The Past, Present and Future of the Florida Everglades

By DANIEL A. SIMMONS, Private Secretary to Governor Broward

There are many people, even in Florida, who know practically nothing about the vast area commonly known as the Florida Everglades. It is generally known throughout the United States that the name is applied to a part of our state, and those who have heard of it have a general idea that it is a low swampy country, but definite knowledge of it is very limited.

If one is in doubt about the meaning of the word "everglade," any standard dictionary will tell him that it means "a tract of low swampy land covered mostly with tall grass"; but if the term has ever been applied to any place other than the southern part of the Florida peninsula I have yet to hear of it for the first time. But, whether there are any other everglades or not, this is a good definition of ours, and I will ask that you try to remember it. Do not forget the grass; for it is the one thing which modifies the common conception of "swampy." The ordinary swamp is anything else than attractive; therefore, I am anxious that you should realize that the Everglades are different from the ordinary swamp. The muck is there and is covered with shallow water, but instead of trees we find tall grass. Countless slimy reptiles creep through the marshes, and millions of food fishes swim in the shallow water; but instead of the uncertain gloom of the ordinary swamp, we here have vast open sunny spaces containing millions of acres.

How did the Everglades come into existence, and of what use may they be to mankind? These are questions which have been asked thousands of times over, and it is my intention to here answer these questions as briefly as the importance and largeness of the subject will permit.

Origin of Everglades.

Some time during the Pliocene Age, which geologists tell us ended anywhere from three hundred thousand to one million twenty thousand years ago, that part of the earth's interior lying beneath what is now the Everglades cooled and shrunk, causing the surface to bulge upward, very much in the same manner as the shrinking of an apple during the process of baking causes its surface to become wrinkled and corrugated. Prior to this bulging upward this area was an expanse of shallow salt water, joining together the deeper waters of the Gulf of Mexico and the Atlantic Ocean. During that age the water of the sea was more heavily laden than now with carbonate of lime, which had been precipitated here (partly by the confluence of fresh and salt water and partly by the action of marine insects) into an extensive bed of coralline limestone. The agitation of the shallow water under the action of the wind stirred up and dissolved this limestone until the water was opalescent with it. Then, during periods of calm, and in sheltered places behind projecting reefs, the lime held in suspension settled to the bottom in the form of minute globules. The dissolved lime, impelled by the law of affinity, gathered around these tiny globules, enlarging them and cementing them together into what geologists call oolitic limestone. "Oolitic" means, literally, like unto fish-roe, and this rock is so called because it is composed of small egg-like pellets.

No man witnessed these things. Of birds, beasts and fishes there was no scarcity, but man had not yet come to assume dominion over them. God had not yet created anything in His image, and although the garden between the Tigris and the Euphrates had been laid out, its air was yet too noxious for man to breathe. In attempting to read the history of that age we must depend solely upon Nature's own chirography, and many parts of it are so illegibly written that geologists must allow a wide margin for speculation. In the matter of dates, for instance, a few hundred thousand years more or less are not seriously considered in arriving at a final conclusion.

This region was cast upward to a mean height of about eight feet above the level of the sea, with a rock rim several feet higher bordering the water from which it had arisen. This rim was lowest at the extreme south, and most of the salt water probably drained off in that direction. What was left was gradually diluted by the rainfall and inflowing streams, and passed out through the same channels; so that, in course of time, the entire region became a vast shallow lake of fresh water covering about four thousand square miles, having a solid limestone bed, and dotted here and there with sand-bars.

This unproductive waste did not conform to Nature's plan of strict economy, and she at once began the work of setting things in order. The seeds and scions of aquatic plants and grasses came from somewhere (probably down the Kissimmee river and a few other insificant stream from the older lands lying northward), and, finding a genial environment in the tepid water of this great lake, multiplied rapidly. These plants and grasses were of the nitrogen-fixing species so that they took their food from both air and water, and when they went to the bottom in decay they deposited upon he stone bed a thin layer of black muck which was very rich in nitrogen. The sluggish currents and the winds of many centuries carried enormous quantities of thick muck and floating vegetation down into the tortuous, rock-bound channels to the southward, thus gradually choking these outlets and further impounding the waters of this inland sea.

No one knows just how long this process had continued when the earth's crust on the eastern, southern and western borders of the lake again bulged upward. But we do know that such a thing happened, and that during the Pleistocene Age, which ended twenty-five or thirty thousand years ago, the rock rim was made higher and broader, and the muck-choked channels to the southward permanently blocked by an outer barrier of stone. This further impounding caused the water to spread out into the lower parts of the surrounding country until it reached the summits of the lower places in the new barrier, and once again discharged itself into the sea. Again we must depend solely upon such history as Nature has written in the rocks; for it seems that man had not yet appeared in the western hemisphere. Geological formations of the same age in southern Europe contain his unmistakable remains but "The Land of the Free and the Home of the Brave" was yet untrodden by his heel.

During twenty-five or thirty millenniums the outflowing water has been eroding channels through the rock rim, the Caloosahatchie river on the southwest, and New River on the east being notable examples. During a much longer period the nitrogen-fixing plants and grasses have continued to gather nitrogen from the air and fix it in muck. The erosion of channels has somewhat lowered the water from its original level, and the deposit of muck has raised the land from four to twenty feet above the original limestone bed, the lighter deposit being near the edges and gradually deepening toward the center until the maximum is reached.

The Result of Processes.

As a result of these processes we have the Everglades—a practically level plain with a surface area of more than four thousand square miles covered with from one to three feet of water, and all densely overgrown with saw-grass. Somewhere in the far hazy distance may be seen a little clump of trees, growing on what was once a wave-lashed sand-bar; but with that exception the silent, monotonous plain stretches away, mile upon mile and league upon league, to the point where the heavenly blue bends to fondle the earthly brown.

Lying to the northward of this plain, and extending about thirty-two miles down into it, is Lake Okeechobee. This lake covers about five hundred thousand acres, and, as the larger part of its bed is at or below sea-level, its main body will probably remain for all time, an impassable barrier against the frost which might otherwise sweep down in disaster upon the tender vegetation to the southward. Lake Okeechobee is really a part of the Everglades, but its area is not included in the estimate of four thousand square miles.

The water on the Everglades is merely the outlying water of Lake Okeechobee, and, as its surface is something like twenty-one feet above the level of the sea at mean low tide, the forces of nature would eventually reclaim the whole tract. It would probably require a long string of millenniums, but nature is not at all parsimonious with millenniums. A generation or two, or even a few hundred years, would probably make no very noticeable change, but the erosion of the outflowing water would finally so cut away the impounding rim that the great reservoir would empty itself into the sea. In all parts of the world there are vast fertile plains which were first seas, then lakes, and finally dry land. The Everglades is one such plain in the making, and it is now at the beginning of the transition from lake to dry land. But Governor Broward wills that Nature shall be forestalled in her tedious process, and that the people of this generation shall come into full possession of the treasure which she has been hoarding for so many incalculable ages.

The Work of Reclamation.

I shall not attempt to give the legal and political history of the project for reclaiming this territory, but shall proceed at once to tell of actual results. Early in July ,1906, the Everglades, one of the most powerful dipper dredges that had ever been constructed, began operations at the mouth of New river, near Ft. Lauderdale, on the Atlantic coast. After widening and deepening the river for a little more than a mile, this dredge passed out into the open glades, heading in a northwesterly direction and toward tht north end of Pine Island. Late in March, 1907, the Okeechobee, another powerful dipper dredge, took up the work of widening and deepening the river at the point where the Everglades had left it, and after following the eroded channel to its end, also passed out into the open glades, heading in a southwesterly direction and toward the south end of Pine Island.

Both the dredges will reach the island before the nd of the present year, and then about ten thousand acres of land will have been permanently reclaimed. Pine Island is a huge billow of sand, one mile long and a quarter of a mile wide, spilled down there from God only knows where. It is situated about six and a half miles out in the muck, and rises to a height of a little more than twenty-five feet. There are numerous sand strata in its vicinity, and it has been suggested that this part of the Everglades was probably at one time dry land, the island having been cast up by the wind, just as shifting sands are now tossed about on Santa Rosa Island, near Pensacola. This island will probably be the site of a thriving little city at no far distant day.

Practically No Malaria.

Strange as it may seem, there is practically no malaria in the Everglades country. The men who operate the dredges enjoy the best of health, and some of them were not acclimated when they went there. This absence of malaria is due to the fact that the anopheles, or malaria-bearing mosquito, is very rare in that part of the state, this kind rarely ever breeding in open sunny spaces.

The canals will not end at Pine Island. They will be continued toward the southern shore of Lake Okeechobee; but after the island has been passed no more rock will be encountered, and the progress will be much more rapid. About the first of January, 1909, the powerful steel dredge Miami, will begin a canal near the city of that name on the Atlantic coast, and a few days later the Caloosahatchie, another powerful steel dredge, will move up the river of that name from the Gulf of Mexico. Other dredges will be added from time to time until there are as many as can be economically operated.

All canals are to be sixty feet wide and approximately ten feet deep, and their final objective point is the southern shore of Lake Okeechobee.

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When the surface of this lake has been lowered five or six feet it will draw in the water from the surface of the Everglades, and the work of reclamation will be complete. If it should be deemed necessary, the surface of the lake may be lowered ten or eleven feet. After the main canals are completed the state will also cut a number of lateral canals, but these will be intended more for transportation purposes than for drainage. The soil of the Everglades is so porous that a heavy rainfall disappears in a few minutes, and when the surplus water has been drained off, and the inflow of rivers and creeks counteracted by the outflow of the canals, the natural precipitation will take care of itself.

Expense Paid From Proceeds.

If anyone has been deceived by the interrogative insinuations of a certain newspaper which now purrs and gurgles softly like the flow of oil from a pipe, and now roars and rumbles and shrieks like a sea-going railway train, let him here take knowledge that the expense of all this work has been paid from the proceeds of the land. The people have never paid one penny of it in taxes, and no part of any other fund has been diverted to that use. The land is absolutely worthless in its natural condition, and but for the hope that the state will reclaim it, no one would purchase it at any price. Its value rests solely upon faith in the ultimate success of the drainage project. If the work were abandoned this faith would be gone, and values would collapse. Therefore, the drainage scheme is self-supporting, and the work is carried on with funds which would not be forthcoming for any purpose if the project were abandoned.

In order to drain the state's land it is necessary to also drain large tracts of private holdings, and the Board of Drainage Commissioners was created for the purpose of forcing private owners to pay their equitable share of the expense. The law creating this board and levying the drainage tax has been declared valid by the United States circuit court, and if this decision should be sustained by the circuit court of appeals, it will mean a great saving to the Internal Improvement Fund, from which the expense is now being paid. But whether the decision of the appellate court is favorable or adverse, the work will be pushed to completion at the earliest possible date. The state's part of the land will pay all the expense of reclamation, and the trustees have ample authority to use it for that purpose.

What the Future Holds.

Having thus briefly considered the past history and present status of the Everglades, let us turn to the future and ascertain, if we may, what it promises in return for all this striving and sturdy toil. The chief point to be considered is the fertility of the soil; for it matters not how well situated a particular territory may be with reference to climate and marketing facilities, if the land is poor all these things must count for naught. All material wealth springs from the soil, and man's efforts are rewarded in the same ratio that it is rich or poor. The soil of the Everglades is rich—not only in isolated places, but uniformly rich. The manner of its formation, as already described, can mean nothing else than almost unvarying uniformity.

Nitrogen is the most expensive constituent of all well balanced fertilizers and is likewise the element in which most soils are deficient. The air contains a high percentage of nitrogen, and a few years ago it was thought that the key to this treasure-house had been discovered in "soil-inoculation," which means the artificial introduction into the soil of the germs which take nitrogen from the air and crystalize it in the earth. This great discovery was heralded from one end of the civilized world to the other, and it was thought by some that it meant the earth's rejuvenation. But, like many another supposedly valuable discovery, this beautiful theory failed to show satisfactory results in actual application, and again the farmer is being advised to plant the pod-bearing vines, upon the roots of which the nitrogen-fixing germs thrive naturally. For more than a hundred thousand years the soil of the verglades has been built up and enriched by this same process, and it is now one of the richest nitrogen beds in the world.

Muck Worth $6.63 Per Ton.

I have before me eleven official analyses of Everglades muck taken from widely separated places, and they vary but little. An average analysis, obtained by dividing the sum of all of them by eleven, gives 2.21 per cent nitrogen. Nitrogen has an average commercial value of fifteen cents per pound, which means that the average Everglades muck is worth $6.63 per ton. Think of it for a moment! More than four thousand square miles of level soil in a sub-tropical climate, lying from three to twenty feet thick on a bed of solid stone, and having a commercial value of more than six dollars per ton! Can you wonder that a nation is interested in its reclamation. This soil is slightly deficient in potash and phosphoric acid, and, while enormous crops may be grown without the addition of any fertilizer whatever, experience has demonstrated that the addition of these cheap chemicals is a paying investment. The raw soft phosphate (which is the kind needed on this soil) abounds in the region just a few miles northward, and can be laid down at Ft. Lauderdale for about five dollars per ton. Sufficient potash to balance this acid can be had for about the same price.

The possibilities of this combination of soil, moisture and climate are practically unlimited; but it is the opinion of Governor Broward, and of many others who are acquainted with the situation, that the growth of sugar cane and the manufacture of sugar will be the chief industries. During the year 1906 the United States produced 703,331 tons of sugar, of which amount about seventy per cent. was beet sugar. During the year 1907, while we were consuming this production, we imported 2,170,899 tons of sugar, for which we paid the enormous sum of $92,806,253, besides freight and import duties. To lay this amount of sugar down in the ports of entry cost us within a few thousand dollars of all the money we received during the same time, for all our exports of meat products, corn, wheat and naval stores combined. If this sum of money were equally distributed among the people of the United States, each man, woman and child of every race and color would receive nearly two dollars. The Everglades are capable of keeping all that money at home!

Growing of Sugar Cane.

Louisiana produces more cane sugar than all the other states of the Union combined, and certainly has some very excellent cane lands. The average yield of cane in that state is twenty-five tons per acre, and the average available sugar content of that cane is 7 per cent. The yield of cane in the Everglades country, ascertained by striking an average on four hundred and twenty acres for a number of years, is thirty-five tons of cane per acre, and the average available sugar content of that cane is 8 per cent. The entire Everglades region contains about four million acres of land admirably adapted to the growing of sugar cane, but we will eliminate all except the four thousand square miles covered by water, and which is now being reclaimed. If this area were planted in cane, and should yield thirty-five tons of cane per acre, with an average available sugar content of 8 per cent, the net production of sugar would be a little more than seven million tons, or enough to supply the demand in the United States for more than two years.

Many experts have attested the adaptability of the Everglades to the production of sugar, but in all matters saccharin the late Claus Spreckles should probably be accorded the courtesy of the last word, and here is what he said, after visiting a sugar plantation there: "My surprise was great at finding such a country for the production of sugar cane. The soil is as rich as any that I have ever seen, and, with proper cultivation, the yield should be equal to that of any other country on the face of the globe."

"But," says some one, "would not this enormous production of sugar soon exhaust the soil?" No. With proper care and cultivation it should grow constantly richer. Sugar contains no element of the soil, nor any derivative of it. It is a simple carbohydrate, chemically expressed, $C_{12}H_{22}O_{11}$, which, in common parlance, would mean that it is composed of one part of water and one and one-eleventh parts of carbon, which latter has its source in the sunshine and is present in all organic matter. Had it ever occurred to you that when you drop a cube of "Crystal Dominique" sugar into your coffee, you have merely added a spoonful of water and a sunbeam? And had you ever thought that if you could squeeze out the water, you would have a sparkling diamond fit to embellish a royal diadem? These things seem wondrous strange, but such is the witchery practiced in Nature's laboratory. The nitrogen, the potash and the phosphoric acid must be in the soil. They are the chemical agents necessary to transmute the sunshine and showers into sugar, but they constitute no part of it. Therefore, if the mashed cane and the scum from the boiling juice be returned to the soil, it will be no poorer than it was before the cane was planted. It will actually be richer; because cane itself belongs to the nitrogen-fixing family of plants, and gradually enriches the soil whereon it grows.

Beet sugar costs about twice as much to grow and manufacture as does cane sugar, and requires an enormously larger initial investment. Hence, the only excuse for it in the United States is the insufficiency of cane land. The beet sugar men of the west are closely watching developments in the Everglades, and a number of the larger companies are negotiating the purchase of large tracts of the land, with a view to transferring their operations to Florida. Two or three such deals have already been closed, and several others are pending.

No Killing Frost.

The absence of killing frosts in the Everglades permits the cane to be leisurely harvested all through the winter, which is more economical than a harvest which must be rushed, and the degree of ripeness thus attained is largely responsible for the heavier yield and greater available sugar content.

The growth of winter vegetables will always be an important industry in the Everglades, and probably possesses more advantages for the individual farmer than cane growing. The banana also thrives there, giving quick and adequate returns, and the Everglades banana is said to have the finest flavor of any in the world.

The trustees calculate that the entire work of reclamation can be completed within six years, but with the co-operation of the Board of Drainage Commissioners this time limit ought to be materially shortened. Enormous tracts will be permanently reclaimed from time to time by cutting cross canals, and in this way the land will be prepared for cultivation as fast as it is needed, without waiting for the reclamation of the entire tract. Even now a large sugar company is cutting its own lateral canals, and hopes to plant a crop of cane next year.

It is, indeed, a great project, and its successful consummation will vitally effect for good the economic conditions of the whole country. Every Floridian ought to be proud of it, but a number of privilege-seeking concerns have done everything within their power and means to make it unpopular, and it is but natural that many good people should be deceived.

Banquets in Elizabeth's Time.

In Queen Elizabeth's time the first course of a banquet is given as wheaten flummery, stewed broth or spinach broth, or smallage, gruel or hotch pot. The second consisted of fish, among which are lampreys, poor John, stockfish and sturgeon, with side dishes of porpoise. The third course comprised quaking puddings, black puddings, bag puddings, white puddings and marrow puddings. Then came veal, beef, capons, humble pie, mutton, marrow pasties, Scotch collops, wild fowl and game. In the fifth course all kinds of sweets, creams in all their varieties, custards, cheese cakes, jellies, warden pies, suckets, sillibubs and so on, to be followed perhaps by white cheese and tansy cake; for drinks, ale, beer, wine, sack and numerous varieties of mead or metheglin.—New York Tribune.

John's Christmas Cake.

The wife of a Los Angeles physician, active in foreign missionary work of the Methodist church, was asked by the women of the congregation to contribute a large cake to their holiday festival and bazaar. She consented to add her mite to the enterprise and called in her Chinese cook, a converted oriental.

"John," she said, "I am going to send a cake over to the church to be sold, and I want you to bake it. You know all that the missionaries have done for your people in China and how glad you are that they have saved you from darkness. I want you to show your gratitude by making the nicest and biggest cake you can."

The Chinaman got to work, and next morning the cake was sent over to the church. He tied the package up so neatly that the physician's wife did not think it worth while to undo it to look it over. That afternoon she received a telephone message from one of the women in charge of the festival saying there were doubts among the committee whether she would be satisfied to have the cake go into the bazaar in the condition in which it was received.

Much annoyed, the donor hurried over to the church. The cake was large and savory. The icing was marked with colored sugar in elaborate and intricate designs of oriental art. Across the top also in large letters was the inscription:

"From Mrs. Jessop to Jesus."—New York World.

Everybody's Nice.

The janitor is courteous now,
The bellboy too.
Obsequious is the barber's bow
When he gets through
His fussing o'er your raven hair.
On every side
You meet with truly loving care
At Christmastide.

The bootblack plies a busy whisk
On unseen dirt,
And every one is prompt and brisk
And never curt.
Politeness is with all the rule,
For they, ahem,
Devoutedly hope and trust that Yule
Remember them.

—Louisville Courier-Journal.