



DAVID STURROCK
1893-1978
(photograph circa 1946)

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DAVID STURROCK (1893–1978) — MENTOR AND FRIEND

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FOR A PERIOD of ten years, 1936–1946, David Sturrock was superintendent of the Atkins Institution of the Arnold Arboretum at Soledad, north of Cienfuegos, Cuba. The garden and collection of tropical plants had been established by Edwin F. Atkins of Belmont, Massachusetts, as the Harvard Botanic Station for Tropical Research and Sugar Cane Research, and in 1932 was formally transferred to Harvard with an endowment and a lease of land from the Soledad Sugar Company. It was administered from Cambridge, at first by Dr. Thomas Barbour, Director of the Museum of Comparative Zoology, and later by Dr. Elmer D. Merrill, Director of the Arnold Arboretum. Both Barbour and Merrill believed that graduate students in biology at Harvard should have a personal experience in the tropics. To that end, a small grant of money, usually \$200 to \$300, enabled a thrifty student to travel to Miami or Key West by bus, train, or partway by boat; take a ferry to Havana and a train or bus to Cienfuegos; and spend one to three months in residence at "Soledad." Room and board charges were modest. Food was Cuban style and consisted of tropical products. The dormitory-type accommodations were at first in Harvard House and later in Casa Catalina. Both buildings had screened porches from which to watch the ever-busy sugar mill and plantations; to overlook the garden and see the sweep of the Trinidad-San Blas Mountains against the horizon; to read, press plants, and work up collections; to enjoy a "Sturrock special" before supper or at an evening bridge game; or to take part in the never-ending conversation on the biology of the tropics. The master of this community during my first visit as a student was David Sturrock, a lean, tanned man, usually dressed in white, who spoke Spanish with a Scottish accent — in contrast to the pure Castilian Spanish of Teodoro, the Spanish-born cook, or the Cuban-dialect Spanish of Manuelo, the houseboy. Sturrock ran a tight ship, making it clear more than once that the money awarded to us for Cuban adventure was money from his budget that might better have been spent on the operations of the garden. We were welcome if we demonstrated a use of the resources assembled, and unwelcome if this

was only a vacation. Yet it was his influence that directed the research of several students to lifetime investigations in the problems of the Antilles.

David Sturrock was born in Lanark, Scotland, October 28, 1893, one of the eight children of William and Mary Dunn Sturrock. His father, a forester by profession, was the manager of a nursery of fruit and timber trees, with a few ornamentals. Formal schooling under the British system of that time ended at the age of fourteen, and David went to work in a nursery, handling seeds, propagating plants, shipping, planting on contract, pruning, budding, and learning business methods, personnel relations, and plants in the process. At one time he considered an offer from a local businessman to finance his education at Kew Gardens. Local men with more experience advised him against being molded in the Kew fashion, doing only what he was told, and suggested that it would be better instead to learn variety in plants and procedures and to think for himself. He later regarded that as good advice, for further experience in other nurseries broadened his background in the care and use of woody plants.

One of his older brothers, who had emigrated from Scotland and now managed a nursery in Miami, offered him employment in the United States. David saved his passage fare plus the \$50 reserve then required by the United States Immigration Service and landed in New York in September, 1913. He was disturbed at the lack of care and appreciation of plants he saw in Central Park and the New York Botanical Garden and without reluctance traveled south to join his brother's business. His initial assignment in Florida was to locate sources of seeds and scions of ornamental plants useful in landscaping new homes. Without prior knowledge or prejudice, he chose plants from their appearance. Then the company received a contract to landscape the property being developed for the wealthy James Deering. Now known as Viscaya, this land is a current showplace for tourists in the Miami area. Expenditures seemed unlimited, and very large plants were moved with much labor. Many were brought in from the Bahamas, but to locate additional plants Sturrock was sent to Cuba, where he roamed the island searching for ideal specimens and learning the soil, the natural vegetation, and the farming methods. In the process he met Adolph van Hermann, who owned a small nursery. When the Viscaya project was completed, Sturrock resigned from his brother's firm, moved to Cuba in 1915 on his twenty-second birthday, and accepted the management of Van Hermann's nursery. Van Hermann's botanical interests were both practical and scientific. He collected herbarium specimens which were sent to the New York Botanical Garden, and Sturrock was exposed to the methods of botanical field work. Van Hermann had a pioneer planting of Mulgoba mango which proved to be Sturrock's introduction to a plant he was to propagate, breed, and study for the rest of his life. Van Hermann was also concerned with afforestation of some estates, and Sturrock had the task of developing a timber tree nursery as well. In satisfying his employer's many interests, Sturrock visited the agricultural experiment station in Santiago de las

Vegas and met Dr. Juan T. Roig, the prominent Cuban botanist with whom he shared interests for many years.

In 1915 David Sturrock, a house guest of the Van Hermanns, was invited to join them at a house party given at Christmas by Professor and Mrs. Franklin Sumner Earle in Herradura. Professor Earle had been sent to Cuba by the U. S. Department of Agriculture after the Spanish-American War to establish an agricultural experiment station. He had also served as the president of the Botanical Society of America and was a specialist in diseases of sugar cane. It was at that party that David Sturrock first met Ruth Earle, whom he married in May, 1918. Their sixtieth wedding anniversary was celebrated six weeks before his death.

David Sturrock had applied for United States citizenship in 1913, and within the five-year grace period returned to Miami. The United States was engaged in the first World War, and by enlisting and taking an oath of allegiance Sturrock obtained American citizenship immediately. He served in a medical service unit in France. After the armistice he returned to Cuba, where he accepted a position with the Hershey Sugar Company, reforesting land and developing a nursery for the sale of ornamentals and fruit trees while managing the production of tropical fruits and vegetables that were exported to New York.

Mr. Hershey had a sincere interest in the Cuban people and chose David Sturrock to organize a school for orphans from his Central to be trained in agricultural methods. The students had to be at least eight years of age, and by age fifteen were to be discharged from the school and given a position with the sugar company. Thirty boys were selected for the program, which included experience with crops and animals on the 1,000-acre farm during the mornings, and classes with a resident teacher in the afternoons. The school, known as the Hershey Agricultural School at Aguacate, Cuba, closed for financial reasons in the depression year of 1929.

At this point, David and Ruth Sturrock returned to Florida with their three children. David's older brother and his parents now lived in West Palm Beach, and there David reestablished his nursery and landscaping business as a means of supporting a desire to select and hybridize better varieties of mangoes for Florida. He acquired the Philippine mango from the Earles' property in Cuba, additional mangoes from the work of Edward Simmonds at the Federal Experiment Station in Miami, and mulgobas from the Van Hermann and Hershey estates. From these stocks David developed an inventory of small plants. Then in 1936 he received a visit from Thomas Barbour, who asked him to succeed the retiring superintendent at Soledad, Mr. Robert Grey. The salary was not much, but the opportunity was large and David accepted. His family remained in West Palm Beach during the school year and joined him in Soledad during the summers.

Managing the operation at Soledad was a job for an optimist. Its living collections had been decimated by a hurricane the previous year. Its directives were not clear. The budget was prepared and administered through two or more individuals in Cambridge, who visited Soledad on oc-

casion during the winter months. The donors' land and activities surrounded the garden area and posed problems, especially when oxen, cattle, and horses broke into the garden and nursery. The land available was largely rocky outcrops, unsuitable for growing sugar cane or for pasture, and water sources were inadequate. The Cuban government, under the Batista regime, hardly understood the purposes of the garden but controlled, through legislation, the labor and much of the daily operation.

Cuba at that time had a one-crop agricultural economic system based on sugar cane. Under Robert Grey the garden's research effort had been largely in cane. However, the Atkins family had been interested for many years in finding other crops that could aid the economy but that would not compete for labor during the cropping period. Sturrock had a special interest in fruits and timbers, and the garden had the potential of introducing new plants for trial. The seed lists sent to the Arnold Arboretum from botanical gardens throughout the world were used to request seeds, and Sturrock developed a list of seeds from Soledad plants that could be offered in exchange. An inventory of the plants in the garden had been prepared, and under Sturrock's direction, the total holdings rose to 124 families, 857 genera, and 4396 species. It was certainly the best collection of labeled and mapped plants for convenient study anywhere in the American tropics. With the nearby natural vegetation of seacoast, mangrove, serpentine savanna, and mountains, as well as the large Zapata swamp, it was an ideal place in which to teach and learn. Harvard House contained a laboratory and darkroom, a small but adequate library, and a small herbarium based largely on my own collections and those of John George Jack of the Arnold Arboretum. A publication series was started. For a few years a regularly scheduled Harvard class, Biology 215 (Plants of the Tropics), was conducted at Soledad. Visiting professionals were numerous, and Sturrock always did his best to accommodate their needs — from horses for local transport to vials and packaging material for their collections.

The major problem at Soledad, however, remained the financial base, never adequate for the potential of the garden and eventually unable to support even restricted operations. During the years of World War II, the staff, in a patriotic effort, devoted its attention to plants of economic significance in a wartime economy. Two hundred bushels of seeds of *Hevea brasiliensis*, the rubber tree, were received, germinated, and planted. Four hundred pounds of the lightweight seed of *Cryptostegia*, the Madagascar rubber vine, were collected from this milkweed relative and shipped to U.S.D.A. projects in Haiti. One thousand seedlings of *Tectona grandis*, the teak, were planted. Evaluations were made of fiber sources in the arid land collection called "Utah." As a result, maintenance of the garden was reduced, and many plants suffered. The war increased the problems of supplies and equipment. When it was decided in Cambridge in 1945 to cut the Soledad labor force in half, Sturrock and Harvard came to a parting of ways.

Sturrock returned to West Palm Beach but continued his work in Cuba

by developing forest plantings for several sugar companies, which he supervised until Castro gained control of the island. In Florida Sturrock acquired additional groves of mangoes for further intensive hybridization. Although the fruit was well known, the biology of the plant was not. Conventional hand-pollination did not work. Fruit-set was low, and fruit abortion and drop were high. Applications of hormones, successful in other crops, were not successful with mangoes. Seeds were shown to be mono- or polyembryonic, and gametic and nucellar plants developed with different characteristics. Sturrock worked out a method of inarching seedling plants by suspending a container-grown seedling within the branches of an adult tree when conventional grafting methods failed. All of these studies resulted in publications by David Sturrock or his son, who chose the mango as subject for his Ph.D. thesis. Eventually David selected and patented two first-generation hybrids. In 1956 a cross of the 'Edward' ♀, a monoembryonic plant, and 'Pico' ♂, a polyembryonic type, produced the patented 'Duncan', a monoembryonic plant, as well as the equally good but unregistered 'Mekong' and 'Wester', both polyembryonic. Using the monoembryonic 'Edward' as the female parent, and 'Kent', also monoembryonic, as the male, Sturrock selected and patented 'Young', a monoembryonic type. Mangoes take between four and seven years to flower and set fruit, and third-generation crosses made in 1966, 1967, and 1968, with the monoembryonic parents 'Haden' and 'Duncan', produced the excellent 'Sturrock' (patent pending) and about thirty other selections still under evaluation. A visit to the Sturrocks' home during these years of mango testing was a gustatory delight. Guests were asked to examine, test, and evaluate not one but many fresh mangoes in season, and frozen pulp at other times.

His interest in tropical fruits was wide. While at Soledad, and later in West Palm Beach, David and his wife grew and tested hundreds of tropical fruits, working out methods of preparation and preservation. The first publication of the Atkins Institute of the Arnold Arboretum was *Tropical Fruits for Southern Florida and Cuba and Their Uses*. This became known as "the jelly book" and is widely quoted today in the literature of tropical botany. Recipes prepared by the Sturrocks appeared in most of his writings, and a later publication, *Fruits for Southern Florida*, appeared serially in the *Stuart News* before publication as a hardcover book. This has been reprinted once and is scheduled for an additional printing in 1979. His favorites, as I recall with pleasure, were a sherbet made of *Carissa macrocarpa*, a jelly of *Carissa karandas*, and, for eating out of hand (second only to mangoes), *Myrciaria floribunda* (jaboticabá).

In cooperation with Dr. Edwin A. Menninger, Sturrock compiled his notes on tropical ornamental plants. The volume *Shade and Ornamental Trees for South Florida and Cuba* was originally published in serial form in the *Stuart News*. This was the first volume for Florida that paid attention to salt-resistant trees for exposed coastal sites, the areas of deep, overdrained sands, the shallow areas over rock, and the poorly drained areas inland. It is one of the few volumes in tropical and subtropical hor-

ticulture that emphasize the ecology of the planting site. Again, his wife contributed to his work, this time by supplying the drawings of the plants.

Sturrock's work with potential timber trees climaxed in perhaps his least-appreciated volume, *Trees for Southern Florida: A Plea for Afforestation*, which was published by the Central and Southern Florida Flood Control District in West Palm Beach. Throughout his life, in Scotland, Cuba, and Florida, Sturrock saw lands denuded of trees needed for timber, windbreaks, or shade. His experience in Soledad gave him knowledge of the species with the most rapid growth and the desirable shape or root system. His reports to his superiors at Harvard are dominated by pages of notes, observations, and recommendations on timber trees at Soledad that were never included in published annual reports. He was deeply shocked by the report that his growth study plantations at Soledad and his timber plantings elsewhere in Cuba had been cut quickly and completely for charcoal in the early stages of the Castro administration.

Late in his life, David Sturrock turned to wood carving for relaxation. He experimented with a variety of tropical woods to achieve the minute detail he sought, at first carving scenes from Cuba which his wife sketched in outline. His work was accepted artistically and scientifically, and fifteen carved panels, representing Florida trees and Seminole Indians, are displayed in the public library of West Palm Beach. Thirteen panels, representing the vegetation of different geologic periods, and a twenty-foot panel on the evolution of man, are in the Science Museum and Planetarium of Palm Beach County.

David Sturrock preferred to be called a "plantsman" for his broad interest in all plants and their environment. He indeed had a comprehensive knowledge and many talents. To the student he was patient, understanding, and willing to share any knowledge he had. To me he was mentor and friend. He died July 8, 1978, and was buried in Hillcrest Memorial Park in West Palm Beach, Florida. He is survived by his wife, Ruth Esther Earle Sturrock, and four children, of whom he was justly proud: James P. Sturrock, an aerospace engineer; Thomas T. Sturrock, a professor of botany and administrator; Ruth Mary Sturrock, an electron microscopist; and Peter E. Sturrock, a professor of chemistry.

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