around an oval field higher up and perpendicular to the original Ingraham Highway (which had been relocated to the station's perimeter and would in succeeding years be renamed Old Cutler Road) off which the enlisted quarters and mess were built. A row of hangers sat along the western edge of the filled landing field just east of a road parallel to Ingraham Highway on which were situated maintenance shops, the headquarters building, and entertainment centers provided by the Y.M.C.A. and the Knights of Columbus. Off to the side of the station a target range had been dug out of the rock, and the material was used for constructing the network of roads. On November 15 of that year the airfield was formally renamed the Victor Chapman Military Reservation by Major Kenly, head of the aeronautical division, in honor of the first U. S. flier to be killed in France during World War I.

Victor Emmanuel Chapman had graduated from Harvard in 1913 and gone to Paris to prepare for admission to the Beaux Arts Academy and studies in architecture and painting. In a preface to a memorial volume to his son published in 1917, John Jay Chapman (a Harvard professor and the great-great-grandson of John Jay, the first U.S. Chief Justice) wrote of Victor, "He had no aptitude for sports, none for books, none for music; but always a deep passion for color and scenery ...". If in school he was dull and uninspired, he seemed to come alive in natural settings among woods and streams. He was also thrilled by the threat of danger and almost recklessly threw himself into life-threatening situations. In August of 1914 Germany declared war, and France mobilized against invasion. Americans living in Europe often felt as intensely loyal to their adopted countries as did the combatants and sought to enlist, but by joining the army of a foreign power they were threatened with a loss of American citizenship. Many, therefore, chose to work in ambulance corps or, if their loyalties ran toward France, joined the French Foreign Legion, which, as a mercenary group, was outside the French War Department. Victor Chapman joined the Third Marching Regiment of the First Foreign Regiment of the Foreign Legion as a private in September of 1914 at the age of 24 and subsequently fought in the trenches at Frise, Amiens, and Bas over the next 11 months.

At the time Chapman slogged through the trenches, Norman Prince and other Americans sought to influence the French government to establish an air squadron composed solely of American fliers. At the suggestion of his father in England and uncles William Astor Chanler and Robert Chanler living in Paris, Chapman sent an inquiry to Prince and found himself transferred to French aviation. As a mitrailleur-bombardier, Chapman flew on bombing runs to Voisin and across the Rhine into Dillingen, Germany, before applying to

the School of Military Aviation at Avord, where he was admitted in September, 1915. With the receipt of his brevet militaire, and with his uncles' financial and political influence in the creation of the Escadrille Americaine, Victor Chapman, as a legionnaire, became one of the founding members of the squadron. In April, 1916, this squadron of seven Americans, under the command of two French officers was sent to Luxeuil-les-Bains, an ancient spa at the foot of the Vosges Mountains near the Swiss border, and from there in May to the Behonne airfield at Bar-Le-Duc to patrol the raging battle of Verdun. The squadron of Americans boosted French morale and titillated newspaper readers in America but embarrassed the U.S. government, and subsequently the name of the unit was changed to the Escadrille Lafayette on December 2, 1916, in deference to America's continued official neutrality.

As a pilot, Chapman's life was exciting but only rarely dangerous. Most days, pilots seldom engaged the enemy during scouting missions, and five kills qualified one as an ace. Individual pilots generally flew two missions each day that the weather was favorable, and each mission would last two hours. The Vosges sector was relatively quiet, and off hours at Luxeuil were spent at a villa adjoining the spa with chauffeured rides to an inn for dinner and nights of drinking and playing pool. Life was harder near Verdun with more German air incursions and more dangerous reconnaissance across German lines, and the first American pilot, Horace Clyde Balsley, was seriously wounded and evacuated to a hospital in Vadelaincourt. Unable to freely drink water due to a perforated intestine, Chapman volunteered to deliver oranges to Balsley's bedside daily. On June 23, 1916, Chapman was in the air headed toward Vadelaincourt when he saw a group of three squadron mates depart on patrol. Chapman couldn't pass up an opportunity to engage the enemy, although he was not scheduled for this patrol, and decided to follow. In time the regular patrol encountered five German fighters and after a brief combat, outnumbered, withdrew to French lines. Unknown to them, Chapman was flying to their aid and was subsequently left alone with the five Germans. His plane was shot down behind the German lines near the ruins of the French town of Beaumont. A body presumed to be that of Victor Chapman was recovered after the war, but dental records didn't match; nevertheless, the body was placed in a grave under his name in the American Cemetery at Suresness. Consequently, the remains in that grave at Suresness were not later removed to a memorial to the Lafayette Escadrille built at Villeneuve Park in St. Cloud outside Paris, and the crypt bearing Chapman's name remains empty.

Three days after the renaming ceremony, World War I ended, and construction at Chapman Field Military Reservation ceased November 25. The base was declared surplus in 1921 by the War Department and offered for sale, but a clear title could not be conveyed, and the sale was canceled. Subsequently a notice was received at the U.S. Department of Agriculture's Bureau of Plant Industry that the property was to be abandoned. This notice was brought to the attention of Dr. David Fairchild, a plant explorer in charge of the Bureau's Office of Foreign Seed and Plant Introduction.

Dr. Fairchild was instrumental in establishing several plant introduction gardens throughout the U. S. to screen plants with a potential to improve the diets and industry of Americans. Excursions throughout the orient had fostered in Fairchild a passion for

exploration and tropical horticulture, but it was a fellow explorer, Walter Swingle, who undertook the establishment of a new subtropical laboratory and garden in Miami. Swingle convinced Henry Flagler, the man who opened South Florida to development when he brought his Florida East Coast Railroad south from Palm Beach, to give the USDA an acre of land along Biscayne Bay to be used for construction of a laboratory to study plant diseases. He also persuaded another historic Miamian, Mary Brickell, to give him six acres across Brickell Avenue from Flagler's plot, between SE 10th and 14th Streets, for use as a plant introduction site. The Department refused the gifts of land but accepted a lease arrangement in 1898. When the facilities on Brickell Avenue proved too small, 25 additional acres of land were leased in 1914 from Charles Deering 7 miles north between NE 21st and 30th Streets on N. Miami Avenue in a section of the city called Buena Vista. It was soon recognized, however, that this property was also insufficient.

Upon hearing that Chapman Field was to be abandoned by the War Department, Fairchild investigated and determined that this location could be ideal for an expanded program of plant introduction. The former army air base seemed perfect for his dream of creating an "Ellis Island for plants" - a place where sensitive plants could be propagated and bred for resistance to colder temperatures prior to their introduction to areas of the U.S. farther north. As he would continually declare, Fairchild sought "a piece of climate" not simply land, which was plentiful and cheap inland but more prone to cold temperatures. With more than 850 acres the base was of sufficient size, several varieties of soil were represented as well as several ecological zones, the site was easily accessible by road and by water, but most importantly the climate was as close to ideal for growing tropical plants as would be found in Florida. A freeze in 1917 had severely damaged plants at the Buena Vista lab and, to a lesser degree, on Brickell Avenue. A break in the barrier islands off Chapman Field allowed the warm Gulf Stream to come closer to land there, and indications within local hammocks suggested less severe winter temperatures. Fairchild also sought to create a living collection of plants - an arboretum - to benefit both teaching and scientific study. He and others were able to convince the Secretary of War, John W. Weeks, to give a portion of Chapman Field to the USDA under a revocable lease agreement. On April 26, 1923, the first trees were planted at the new USDA Plant Introduction Garden. Fairchild, however, was unsuccessful in his attempts to transfer title of the entire property, and this preoccupation dogged him for more than two decades.

David Fairchild thought it was entirely appropriate that the new Plant Introduction Garden should border the Perrine Land Grant on its western edge. In 1838 Dr. Henry Perrine was given a township of land in Florida (specifically below 26 degrees north latitude) to settle with farmers engaged in the propagation of tropical plants. As American consul at Campeachy in the Yucatan Peninsula of Mexico, Perrine introduced tropical plants into the United States and showed they could be domesticated in South Florida. Although he was subsequently killed by Seminole Indians August 7, 1840, his wife continued to satisfy the conditions of the grant and brought in settlers who propagated tropical plants.

Soon after leasing a portion of Chapman Field in 1923, USDA horticulturists began propagating their accessions for transfer to the new property, and many of the plants from

the Brickell and Buena Vista sites had been transferred to the Plant Introduction Garden at Chapman Field by the time a disastrous hurricane hit Miami in 1926. That storm destroyed many of the wooden structures from the original air base, and another storm on September 15, 1945, brought down the water tower. To replace the older buildings, the Civilian Conservation Corps (the CCC) under the Federal Emergency Relief Act constructed from 1927 through 1934 sixteen laboratories, shops, and residences as well as a serpentine enclosure wall, whose labyrinth of open rooms shielded plants from cold winds. In some cases, exterior walls were constructed of the native oolitic limestone. In other cases, the cement floors of hangers and other structures from the World War I air base were broken up and used; since the cement had been poured onto the leveled limestone, these walls also have the appearance of natural rock. Several USDA buildings were constructed atop the foundations of the army structures, such as the USDA's Building 18, a pump house (now carpentry shop) built on the base of the original pump house, and Building 37, a laboratory built on the foundation of the original boiler house that heated the hospital. Building 28, the Visitors' Center at the USDA station, was constructed on the foundations of the airfield's machine shop; originally a garage for the USDA; it was renovated in 1977 by the Federation of Women's Garden Clubs and dedicated to Catherine Sweeney, who, incidentally, was a subsequent owner of the Kampong, David Fairchild's home in Coconut Grove.

The period of great plant explorations continued unabated through the 1930s, with Fairchild and others bringing thousands of new plant specimens into the station for propagation. Accessions numbered approximately 9,000 in 1938 (when the horticulturist in charge, T. B. McClelland, prepared an extensive listing by quadrant), and, although not every accession was represented by a live plant, space limitations again became worrisome. The USDA was allowed use of only 95 acres initially; supplemented in 1935 with another 65 acres to aid research in finding alternatives to natural rubber (*Hevea brasiliensis*) imported from Japanese-controlled southeast Asia. Rubber research became increasingly important, but the many alternatives never produced a satisfactory product. Instead, by 1940, more research involved breeding and adapting *Hevea* to Florida's growing conditions. The need was so great that Senators Andrews and Pepper were able, in May, 1940, to persuade Congress to restore money that had previously been deleted from the budget of the Bureau of Plant Industry; that sent an extra \$115,000 to the Plant Introduction Station in Miami. There was also talk of acquiring more War Department land for the station. By advancing rubber research, the Congressmen hoped price controls on this commodity could be removed more quickly, and they hoped to establish a new line of business with nearby countries. The USDA station became a clearinghouse for disease-free rubber plants that were sent to Central and South America for transplantation.

On a portion of the remaining land outside the USDA station, the government maintained an airfield used by army reservists who practiced bombing runs over Biscayne Bay during the winter months. Local antagonism to this airfield was led by Col. Robert Montgomery, a neighbor on Old Cutler Road who shared with David Fairchild a special concern for plants and the development of a botanical garden in the area; he joined Fairchild's continuing effort to have all the property released to the USDA . During the

Depression years, however, other interests in Miami were hoping the War Department would develop a major air facility on the site, which would provide a considerable number of new jobs. Congressman Mark Wilcox led the effort to get an expanded airfield built at Chapman Field, but he was thwarted by Montgomery and Fairchild and their Washington connections at nearly every step. Montgomery, especially, recently retired from the U.S. Army, had special access to military planners. Most of these men already believed that Chapman Field was unsuitable for the modern aircraft of the time and that its proximity to urbanized areas was a serious detriment. Although Congressman Wilcox pushed legislation in 1933 for an \$11 million expansion of Chapman Field, no changes actually appeared. On January 15, 1939, a false report of the field's abandonment was printed in the Miami Daily News. Still, it was hard for the War Department to part with the property. Eventually, however, the War Department transferred its operations to the municipal airfield in Miami and leased the airfield at Chapman Field to the Embry-Riddle Company, which operated a civilian flight school. In the autumn of 1941 the War Department was finally set to accept a transfer of title to the USDA, but the onset of World War II put everything on hold. During the war years Fairchild and others continued to send new plant material to the USDA station, and the place was used at times by the military for survival training.

The original Embry-Riddle enterprise was organized as an air mail service and training school in Cincinnati in 1926; it was later sold and merged into AVCO, which later became American Airlines. Riddle then moved to Miami and started a new flight school. In 1938, because of fears of possible war, Congress passed the Civilian Pilot Training (CPT) program, providing free ground school to college students and free flight training for the upper 10% scholastically. Later, high school students were enrolled in the program. The air arm of the military was considered ineffectual, and there existed few training bases and trained instructors. The Army Air Corps sent cadets to commercial flying schools. One school, operated by Embry-Riddle, conducted flight training in Miami; other schools run by this company were at Carlstrom and Dorr Fields in Arcadia, Florida. A second company, Riddle-McKay ran an aeronautical college in Clewiston.

With the onset of American involvement in World War II, the military began to use tourist areas for training programs because these areas had become financially depressed as tourism and college enrollment declined due to war. Miami's Chapman Field was reactivated with the advent of WW II, but it was too small for modern military planes. From August of 1942, the army air facilities at Chapman Field were made available to the Embry-Riddle Corporation, which was contracted to train civilian and military pilots (. Civilians, including potential WASPS (Women's Air Force Service Pilots) were taught at the Seaplane Base on MacArthur Causeway (named County Causeway until 1942) while written exams and Navy flight training were conducted at Chapman Field. Women seeking additional flying time for WASP approval also took training at Chapman Field. These women attended the Riddle program to build up flying time and to get ratings prior to their formal training at Sweetwater, Texas. University of Miami coeds were also trained as WASP pilots under the War Training Program. With the end of the war, the GI Bill of Rights made available technical training to returning vets, and a contract was given to Embry-Riddle to provide training based at Chapman Field. In 1947 a request

was made by Embry-Riddle to make Chapman Field a commercial airport, but this was denied by Dade County, and the company eventually moved to Opalocka when the field was subsequently closed. In 1965, after another move to Daytona, Florida, the Embry-Riddle Aeronautical Institute was established leading to a Bachelor of Science degree in aviation specialties, with an enrollment in the 1990's surpassing 4,000 students.

Dade County was on record as early as 1940 in wanting excess land at Chapman Field for a county park. In February of that year, R. V. Waters of the Greater Miami Airport Association had written to County Commissioner Charles H. Crandon advising that the property could become available and that the county should consider acquiring the land. Another stimulus was a letter in March, 1940, from Montgomery to Crandon, which mentioned that Congress was disposed to cut appropriations for all foreign plant introduction, suggesting the USDA might not care to acquire the property, which might instead be sold for development. By May, of course, this situation had reversed. The property contained one of the last stretches of undeveloped white sandy beach in the county. Crandon, an amateur horticulturist, had made it his mission to start a park system in Dade County and to protect the region's natural beauty, and in March of 1940 he was able to get the County Board to go on record to open negotiations with the War Department to acquire fractional section 19 of township 55 south range 41 east. To this effect, Congressman Claude Pepper was able to get the Department of Agriculture (which had received new funds in support of research at the Miami lab) to agree that land close to the bay was unsuitable for agriculture and therefore, in principle, could eventually be deeded to the County as parkland. Dade County felt at the time that it had a commitment from the federal government.

With the end of the war, Fairchild still hoped to incorporate Chapman Field into the plant introduction station, but the USDA had by now decided that the upkeep on such a large piece of land would drain resources from other projects, and they would no longer support Fairchild's efforts. Also, Montgomery's creation of Fairchild Tropical Garden in 1938 satisfied the local desire for a botanical garden, and there no longer seemed to have been much public support for expansion of the USDA property. Although an additional 37 acres was incorporated into the USDA's plant introduction station in 1947, the remaining portion of Chapman Field - 633 acres - was excluded.

That part of Chapman Field outside the USDA property was declared surplus by the federal government in November, 1947. From the War Assets Corporation it was transferred to the Farm Credit Administration's Federal Land Bank and reclassified agricultural when disposal as airport property was impossible. Dade County applied for the property, as did the City of Coral Gables and the University of Miami. Coral Gables acceded to the wishes of the county and withdrew, and the County and University agreed to split the property. As an educational institute, the University had first choice of the land and chose 150 acres that included most of the filled area used for airport runways. Dade County received the remaining 483 acres by quit claim at 50% of the fair market value of \$3,500 on December 19, 1949.

One-hundred fifty acres of Chapman Field, including one airport building not destroyed

by the 1945 hurricane or subsequently demolished, was acquired for \$1,550 for the University of Miami by a quit-claim deed dated November 16, 1949, subject to certain conditions and the right of re-entry by the federal government. The transaction is recorded in the public records of Dade County, Deed Book 3215, page 421. Among other things, the government was interested in reserving its access to any fissionable materials that might be discovered on the property. Some conditions were ultimately abrogated when university president Pearson was authorized to pay \$1,162.50 to the government in 1954, but the government's right of re-entry and its reservation of uranium resources continued to be a problem.

Since its inception in 1926, the university had planned to establish a tropical research bureau for contributions to tropical agriculture, but development money was not forthcoming. Earlier in 1949 Pearson had requested from university departments proposals which would justify a need to secure land at Chapman Field. The Department of Botany had proposed the land would suit its ecology course and floriculture program and provide space for a tree nursery and the propagation of tropical and salt-tolerant plants. The Zoology Department mentioned tests evaluating termite exposure, the study of animals living in mangroves, and general field zoology. The Marine Laboratory submitted plans to develop a swamp station in the mangroves and to carry on research on marine borers, on tropical deterioration in swampland, and on the betterment of Florida's fisheries; they also hoped to build docks closer to the university than those they had available on Miami Beach.

Specific proposals were submitted in January of 1950, apparently without the benefit of adequate inspection of the property. In August of that year, the Botany Department had come to realize that there was no bay footage and that the mangrove area was subject to flooding and of low diversity. The next month President Pearson noted that there was no further interest shown by the Zoology Department and the Marine Laboratory and that the Botany Department felt the expense for setting up the site for research purposes was excessive; he suggested that the university concentrate on the Richmond property that was to become South Campus and either sell the Chapman Field property or return it to the government.

Due to the government's right of re-entry written into the property deed, sale of the land proved difficult. An offer of \$250,000 from Babcock Co. was withdrawn when clear title could not be proven. In September of 1955, Congressman Dante Fascell was asked to intervene with the U.S. Department of Health, Education, and Welfare, which could grant a release, but Secretary M. B. Folsom was not helpful. Some conditions of the lease were changed, including a deed restriction that the land be used for educational purposes. By April of 1956 a long-term lessee was found who wasn't concerned about the deed's conditions. In October of 1956 local developer Ben Cooper leased 128 acres of Chapman Field from the University for \$2,000 per year for a period of 50 years. His plan, of which he notified the county in late 1957, was that his company, Kings Bay Corporation, would build a semi-private golf course and clubhouse as a benefit for the people buying his homes in the neighboring subdivision. The county unsuccessfully protested the sale since the only public access to Chapman Field Park was through the university's property along

Mitchell Drive (SW 144th Street), which Cooper attempted to close. Without access, development of the park would be difficult.

Cooper then came to the county asking if he could buy 48 acres of Chapman Field along the eastern side of the USDA station to construct the last 4 holes of his 18-hole golf course. This caused a tremendous uproar over the possible sale of public lands, and instead a lease arrangement was agreed upon with the county in February of 1958. In exchange for a favorable lease covering 20 years, with an option for 20 more, Cooper would make improvements valued at \$250,000 to the adjacent park. He agreed to dredge a lake in the remaining park property and deposit 500,000 cubic yards of fill for a roadway and parking lot; he would also acquire an adjoining piece of property that would give the county access to the park from Old Cutler Road. Before this agreement was approved by the county, however, Cooper had already begun work on the land he hoped to lease, causing another storm of local indignation.

As an aside, Cooper, in fulfilling the terms of his lease to build a new park entrance, purchased land from the Warwick estate, which owned property on the northern side of Old Cutler Road and adjacent to the northeast corner of the USDA station. An additional 0.11 acres had to be acquired from the USDA, and letters from station leaders Schrum and Loomis in 1958 and 1959, respectively, itemized provisions for a revocable lease with Dade County and its amendment. One item dealt with the reconstruction of the station's coral rock entrance gate, which had to be moved to make way for the new roadway. Surveys indicated the entrance, left from the days of the World War I airbase, was outside USDA property on land Cooper had bought from Warwick. As this USDA provision was therefore invalid, the gate was demolished, and Cooper declined to spend the \$1,700 needed for its reconstruction.

Cooper began to have financial difficulties and received \$1,000,000 from a Washington D.C. businessman, Gustave Ring. In late 1961 Ring foreclosed on Cooper, and in 1962 he not only owned the Kings Bay Country Club and its county lease, he purchased the university's Chapman Field property formerly leased by Cooper. He then persuaded the county to lease an additional 24 acres of Chapman Field Park in exchange for services such as dredging, then offered to buy all 72 acres for \$72,000; that offer was declined, however. The lease on the 72 acres was extended 10 years to 2008 in 1964. With the sale of Kings Bay Yacht and Country Club in 1980 to Phil Revitz and Alan Gordich, the lease on 72 acres of Chapman Field Park was modified to include payments of \$15,000 per year, but this lease could be canceled after February 17, 2009, only if Dade County could prove the land was needed for county purposes. The lease was subsequently extended 22 years, expiring in 2030. In 1981 the property was sold to Kenneth Rosen and Edward Easton, and the leases were transferred. The partnership comprising Kings Bay Yacht and Country Club was subsequently renamed the Deering Bay Partnership, with Easton as trustee, and it combined with Codina TB Venture, with Armando Codina and others as principals, to form the joint venture Deering Bay Associates in 1990 for further development of the property formerly owned by the University of Miami and the county leases. Subsequently, the property was sold for \$32 million to developer Al Hoffman in May, 1997, but now the county leases are in doubt, there being the possibility that the

leased lands were not included in the new contracts.

Although there have been extensive changes to that part of the Chapman Field property bought by the University of Miami, little has been accomplished to develop Chapman Field Park by Dade County. The original utilization program submitted by the county to the federal government in 1949 planned a swimming beach, hiking trails, and a boat marina; Chapman Field Park was to be developed as a companion to Matheson Hammock Park, 3 miles north along Biscayne Bay. Lack of accessibility, a problem with a clear title to the land, lack of development funds, and encroaching urbanization hindered construction of a public park on this property. For many years Coral Gables and the county maintained sanitary landfills at the park entrance, but things brightened in 1972 when a general obligation bond known as the "Decade of Progress" was approved by referendum. Included in plans for the \$3,900,000 were a 200-slip marina, bait and tackle facilities, parking dry boat storage, boat ramp, utilities, restrooms and picnicking facilities. Three lighted ball fields were constructed near the park entrance, and some grading was completed, but within three years other plans had been greatly altered. The idea of a marina was abandoned in favor of boat ramps that would serve more people, and more ecologically friendly ideas were developed, including canoeing and sailing on the manmade lakes and canals.

Neighbors and environmental concerns have stalled large-scale development sufficiently long that community interest has turned toward preservation of Chapman Field Park as a natural area. Its original features, including mangroves, sandy beach, and tributaries, are generally preserved. Of its 483 acres, 432 are of mangrove forest designated by type as coastal band mangrove, dense scrub mangrove, sparse scrub mangrove (all primarily red mangrove), disturbed white mangrove, and transition mangrove. Although there is limited access by road, shallow draft boats can approach across grass flats that parallel the coast, and deeper draft vessels can enter via short channels near the northeastern boundary where the water is 11 feet deep. The county's site assessment report lists numerous species of native plants birds as well as animal life.

At a state of development intermediate between Chapman Field Park and Deering Bay lies the USDA property, which has occupied Chapman Field since 1923. The army's temporary wooden buildings have been replaced with more permanent ones of coral rock and cement block, but most of the land continues to be agricultural with pockets of native pineland. Within these pinelands can be found two endangered plant species - the deltoid spurge and Small's milkpea - which bestow federal protection on these lands.

The USDA's plant introduction station has continued to develop tropical agriculture on the bulk of its acreage since its founding. Throughout the decades, plant explorations have continued to bring in new specimens for propagation, but the focus of research has changed over the years. Early introductions sought to improve the diet of Americans, and tropical fruits seemed to predominate. For example, many new cultivars of avocado and mango were introduced from Caribbean and Central American nations and from southern Asia, respectively, some of which were well-adapted to southern Florida and became widely planted. The lychee and papaya were also distributed widely from this station, but

many other tropical fruit introductions are less familiar outside specialty markets. Concurrently, introductions included flowering and shade trees, such as the white geiger, the Hong Kong orchid, the flame-of-the-forest, the African tulip tree, and many Ficus species, and palms to beautify city streets and gardens. Other introductions sought to benefit industry, such as those for the rubber research and trials with bamboo and medicinals. In the 1950's and into the 1960's, as in the previous decades, this station was closely associated with both agriculture and ornamental horticulture, and new plant varieties were freely distributed to local nurseries and garden clubs. Collections of coffee and cacao were established in 1954 since they could be maintained in Florida free of the diseases common to their native countries, although they could not be commercially grown here. Currently, this station is one of two quarantine facilities for cacao in the western hemisphere that serve to keep diseases from moving into the area. While the U.S. does not produce any cacao, significant quantities of milk, sugar, peanuts, almonds, and other materials produced in the U.S. go into the making of chocolate products.

A departmental reorganization in 1972 renamed the USDA's facility at Chapman Field the Subtropical Horticulture Research Station (SHRS), and research station-wide was administered through the Subtropical Horticulture Research Unit. In the latter part of this decade Mr. Paul Soderholm continued to maintain the plant collections and breed ornamental plants such as Dombeya, which were distributed throughout the area. Dr. Robert Knight, Jr. continued the tropical fruit crops program, and selected for improved characteristics in avocado, mango, lychee, carambola, and passion fruit. His work produced passion fruit that could be grown in temperate regions of the U.S.

With the arrival of Dr. R.J. Schnell in 1987, the direction of plant science research changed. The SHRS was designated as a National Germplasm Repository, one of eight locations nationwide with the mission to preserve the biological diversity within agriculturally-important crops. This station has been responsible for maintaining, characterizing, and enhancing mango, avocado, lychee and longan, annona, carambola, tropical citrus, banana and plantain, and other tropical fruit species. Responsibilities also included maintenance of a world collection of sugarcane and related grasses as well as a large collection of the forage grass *Tripsacum*. A molecular genetics laboratory was established in 1987 to aid this germplasm research. That lab has also facilitated the development of a technique for the detection of Avocado Sunblotch Viroid that has now been accepted as a diagnostic test for this disease by the Departments of Agriculture in both the State of California and the State of Florida.

A breeding program was also established at this station in the 1980s by the Division of Forestry of the Florida Department of Agriculture and Consumer Services to develop disease resistance against lethal yellowing disease of coconut and other palms. There being no chemical control, Mr. Bill Theobald supervised a program to cross the Malaysian dwarf and the Panama tall palms to produce the resistant Maypan. The Division of Plant Industry (DPI) is the longest-lived tenant at the SHRS, being established there in 1959. The office inspects and certifies plant nurseries; it also places insect traps within the community to identify new pests and conducts surveys to identify disease outbreaks that threaten the agriculture of Florida. Asiatic citrus canker, a disease

of many citrus species caused by a quarantined bacterium, was discovered near Miami's international airport in October, 1995, and DPI was charged with surveying for the pest and its eradication.

Another field of plant science research that has been represented at this station for a number of decades concerns the market quality of tropical fruits and vegetables. The U.S. Department of Agriculture has shown an interest in postharvest quality of tropical fruits since a lab was established in Homestead, Florida, in 1953. Initially the Krome Avenue lab developed maturity standards for avocado and lime, then within two years began studies to improve the market quality of harvested tropical fruits by determining optimal storage and ripening conditions. In 1956 this market quality lab was moved to the Plant Introduction Station at Chapman Field. In 1971 Dr. Donald H. Spalding, a research plant pathologist, arrived to study postharvest quality of tropical fruits and vegetables. Through 1987, Dr. Spalding studied methods to improve storage of these commodities and reduce decay and the quality changes induced by quarantine treatments against the Caribbean fruit fly. Among other projects, he tested modified storage atmospheres and low-pressure storage for fruits including mangoes and avocados and evaluated the effects of fumigants, irradiation, and heat on mangoes and grapefruit. This work was continued from 1989 by Dr. Ray McGuire who worked with entomologists to develop specific quarantine treatments against the fruit fly in grapefruit, navel orange, mango, guava, lychee, and longan, and against weevils and scale insects in sweet potatoes and limes, respectively. By this time, the most commonly used fumigant, methyl bromide, was being displaced, and heat, cold, or gamma irradiation were the most common alternatives. Dr. McGuire also developed fruit coatings for biological control of postharvest decay and to improve fruit quality.

A third program area, the entomology section, was established at this Miami research station in 1968 as a result of the establishment in 1965 of the Caribbean fruit fly in Florida. Burditt et al. gives some of the accomplishments of the early years which included learning how to rear millions of the flies on artificial diets for experiments on sterilization and other control techniques including trapping and bait attractants.

During the mid-1970s entomology research shifted to include investigations of quarantine treatments for commodities infested with the Caribbean fruit fly. Scientists conducted work during this period that included the development of ethylene dibromide, methyl bromide and cold as quarantine treatments and the investigation of fumigant residues on treated commodities. Large-scale fumigations were tested in a special facility constructed for this purpose, and many of these fumigation treatments were commercialized to ship a large portion of Florida's citrus crop to Japan.

In the mid-1980s, research shifted to finding alternatives to ethylene dibromide, which was banned as a carcinogen in 1984 by the U.S. Environmental Protection Agency. There was also continued work on insect attractants, which included work with the papaya fruit fly. One of the treatments developed during this period is the widely-used hot water immersion treatment for mangos developed by Dr. Jennifer Sharp; all mangos entering the United States from foreign countries use some form of this hot water treatment, as do

Florida mangoes shipped to parts of the U.S. A cold treatment was developed for carambolas, and a hot water treatment was developed for guavas, by Dr. Walter Gould, which allow these fruit produced in Florida to be exported to large markets in the western U.S. that quarantine the Caribbean fruit fly now endemic in this state. Irradiation was further refined as a treatment for a number of commodities including mangos, citrus and carambolas by Mr. Don von Windeguth. Dr. Guy Hallman investigated insects infesting a number of locally-produced commodities including canistels, black and white sapotes, and spondias, and he sought to refine quarantine treatments by modifying the internal atmospheres of fruits. Much of this quarantine work was subsequently described by Sharp and Hallman.

From the late 1980s through the late 1990s heat treatments were further investigated to include the development, in cooperation with other USDA laboratories, of vapor heat and dry heat treatments. Hot air treatments were developed for citrus, mangos, carambolas, and other commodities; development of quarantine treatments for additional species of insects attacking subtropical fruits and vegetables was also begun. Treatments were tested against sweet potato weevil, banana moth, plum curculio, blueberry maggot, diaprepes weevils, mealybugs, and other insects. Whereas the entomologists investigated insect mortality, Dr. McGuire examined quality changes within the various commodities resulting from quarantine treatments. After 1990 fruits were evaluated for possible removal from a list of hosts for the Caribbean fruit fly; eventually, limes, lychees, longans, and mamey sapote were determined to be non-hosts, which makes quarantine treatment unnecessary.

During the period from 1968 to 1986 there were usually three entomologists and a chemist on staff at any given time, but by the late 1980s the number in the entomology program had risen to six scientists. Attrition and threats of station closure after 1993 brought the number down to one entomologist and a chemist at the end of 1998. Increases in tourism and shipments of tropical commodities, however, have continued to threaten American agriculture, especially that in Florida, with the establishment of exotic insect pests. A re-direction of the entomology unit will emphasize work outside the country in preventing the introduction of exotic pests to the United States and place less effort on the development of quarantine treatments.

Until 1997, the entomology section, market quality, and plant science were three separate funding entities within the Subtropical Horticulture Research Unit of SHRS. With Dr. Sharp as Research Leader and Location Coordinator, the station had an annual budget at the time of more than \$2,000,000. Market quality research and quarantine research were then incorporated into the Postharvest Quarantine and Quality Research Unit in 1997, with Dr. McGuire as Acting Research Leader, whereas the Subtropical Horticulture Research Unit from that time has focused solely on germplasm research, with Dr. Schnell as Research Leader and Location Coordinator. Also in 1998, the Everglades Agro-Hydrology Research Unit was established under Dr. Reza Savabi to investigate changes to local agriculture that would result from the restoration of a natural flow of water in the Florida Everglades. After 50 years of constructing dikes and canals to channel water away from developed areas and farmland, state and federal government had committed

themselves to a restoration of the natural habitat, but this would displace some homeowners and lead to the flooding of many farms. The new unit is charged with understanding hydrologic processes in South Florida to help sustain the local agro-ecosystem and environmental quality; more directly, it seeks to produce maps of flooding possibilities and develop a model relating hydrology and crop growth in agricultural areas.

The station has known natural disasters. In spite of the station's position by the bay, freezes have occurred, the latest in 1989 that killed sensitive plants such as cacao and damaged plants like avocado. On August 23, 1992, Hurricane Andrew passed over the southern tip of the Florida peninsula. The SHRS was in the northern eye-wall of the storm and suffered a significant amount of damage. Assessments made several months after the storm revealed a loss of approximately 30% of the fruit tree and sugarcane germplasm and 50% of the ornamental germplasm. Most of the fruit crop and sugarcane germplasm was reintroduced from backup locations, but the ornamental collections were not replaced. With the exception of minor damage to roofs and some windows, the coral rock buildings from the 1930s withstood the hurricane well. Laboratories built in the 1970s and 1980s fared less well but were quickly restored.

The SHRS was slated for closure along with 18 other ARS stations in 1994 as part of USDA Secretary Mike Espy's 1995 budget reduction package for President Clinton; reasons cited included costs of restoring the station and its plantings after the hurricane and urban encroachment around the station and into the farming areas that made reestablishment of tropical fruit production questionable. By this time, however, much of the station's reconstruction had been completed, and local agriculture was rebounding. Concern over the loss to tropical agricultural research galvanized the scientific community to support the station. Within the local community, Mr. Frank Smathers, a retired banker and amateur horticulturist, assumed the role fostered by Col. Montgomery, Smathers' former neighbor across Old Cutler Road, and tirelessly lobbied to keep the SHRS open. Florida Congresswoman Carrie Meek, especially, and Senator Bob Graham led a fight in Congress with the help of other state and federal representatives to rescind closure. The mood among supporters was alternately gloomy and ecstatic; thousands of letters rained upon politicians and USDA administrators - many times more than those in support of other threatened locations. In June, 1994, both the House and Senate Committees on Appropriations removed the SHRS from the closure list, but, whereas the full House agreed with its Committee's recommendation, the Senate did not. In September a compromise funded the station for one additional year. Subsequently, station personnel and representatives from Fairchild Tropical Garden, the National Tropical Botanical Garden, Florida International University, the University of Florida, and the Dade County parks department met to develop an organization plan for a public-private partnership, and from neighborhood and local agricultural and research communities an advocacy group of 2,000 members was formed. A Memorandum of Understanding between ARS and the Friends of Chapman Field recognized the cooperation between the two parties in fostering and publicizing agricultural and horticultural research. Closure formalities were again initiated in February, 1995, but this time both House and Senate disagreed with the USDA's justifications for closing the station. No further attempt was

made to close the station the following year; not only was the SHRS preserved, Congress appropriated several million dollars to upgrade the facility. Everglades research was included, and the entomology and plant science programs were expanded. Nevertheless, with future threats of closure a possibility, the county commission in 1996 changed the master plan designation of the USDA property from "institutional" to "parks and recreation", precluding future development.

Together, the USDA's Subtropical Horticulture Research Station, Dade County's Chapman Field Park, and Deering Bay's golf club and recreational community share a historic property in South Dade. From different perspectives, perhaps, people connected with all three also share a love of nature and a fondness for the out-of-doors. With the passage of time, the desire and need to preserve our natural surroundings has increased, and it is unlikely that further development will be allowed to mar this setting significantly. As a warrior excited by a life of danger, Victor Chapman would probably have been proud to have had an airbase named after him in 1918. As an artist and naturalist, he would most definitely have had great joy in knowing that his name would become associated with the exuberance of tropical species native to or introduced upon the spit of Florida called Chapman Field.

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