IN SEARCH OF

SOUTH FLORIDA FIBERS

EXCERPTS FROM THE U.S. DEPARTMENT OF AGRICULTURE REPORTS OF THE SPECIAL AGENT IN CHARGE OF FIBER INVESTIGATIONS

Prepared by Charles Richards Dodge

In the early 1890s, the United States Department of Agriculture sent Charles Richards Dodge, an authority on fibrous plants, to south Florida to explore the possibilities of commercial fiber extraction from the region's many tropical and sub-tropical plants. Dodge's particular task was to locate hemp and similar fibers which could be used to manufacture rope and other cordage. In addition to their many everyday uses, such fibers were vital to America's industry, transportation, and defense, especially at a time when Spanish control of the Philippines assured a virtual monopoly on Manila hemp. This article includes excerpts from Dodge's 1890, 1891, and 1892 reports.

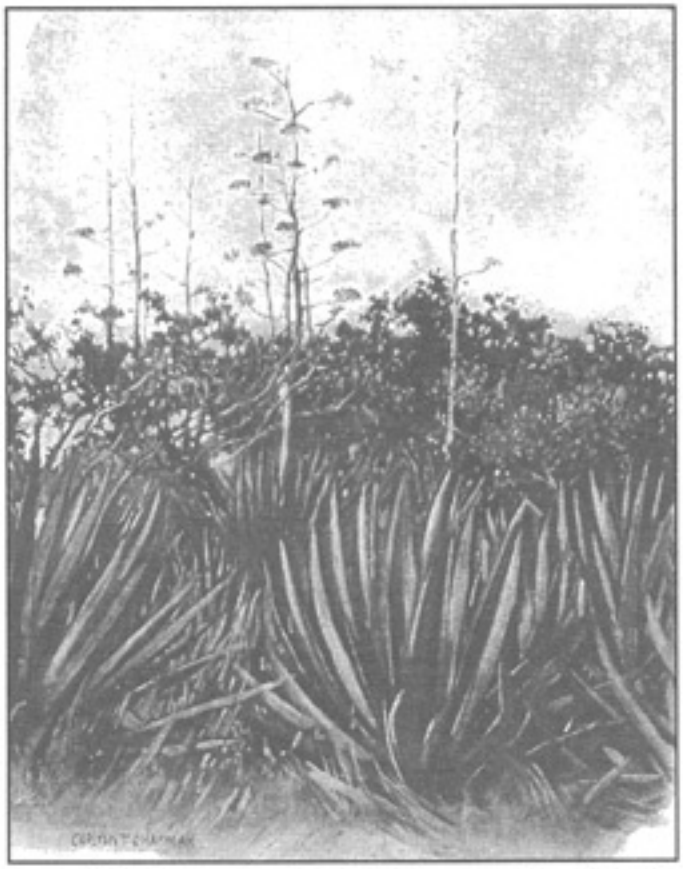
Dodge's investigations and resulting reports concentrated on the agave or sisal hemp plant. Dodge discovered the sisal plants, which had been introduced into Florida in the 1830s, growing wild in many parts of the southern peninsula. He also found several efforts to cultivate the plants commercially already underway, including the Jacksonville-based Florida Fiber Company's plantation on the Middle River in what is today Broward County.

Despite Dodge's optimistic predictions, sisal hemp production never took hold on a large scale. Problems such as leaf wilt, frost, and labor shortages which forced the closing of the Middle River enterprise limited large-scale cultivation, and, before the decade was over the Spanish-American War freed the Manila market. Ironically the ornamental use of the plants first appreciated by Seminole War soldiers at Fort Dallas proved to be the most enduring. Today sisal plants, commonly called century plants, adorn many south Florida lawns and gardens.

From 1890 Report:

I have referred to the use of sisal hemp in the manufacture of binding twine. Only a portion of the sisal imported is used, however, in this form of manufacture, but it is largely utilized for making cordage. Recently there has been considerable interest in the subject of producing our own sisal, and of late so many inquiries have been made regarding the industry that a special bulletin is now under preparation, giving the results of my investigations.

The question of growing sisal hemp (*Agave rigida* var. *sisalana*) in the United States was first agitated about 1834, when Dr. Henry Perrine, United States consul at Campeachy, introduced into Southern Florida a few plants from the Yucatan. In the fifty or sixty years which have intervened between that time and the present these plants have so multiplied, from different causes, that the Agave is now found abundantly in



Sisal thicket, painted by Carlton T. Chapman for Charles Richards Dodge's article, "Subtropical Florida," in *Cosmopolitan* magazine, 1898.

many localities. In recent years the attention of the Bahamian Government has been called to the value of the sisal industry, and considerable areas have been covered largely from plants secured in Florida. The success of the enterprise is assured, and samples of fibre sent to London were pronounced better than the Mexican, and quoted at a much higher price per ton. Judging from the samples of Florida sisal received by the Department during the past year, I am satisfied that as far as the mere question of ability to grow the plant is concerned, sisal may be cultivated as successfully in Florida as in the Bahamas, and as good a fiber can be produced. As to the cost of production, not as much can be said at present, for the attempt has not yet been made to produce fiber in marketable quantity. The removal of the duty of $15 per ton will now make it harder to compete with the foreign fiber, though the nearness to market, and the use of improved machines in preparing the fiber may help the matter a little. When the new industry has made further progress, it might be well to consider the expediency of affording to it encouragement in the form of a bounty, for a term of two or three years. I should state that the Bahamian Government has placed a bounty on the production in the British West Indies.

Several companies and individuals are actively interested in the new enterprise and plantations are being established. One near Jupiter, of about 60 acres, has been established for about two or three years, and is doing well, leaves large enough for fiber having already been produced. There are several machines of American invention for cleaning the fiber which give promise of success, and altogether the outlook seems hopeful. In the limits of the present report it will be impossible to go into detail regarding the results of my investigations, which are not yet fully completed, and the information collected must await later publication.

From 1891 Report:

Pursuant to your instructions, I visited Florida early in the year, making a personal fiber survey of the entire coast line of the southern peninsula, from Jupiter Inlet on the east coast to Charlotte Harbor on the Gulf, including explorations of the principal keys, occupying several weeks of time.

The fact that the Sisal hemp plant can be grown in this country in any quantity, as far as the mere question of cultivation is concerned, was satisfactorily demonstrated many years ago. Over fifty years have passed since the plant was introduced into Florida by Dr. Henry Perrine, and it is now growing wild in many portions of the State. The history of the introduction of the plant and the story of the tragic ending of that unfortunate enterprise are almost too well known to repeat here. It has been my good fortune, however, to obtain from Mrs. Hester Perrine Walker, of Fernandina, Fla., a daughter of the doctor, and an eye-witness to the Indian Key massacre, some interesting statements, from which the following facts are gleaned.

Mrs. Walker informs me that the first introduction of the plant from Yucatan occurred in the years 1836 and 1837, a few plants having been sent to the royal botanical gardens of Cuba at the same time. Of the plants brought to Florida, part were taken to Indian Key and the others were planted upon "the Indian hunting ground," on the borders of Biscayne Bay. It is also stated that when these plants had multiplied to some extent the officers at Fort Dallas, at the mouth of the Miami River, 12 miles from this locality, were in the habit of gathering the young ones to send to greenhouses in the North, and also to other posts, where they were grown as ornamental plants. One of the results of this practice was to introduce the plant into many new localities in Florida, where it soon obtained a foothold. The plants set out on Indian Key multiplied very fast, and a few years after the destruction of the enterprise and the death of Dr. Perrine, at the time of the Indian massacre, a schooner load of the young plants was

gathered and taken away, though it is not stated where they went. Many other plants were introduced at the same time, among them another species of Agave, in some 200 varieties, which were growing in boxes on the premises of Dr. Perrine and Mr. Howe, Indian Key, preparatory to the removal to the "grant," as soon as the war should cease. These were nearly all burned or destroyed at the time of the massacre, August 7, 1840.

The plants when introduced upon the mainland spread rapidly, being commonly transplanted to the gardens of the early settlers of south Florida chiefly for the sake of ornament. In 1842 the armed occupation act was passed by Congress, which gave a homestead of 160 acres to any person who occupied a tract five years. One of the results of this act, as I am informed by Mr. Ranson, of Titusville, was the planting out of small patches of Sisal hemp by the heads of families settling on the Indian River in the neighborhood of Fort Capron.

These facts are considered worthy of mention, as showing that while every other evidence of former cultivation has long since disappeared, the Sisal hemp, regardless of forest fires, weeds, and neglect, still holds its own and spreads year by year....

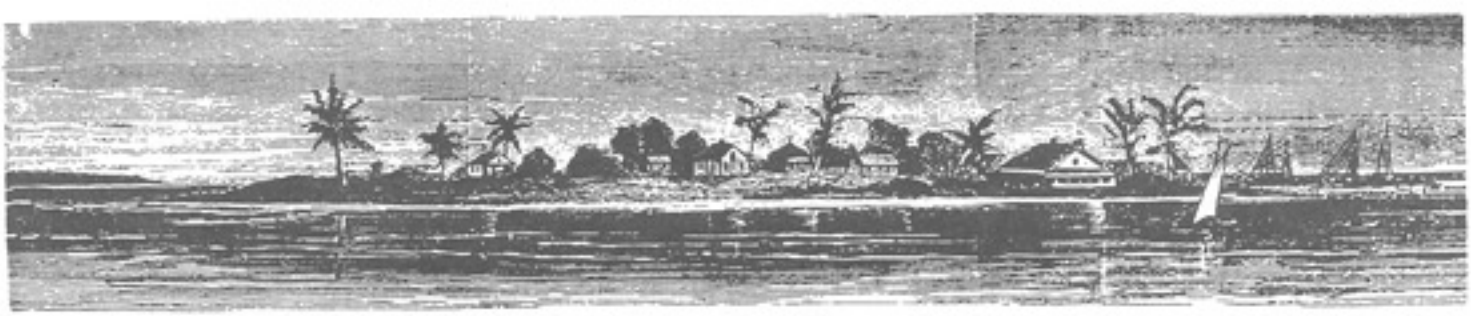
At the present time not only is the fiber produced to an enormous extent in Mexico, but Cuba and the Bahamas are interested in its production, with a promise of practical results. What can be done in the Bahamas I have reason to believe can be accomplished in this country, with intelligent effort and attention to small details at the outset to avoid costly mistakes. We have the soil, the climate, and the plants. The combination of capital and inventive genius, with these conditions, must work out the problem, if indeed the question is not already practically solved. Already capitalists have made a beginning on New River, between Lake Worth and Biscayne Bay, by the purchase of a large tract of land, a portion of which already has been planted. There is considerable inquiry in relation to the project, and a prospect of the early formation of other companies, in addition to the interest shown by private parties in the industry....

The first point of interest in my investigation in Florida was Titusville, where thrifty plants were seen in the gardens, grown chiefly for ornament. At Cape Canaveral, on the coast, Mr. Robert Ranson has a small plantation, which is doing well. This, I should say, was the northern limit of Sisal culture, but in my opinion the best results will be obtained below Jupiter and the Lake Worth district. The most interesting tract visited along this portion of the coast was found on the point perhaps a mile below the railroad station and wharf at Jupiter. Here I found a thicket of these agaves, both the smooth and spined varieties, many of the plants having shot up their "poles" or flower stalks, which were covered with blossoms and young plants. Mr. John Cleminson has a small plantation not far from this tract, and a mile or two above Jupiter I visited, with Mr. John H. Grant, a nursery of small plants, which were in a flourishing condition.

At Juno, about 10 miles farther south, at the head of Lake Worth, I found another fine nursery, the property of Mr. A. M. Fields, who is quite enthusiastic on the subject. At the time of my visit, the Florida Fiber Company, located at New River, was just breaking ground, and their tract was not visited.

The Biscayne Bay region is undoubtedly the most favorable locality for Sisal hemp cultivation. I discovered the plant growing here and there along the Miami River in perfection, though only in scattered patches of a few individuals. From Miami down the coast to Cocoanut Grove they appeared more or less abundantly. At Addison's Landing, near Cutler, I found myself on the Perrine grant, though Mr. Addison informed me that the plants were growing chiefly on his own section. He estimates the number of old plants at about 15,000, growing without cultivation, and states that these have descended from the comparatively few plants which were on the place twenty-five years ago, when he first occupied the land.

The original planting, he states, was done by Mr. Charles Howe, who was associated with Dr. Perrine. He has both the spined and smooth-leaved varieties, but makes the interesting statement that the latter "spreads" much faster than the former. As a matter of fact, I noticed that plants of the spined form, at this place, were exceedingly few and far between. Some fine living plants of both varieties were secured here, and these are now growing well in the conservatories of the Department. From this point I sailed southward, but found nothing of particular interest until Upper Metecombe [Matacumbe] Key was reached, where some of the most superb plants observed on this trip were seen. In one thicket, to which it was almost impossible to obtain access save at the expense of torn clothing and lacerated flesh, magnificent plants were



Indian Key, ca. 1870.

John H. Grant, a sisal grower near Jupiter when Dodge visited there, moved to Fort Lauderdale in the early 1920s, and became the first harbor master at Port Everglades.

seen where the tips of the leaves were 2 feet above a man's head.

Indian Key, where Dr. Perrine lost his life, lies just below, and beyond it is Lower Metecombe. Other keys of the group are Lignum Vitae, Shell Key, and some lesser ones, upon all of which the true Sisal hemp plants are found in abundance. A very rough estimate of the old plants in this group of keys would be a hundred thousand, though in making this estimate I have relied largely upon the statements of the intelligent Bahamians living upon them. Leaving the group of keys, the agaves grow scarcer until they are found abundantly again on Key West, Boca Chica Key, and Stock Island. Other keys where they are growing are Knights, Umbrella, and Vaccus [Vaca?], and, on the authority of Mr. Grant, large quantities are to be found on Cape Sable, the extreme southwest point of Florida.

My survey of the west coast was not as thorough as of the east, but there is no doubt that the plants are grown in greater or less abundance from Cape Sable and Ten Thousand Islands up to Punta Gorda. Superb plants were examined by me at Fort Myers on the Caloosahatchie [sic.] River and at other points, though there were no such thickets as seen on the keys.

From 1892 Report:

Since the publication of my last report on sisal hemp culture in Florida, considerable additional information has been secured and some new facts ascertained that have not hitherto been given to the public. Early in the season I spent two months in the Biscayne Bay region of Florida, from which point explorations were made covering nearly 200 miles of the coast from Key West to New River. Headquarters were established at Cocoanut Grove, on Biscayne Bay, where an experimental cleaning factory was established, machinery having been sent down by the Department [U.S. Department of Agriculture] for the purpose. The results of the season's work were in every way satisfactory, and a considerable quantity of valuable material in the form of fiber products was secured, which will enable the Department to test the fiber in manufacture and ascertain the facts regarding yield of fiber per ton, tensile strength, and commercial value.

With a fast sailing vessel at my disposal, I was able to collect plants and leaves from the principal tracts along the coast, where sisal has been growing for forty years or more, and to bring the latter to the cleaning mill in perfectly fresh condition. The chief sources of supply were as follows: Indian Key, two varieties from the original plantings by Dr. Perrine; the Matecumbe's (upper and lower), more recent plantations from the first named; the Perrine grant, from plantings by Charles Howe, who was associated with Dr. Perrine; from Narre's [Norris?] Cut, opposite Miami, more recent, name of planter unknown; and from Jupiter, Fla., from plantations set out by Peter Stone at Jupiter Point about the close of the war. Very small lots were also secured from Fort Dallas and other points along the coast, where small areas were found growing. A quantity of fiber from the false sisal was also obtained, from leaves grown on Sands, Elliotts, and other keys, but which will be referred to in a special chapter on "False Sisal Hemp."

In regard to the distribution of these two species of plants it is appropriate to mention here that in all the territory covered by my explorations, plants of the true sisal hemp were always found in situations near to the habitations of man, or near the former sites of such habitations. On the contrary, on both mainland and keys where the face of the country is still in a state of nature, no plants of the true sisal were ever seen, though such situations were frequently found to be covered with dense growths of the false sisal, the species often being indistinguishable from offshore before the boat had made a landing.

Regarding the existing tracts of the true sisal hemp plant (*Agave rigida*, var. *sisalana*), that upon Indian Key is the largest, as it circles the island, growing for the most part near the shore line, and not found in the center of this key, which is one of the smallest of the group. Here the greater quantity of leaves secured for the purpose of extracting the fiber were taken, the next largest lot coming from Capt. Addison's place, on the Perrine grant. Only the lower leaves of a plant were cut, though as a rule fully one-half of all the leaves were taken off.

A study of the distribution of the true sisal hemp plant over the east and west coasts of the southern portion of Florida is most interesting because of its wide extent, while the plantations are often, at the same time, quite remote from each other. This might be taken as satisfactory proof that the original plants were set out by man, if no other proof existed. Fortunately it has been possible to trace the history of the principal plantations, the facts showing that at various times during the past forty or fifty years sisal enthusiasts have endeavored to carry out Dr. Perrine's work of establishing this industry in Florida.

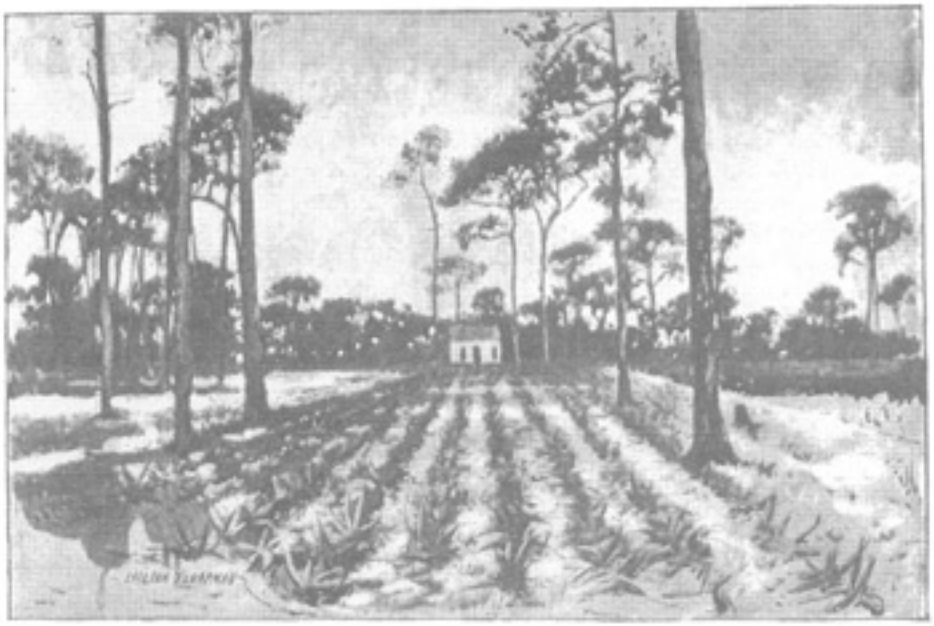
Limit of Sisal Hemp Cultivation

Regarding the west coast, which I have but partially explored, it will be impossible to speak authoritatively. The northern limit of safe cultivation on the west coast was stated in my first report to reach only as far as latitude 27°15', which would place it a little below the center of Manatee County. This statement was made on the authority of a valued correspondent, Mr. Ranson, who says that this latitude marks the frost line. A writer in the Port Tampa Mail, commenting on the above, states that there is no county in Florida where the henequen grows more rapidly and to greater perfection than in Hillsboro [Hillsborough] County, lying above Manatee, and he places the limit of safe cultivation on the west coast as far north as the Anclote River, practically the boundary line between Hernando and Hillsboro counties, or fully a degree higher than stated by Mr. Ranson. I have seen thrifty plants in cultivation at Punta Gorda and around Tampa, and even in more northerly portions of the State, but have not regarded cultivation absolutely "safe" much above Charlotte Harbor, one year with another. A frost even once in five years is once too often where sisal hemp is grown commercially. Dr. Washburne, of the subtropical experiment station at Fort Myers, informed me that there are marked climatic differences between the two regions immediately bordering the Caloosahatchee River; that is, north and south of this body of water. And in proof of this he referred to many tropical plants growing immediately south of it which would not thrive on the other side of the river from Myers. Concerning the east coast I made this statement in the Annual Report of the Department for 1891: "The frost line marks the limit of safe cultivation. This line is drawn from latitude 28°30', commencing on the Atlantic coast, in a southwesterly direction across the State of Florida to the Gulf coast, in latitude 27°15'."

I still adhere to this opinion, and while accepting the statements of our two east and west coast correspondents, which would fix the line above latitude 28°, I consider latitude 27°, running across the State, a safer limit for the establishment of plantations on a commercial scale. I am perfectly well aware that the opinion exists in many minds that no specified limits can be stated where vegetation is wholly exempt from occasional frost. I am only endeavoring to establish a "safe" limit in south Florida for sisal hemp culture.

In the earlier report I gave a detailed account of the different localities where the plants were growing in a semiwild state from former plantings. There is nothing of particular interest to add to that account. It was my pleasure, however, to visit the sisal hemp plantation at New River, 25 miles north of Miami, where the Florida Fiber Company of Jacksonville has 1,300 acres of land which it is proposed to devote to this culture. A substantial beginning has already been made under the personal superintendence of Mr. J. R. Kuckler, of Jacksonville, and the work of planting is being rapidly pushed, the U.S. Department of Agriculture having encouraged the enterprise to the extent of 100,000 plants. I visited this tract in April and was able to take a number of photographs illustrating the company's operations, one of which is reproduced. The plants being young and small, cuttings of course will not be made for several years to come, when some very interesting questions regarding the industry will be settled.

A study of this wide distribution of the sisal hemp plant seems to confirm Mrs. Walker's statement that when these plants (set out by her father) had multiplied to some extent the officers at Fort Dallas, at the mouth of the Miami River, were in the habit of gathering the young ones to send to the other posts, where they were grown as ornamental plants. As a fact the principal tracts of plants now growing in Florida are either in the neighborhood of former army posts, or are located where Dr. Perrine, or his associates, set out plants at the time of his experiments.



Carlton T. Chapman's sketch of the Florida Fiber Company's Middle River sisal plantation.