MESSAGE OF GOV. N. B. BROWARD TO THE LEGISLATURE OF FLORIDA RELATIVE TO RECLAMATION OF EVERGLADES.

EXECUTIVE OFFICE,
Tallahassee, May 3, 1905.

Gentlemen of the Senate and House of Representatives:

I desire to submit to you the following information in regard to the present status and future prospects of the trust reposed by the legislature of 1855 in the Trustees of the Internal Improvement Fund of the State of Florida.

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From this review of the history of the Trustees of the Internal Improvement Fund and their powers and duties under the act creating them and vesting them with the lands I am convinced that it is their duty and within their powers to drain and reclaim the swamp and overflowed lands now left in the fund. The question then is:

Is the lowering of Lake Okeechobee and the drainage of the Everglades feasible?

The question has been decided in the affirmative by many authorities of the highest standing.

In 1880 and 1882 a line of levels was made by Gen. Gillmore under the direction of the United States Senate. These and other surveys by Col. Charles Hopkins, Maj. Wirts, V. P. Keller, and J. W. Newman fix the elevation of the Everglades at from 21 to 23 feet above tidewater level. The difference in these figures is accounted for by the depth of the water on the glades when the surveys were made.

In 1891 a survey made by W. H. Caldwell, assistant United States engineer, fixed the level of Lake Okeechobee at 20.42 feet above tidewater level.

There are seasons of the year when a large portion of the Glades are dry. I have been in Lake Okeechobee twice within the last six months. Once with Mr. B. H. Barnett and Mr. William M. Bostwick, jr., of Jacksonville, on the steamer *Naomo* of Fort Myers, or Kissimmee, commanded by Capt. Hall. During the first part of February of the present year, with Attorney General Ellis and State Treasurer W. V. Knott, and the State chemist, Capt. R. E. Rose, and ex-Gov. W. S. Jennings. On the last trip we boarded a steamer at Fort Myers, proceeded up through the Caloosahatchee River and several canals into Lake Okeechobee and investigated two canals leading out of Lake Okeechobee south into the Everglades, then along the east side of the lake about three-eighths of a mile from the shore, going ashore once, until we arrived at Taylor's Creek, on the north end of the lake, where we replenished our supply of wood.

I took frequent soundings of the water for about 20 miles, and found the water to be uniformly 18 feet deep at three-eighths of a mile from the east shore. Once, when about a mile from the shore, I found the water to be 21 feet.

I find Lake Okeechobee to be a beautiful body of clear water, with clearly defined shores, no lily pads or hyacinths, and, except in times of freshets, the water remains within its rim or banks, and can be lowered 6 feet and have ample water left for the purpose of navigation over the lake and quite near the shores. I would judge from the soundings made that the bottom and sides of the lake may be likened to those of a saucer; if the water was lowered from 3 to 6 feet, there would be a white sand beach around the lake. On the east side of the lake, after passing over a narrow rim of sand beach, which was about 2 feet above water, one would enter a swamp of cypress, gum, and other woods, with some palmetto trees which follow the shore line of the lake to about the center of the north end; then some pine land and oak hammock is visible, with a few houses occupied by fishermen.

From where the Kissimmee River enters the lake, there is a wide expanse of muck and saw grass, extending to the north and west for 8 to 10 miles; on the west side the pine land approaches the lake to where low prairies from the lake shore come down to where the Caloosahatchee River enters it, where a broad expanse of saw grass again commences, and except for a sparse fringe of custard apple and cypress trees, continues around the entire south and southeast sides of the lake. After passing through this fringe of custard apple and cypress trees, by the way of the Rita River Canal south, a vast sea, as it were, of saw grass comes into view, which extends as far as the eye can reach in every direction, with a few inches of water over the mud, upon which the saw grass grows. The saw grass extends in a southerly direction 100 miles or more, and is from 40 to 65 miles wide, interspersed by a few small wooded islands.

The acreage that will be affected by the drainage or lowering of Lake Okeechobee will aggregate more than 6,000,000 acres. That one may more easily comprehend the vastness of 6,000,000 acres of land, I will say that it is more than six times as great as is the entire cultivated acreage of Florida, including gardens as well as farms. Of the 6,000,000 acres nearly if not quite 3,000,000 acres of it is covered only with grass, most of it saw grass, no trees or bushes. Once in a decade the water, on account of continuous rains, rises out of the bed of the Everglades and overflows a large part of the pine lands adjoining. Along the Caloosahatchee River, on the west, it is impracticable to cultivate the land above Fort Thompson, which is 16 miles or more in a direct line west from Lake Okeechobee. Orange groves that were 10 or 12 feet above the normal height of the water have been drowned out in this vicinity as far as La Belle.

Notable among the groves that were destroyed was the grove of Capt. Hendry, of La Belle, who for many years represented Lee County in the legislature, and 2 miles above his place the grove of Mr. George Hendry, his son, was covered by water, so I am informed, for a period of six weeks, almost entirely destroying his grove. * * *

The lowering of Lake Okeechobee, not exceeding 4 feet, would give protection from this overflow to these crops and groves. * * *

Considerable discussion has been had at different times as to the climatic effect upon the glades and adjacent lands if the same were drained. The fear has been expressed that the climate would be colder on removal of the vast body of water off the glades. This reasoning would probably be correct if the body of water in the glades

was not a very shallow and cold body, or if the large body of warm water in Lake Okeechobee was to be materially affected.

To lower Lake Okeechobee 6 feet, the maximum amount contemplated, would leave a body of warm water averaging 12 feet deep over an area of 1,000 square miles. This lowering of Lake Okeechobee would remove the shallow, cold water off the glades, leaving a dry, warm soil radiating heat which now absorbs heat from the warm airs off Lake Okeechobee.

While a large body of deep water to the northwest is certainly a protection from cold in Florida, a marsh or shallow body of water on the northwest is a menace. This has been so frequently illustrated that argument is unnecessary.

The drainage of the glades would certainly not increase the danger of frost; on the contrary, it would have the opposite effect. This position I believe will be sustained by all scientific as well as practical men familiar with the conditions.

The Trustees have already conveyed 1,652,711.80 acres of these valuable lands to the Disston drainage project, for which was cut about 80 miles of canals, about Kissimmee and into Lake Okeechobee, the greater part of which would be made available by a canal from Lake Okeechobee to the St. Lucie River lowering Lake Okeechobee.

You will perceive, by referring to the report of Col. Kreamer, quoted below, that he expected to make all the canals of the Disston Co. available by completing the Rita River Canal, as outlined in the said report.

By digging 22 miles into the St. Lucie a navigable canal, which can be quickly done, then by digging 10 miles from Tomoka River into Haw Creek, which empties into Dunns Lake, which empties into St. Johns River above Palatka, or by digging from the head of North River into Julington Creek, a distance of 8 or 10 miles, we can open for transportation and connect through St. Johns River with North and Matanzas Rivers, with the Halifax and Indian Rivers, St. Lucie River with Lake Okeechobee, which has a coast line of 130 miles, and 309 miles of the Kissimmee and Caloosahatchee Rivers, and into the Gulf of Mexico at Fort Myers. Thus by digging 30 miles of canal we will prevent Okeechobee overflowing its banks, and at once make "lowlands" instead of "overflowed lands" of the Everglades, and connect by this 30 miles of cutting all of the above waterways, which would become by this means a waterway across the State from Fort Myers to Indian River, and would also connect Indian River with the St. Johns River, so that freight steamers from Jacksonville and Indian River, as well as steamers from the Gulf of Mexico via Fort Myers and Caloosahatchee River, and also steamers from Kissimmee via Kissimmee River, could all pass through Lake Okeechobee and do business throughout the 740 miles of inland waterways that would by this 30 miles of cutting be connected together. The remainder of the work would be merely the digging of ditches or small canals, which would be done at a little cost per mile, and as to cost of digging I refer you to the report herein made by Col. Kreamer and printed herewith.

The report of Col. James M. Kreamer, chief engineer of the Okeechobee Drainage Co., made in 1886, says:

The surface of this soil is at times exposed, and it is only during or subsequent to a heavy rainy season that it is possible to penetrate with a light skiff, and then advantage

must be taken of the natural drains of the vast area. If there was any absence of the dense saw grass, no difficulty would be experienced in traversing the country in any direction. A 4-foot reduction of the surface of the waters of this region would be sufficient for cultivation. The surface of the lower glades is well elevated above tide level, but, due to the rim of outcropping lime rock extending along the Gulf and Atlantic borders, the waters are in a great measure impounded and retained at varying elevations above the tide. Levels and measurements taken at Lake Worth establish the surface of the fresh water of the Everglades to be 10½ feet above the tidewater of the Atlantic, and that a canal 1,100 feet long would be entirely feasible to cut the rim at frequent intervals and permit the impounded waters to flow into the Gulf or Atlantic. This would result in exposing great tracts of soil now practically valueless.

REPORT ON MAIN DRAINAGE CANAL FOR LAKE OKEECHOBEE.

Agreeably to the request of the executive committee of the Disston Land Co. of Florida, I herewith present a brief report covering the question of supplementing the partial drainage of Lake Okeechobee effected by the A. & G. C. C. & O. L. Co., by constructing a large canal or canals which it is believed will afford positive drainage for the lands bordering Okeechobee Lake, and thus render the said lands cultivatable and thereby give a specific value to the muck lands of the Disston Land Co. in that vicinity, which said lands are at present in a condition unfit for tillage and without value for agricultural purposes.

As chief engineer of the A. & G. C. C. & O. L. Co., I have frequently recommended the construction of drainage canals throughout the district controlled by the operations of the drainage company, which canals would, if completed, have afforded relief for a very large percentage of the marsh lands, and effectually reclaim, at a moderate expense, all of these rich lands which could be brought into successful cultivation.

In this connection it was urged that a proper system of drainage be given the lands adjacent Lake Okeechobee.

In recognition of these recommendations three small canals leading from Lake Okeechobee have been constructed, two of which connect with Lake Hicpochee and thence by a canal of cross section equal to the combined area of the two canals noted, the drainage is carried into the upper Caloosahatchee River at Fort Thompson. The third canal is partly completed, and is cut from the southern margin of Lake Okeechobee, beginning at a favorable point on Rita River, and penetrates in a due southerly line for a distance of 10.5 miles and empties into the western margin of the Everglades, this drainage reaching the Gulf via Harney and Shark Rivers.

Due to the fact that before the completion of the canal on the southern route the A. & G. C. C. & O. L. Co. completed its contract with the State of Florida, it was not deemed expedient by the drainage company to still further prosecute the work of drainage in the Okeechobee Basin, and as a consequence, the great area of rich land in that vicinity is at present in a state unfit for cultivation. Exhaustive surveys have been made to determine the most practicable, efficient, and, in cost of construction, economical route for a large drainage canal for the permanent lowering of Lake Okeechobee.

Lines of drainage to the St. Lucie River, Lake Worth, New River, Miami River, and the Bow Legs Landing route, via the western margin of the Everglades, have been carefully considered.

Further drainage through the Caloosahatchee River is barred from the fact that the capacity of the upper Caloosahatchee River at Fort Thompson is fully taxed at present to carry the water reaching that point via the drainage canals already constructed; and the residents of that region are petitioning the internal improvement board to provide relief during and subsequent to the rainy season by closing the canal at a point just west of Lake Hicpochee.

The presence of the sand and lime-rock rim extending for many miles from the Atlantic coast toward Lake Okeechobee renders the cutting of a drainage canal on any of the lines named east from Lake Okeechobee very costly. In addition to the presence of difficult material in excavation, the lines from Lake Okeechobee to Lake Worth, New River, and Miami River are respectively 10, 28, and 32 miles longer than the route south from Rita River via Bow Legs Landing route.

This last-named route is 24 miles long, the New River route being 52 miles long.

In 1883 Col. C. F. Hopkins, deputy United States surveyor, was engaged by the drainage company to accompany the New Orleans Times-Democrat expedition on a reconnoissance from the south shore of Lake Okeechobee, in a line due south through the Everglades to a point about opposite the north end of the Ten Thousand Islands, and thence in a southwesterly direction to the headwaters of the Shark or Harney Rivers.

In addition to other instructions, Col. Hopkins was directed to carefully note the depth of muck on the line of travel.

In his report he clearly states that he made daily soundings, and no rock or sand was encountered at any point on the line of travel at a depth of 10 feet below the surface until the party reached a distance of 30 miles south of Lake Okeechobee, when rock was found at a depth of 8½ feet below the surface of the muck, which showed that the surface of the underlying rock at that point was practically at tide level.

During the year 1887, a line of levels was run southward from Lakes Hicpochee and Okeechobee on the western margin of the Everglades to ascertain the possibility of securing a feasible route for drainage in that direction. It was found that on the margin of the marsh in the north range of sections in township 48 south of range 34 east, the elevation of the muck was 12.76 feet below the surface of Lake Okeechobee, and distant therefrom 24 miles; the level of Lake Okeechobee being 22 feet above tide level.

A careful study of this problem clearly demonstrates that the Bow Legs Landing route is the shortest possible distance in which effective drainage can be secured, that the material for excavation is entirely of pure muck, that the effective discharge of this canal would be greater than of a canal of like cross section on any other route named, and that the cost of construction of the canal on the Bow Legs Landing route will be 60 per cent less than the New River route under the most favored conditions.

The canal proper already completed south from Rita River is 50 feet wide and 10½ miles long.

Including labor, fuel, repairs, and all extraordinary charges due to breakdowns, etc., the present canal cost an average of 1.6 cents per cubic yard. This does not include cost of dredges or general superintendence.

The Bow Legs route for the same cross section of canal will discharge from 10 to 30 per cent more water than either of the other routes named.

It is proposed on the lines of the Bow Legs Landing route to construct a canal 150 feet wide and 10 feet deep at Lake Okeechobee and 6 feet deep at its terminus, 24 miles distant, and having a gradual gradient on its bed.

The canals from Lake Okeechobee to Lake Hicpochee and from Lake Hicpochee to Sugar Barry Hammock have been in successful use since 1883. They were constructed through precisely the same grade of material as is found on the Bow Legs Landing route. These canals already constructed have not only at all times remained free and open and clear of all deposits, but they have by scour enlarged in cross section both in width and depth. They were originally cut 5½ feet deep; they have scoured to the bedrock, and in many places are 11 feet deep. They have also become wider, due to the erosive action of the current.

A stream running with the velocity of one-third of a mile per hour will transport soft clay.

A velocity of a half mile an hour will carry sand as large as linseed.

A velocity of two-thirds of a mile an hour will sweep along fine gravel, and a mile and a half an hour will roll along round pebbles.

Disintegrated muck is much more easily transported than clay or sand.

There has never been any muck deposit formed within the canals leading from Lake Okeechobee.

The initial current through the Bow Legs Canal will be at a rate of 1.876 miles per hour, which is sufficient to roll along large pebbles and will sweep every vestige of muck from within the confines of the canal margin.

The efficiency of the canal west from Okeechobee indicates that a canal cut on the same general lines will be equally effective.

It is proposed, therefore, to construct the canal on the Bow Legs Landing route on the same plan as adopted at Okeechobee and Hicpochee Canals.

The Bow Legs Canal will have a cross section 150 feet wide at the narrowest point and be 10 feet deep at Okeechobee Lake and 6 feet deep at its terminus, 24 miles distant. Or it may be deemed desirable to construct two or more parallel canals whose combined cross section would equal that of the main canal just proposed. At least two powerful excavators should be used on the work.

In view of the increased distance for transporting fuel, and other possible contingencies, I set the extreme cost of excavation at 2 cents per cubic yard. A canal 150 feet wide by 8 feet deep and 24 miles long would represent 5,631,858 cubic yards; at 2 cents per cubic yard the cost will be $112,637. Deducting the cost of canal already constructed, $12,101, the completed Bow Legs Landing route would cost $100,536. To this should be added the cost of two dredges and barges and necessary outfit, which, in round numbers, would amount to $50,000 additional.

The above information is compiled from reliable and specific data, and clearly shows that of all possible routes for a canal to permanently lower the waters of Lake Okeechobee, and render the adjacent muck land cultivatable, that for the length of canal to be built, favorable material in excavation, economy of construction, and effectiveness of drainage, the Bow Legs Landing route is preferable to any other which could possibly be selected.

The accompanying map shows the location of the several canals named: Canal to St. Lucie River is marked "No. 1"; canal to Lake Worth is marked "No. 2"; canal to New River is marked "No. 3"; canal to Miami River is marked "No. 4"; canal to Bow Legs Landing route is marked "No. 5".

I also submit for your inspection a profile of the New River and Bow Legs Landing route which clearly shows the advantage claimed for the Bow Legs Landing route for the drainage of Lake Okeechobee.

Yours, respectfully,

J. H. KREAMER,
Chief Engineer A. & G. C. C. & O. L. Co.

AUGUST, 1896.

The fact that we would have open waterways in three directions from Lake Okeechobee large enough for transportation purposes, connecting with three lines of railroads, at Fort Myers, Kissimmee, and Stuart, will aid in making the land reclaimed valuable at once. For the production of sugar, there is no other such available and desirable land in the United States. There is consumed annually in the United States, 2,844,626 tons of sugar, of which there is produced in the United States of beet sugar, 163,126 tons; of sugar-cane sugar, 275,000 tons, which shows that there is imported, upon which a tariff is paid, 2,406,500 tons, which, at 5 cents per pound, is worth $240,000,000. The adaptability of the Everglades, when drained, for the growth of sugar cane, as to climatic condition, soil, and productiveness, is well shown by the following extract from a paper read at the Cane Growers' Convention, at Jacksonville, May 6, by W. L. Van Duzor; and also by the extracts from Success, contributed by James E. Ingraham, vice president of the Florida East Coast Railroad Co., and also a report by Prof. H. W. Wiley, Chief Chemist, United States Agricultural Department.

HEALTHFUL REGION.

The healthfulness of a region is of the utmost importance to any enterprise, and especially is this true when the operatives must become permanent residents. It can be positively stated that the reclaimed lands of the Kissimmee Valley are free from malaria. The employees of the drainage company were white men exclusively. These men were recruited from all parts of the country. Many of them entered into the service of the company before they became acclimated. During a period of over 11 years, the company never employed a physician or lost an employee from death, never did any of the men leave the service of the company from the fact they could not stand the climate.

Malaria and chills are absolutely unknown.

Within a radius of 20 miles of Kissimmee is an area of at least 30,000 acres of excellent sugar lands, in tracts of from 500 to 2,000 acres, which possesses every requisite in points of elevation, components of soil, and the natural facilities with which they can be put in cultivation. These rich sugar lands are admirably located, a greater part of them bordering on the beautiful lakes of that region, extending from Lake Hart to Lake Kissimmee, thus affording pleasant farm and plantation sites, insuring an abundance of water for irrigation when necessary, and an elevation of about 75 feet above tidewater. It has also sufficient natural grade, by which easy subdrainage is afforded.

The following analysis of muck will be found interesting to those familiar with the subject of sugar culture:

Moisture	16.84	Potash	0.13
Organic matter and combined water	75.65	Soda	.38
Silica and insoluble silicates	.91	Phosphoric acid	.18
Oxide of iron	1.47	Sulphuric acid	.51
Lime	3.17	Chlorine	.43
Magnesia	.18	Nitrogen (in organic matter)	2.17

The chemical analysis has been substantiated by practical experience. Muck lands have been found to be suitable to a great variety of crops, especially sugar cane.

CAPT. ROSE'S WORK.

Capt. R. E. Rose, who is now chemist of Florida, was superintendent of the drainage company's operations the first few years of its operations. In the fall of 1889 he planted the first sugar cane planted on reclaimed muck land in Florida, at South Port, which is located at the south end of Lake Tohopekaliga, 12 miles south of Kissimmee. The land planted had been permanently inundated up to February of the same year. Capt. Clay Johnson had charge of this farm.

The sugar cane grown at South Port was exhibited at the New Orleans Cotton Centennial during February and March, 1885, taking first premium over Cuba, Louisiana, and Mexico. A delegation of Louisiana sugar cane planters visited South Port in March, 1885. They brought with them Dr. Sands, an expert sugar chemist, who reported 65 tons of sugar cane per acre, with 17 per cent sucrose and but one-half per cent glucose.

YIELD TESTED.

Capt. Rose ground this crop in April and May, 1885. South Port farm is still producing enormous crops of vegetables, and about 15 acres are devoted to sugar cane.

In March, 1902, I personally tested the yield of cane on this farm, by measuring the land, cutting and topping the cane as it would go to the mill, and by actually weighing it found the yield to be over 63 tons to the acre. The samples of cane taken at the same time and tested by the Agricultural Department at Washington showed 12 to 13 per cent sucrose, which Prof. H. W. Wiley stated would yield 200 pounds of sugar to the ton of cane, or 12,600 pounds to the acre. This marvelous yield, after a continuous cropping of 20 years without 1 pound of fertilizer of any description. This farm is also growing 50 bushels of choice corn to the acre, and one of the thriftiest young orange groves in the State is growing on a portion of this farm, bearing heavy crops of choice fruit.

In 1885 Capt. Rose purchased the tract of muck which afterwards became the great St. Cloud sugar plantation.

In 1886 and 1887, 110 acres of cane was ground, making an average of 4,800 pounds of granulated sugar per acre, with a very inferior mill. Soon afterwards Capt. Rose disposed of his interest to Mr. Hamilton Disston. The mill was rebuilt and a first-class roller process mill was installed. From the crop of 1888 and 1889, 374 acres of cane was ground, making 1,200,000 pounds of granulated

sugar and 200,000 pounds of second sugars. This plantation continued to produce good crops of cane each year after until the death of Hamilton Disston, when operations ceased, and muck lands and the sugar interests in Florida lost their greatest friend and champion. His faith in the great value of this fertile soil never wavered.

My knowledge of muck lands and their adaptability for growing various crops comes from association with the drainage company as its superintendent from 1889 until the completion of its contract in 1893 and the sale of its land and by the actual cultivation of muck for the last 12 years.[1]

Many others attest to the fertility and productiveness of muck lands who are much better known to the agricultural world than myself.

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Messrs. Aug. Voelcker & Sons, agricultural chemists of London, refer to the high percentage of vegetable and nitrogenous matter and character of the new lands.

Prof. D. Tackle, director of the Peat Experiment Station, Bremen, submits a careful analysis of the soil. Dr. Tackle says:

In respect to contents of potash, phosphoric acid, and lime, the samples of soil from Florida are quite similar to those from northwestern Germany, overgrown with heather. It is distinguished, however, with a much higher content of nitrogen and by a much more perfect decomposition. Very likely the nitrogen is contained in a form more available to plant growth than in northwestern Germany peat lands. Undoubtedly the soil, as represented by the samples, will become very productive.

APPROVED BY MR. SPRECKELS.

Mr. Claus Spreckels, probably the greatest authority on sugar production in the world, pays a high compliment to the richness and value of muck lands for the production of sugar. He says:

PHILADELPHIA, PA., *March 22, 1890.*

DEAR SIR: In answer to yours of the 20th instant, in which you ask my opinion regarding Florida as a sugar-producing State, I take pleasure in saying that, during my recent trip to inspect your sugar operations, my surprise was great at finding such a country for the growth 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.

I congratulate you upon the bright prospect for the future of the sugar business in the State of Florida.

Yours, truly,

CLAUS SPRECKELS.

MR. HAMILTON DISSTON.

THE DRAINING OF THE EVERGLADES.

Mr. J. E. Ingraham, in Success, says:

There are great agricultural possibilities in the Florida Everglades. Though they are yet merely an expansive waste of swamp and lake and jungle, I venture to predict that they will be the location of hundreds of fertile farms within 10 years, and will by degrees develop into one of the most productive tracts of land in the world. The barrier to the utilization of the Everglades has been, of course, the water which covers the greatest part of them to a depth of from 1 to 6 feet. But it has been found entirely practicable to drain off the water. Work to this end has already been begun, and is being pushed rapidly. When it is completed, a tract of land 160 miles long and 60

[1] Evidently a quotation from Capt. R. E. Rose.

[2] Prof. Wiley's views, which are here omitted from Gov. Broward's message, are to be found on pages 73, 81, and 83 of this document.

wide will have been opened to civilization. The size of this region is not as important as the remarkable productivity of the soil. The latter is not only absolutely virgin, but has been fertilized by animal and vegetable life through many centuries. I am confident that its crops will lift Florida to a place among the leading agricultural States.

The project of draining the Everglades attracted the attention of Henry B. Plant in the early nineties, but he was by no means sure that the scheme was feasible; so I, acting under his direction, undertook an expedition through the region. Despite its proximity to centers of population, it was then for the first time thoroughly explored by white men. Ours was virtually a voyage of discovery. We paddled our light boats on lakes, and camped on islands, that I have good reason to believe had never before been visited by any human beings but Seminole Indians, and by these rarely. We underwent so many hardships that some of our party were compelled to turn back, but our efforts were not in vain, for we ascertained the important fact that the Everglades, along the whole 160 miles of the eastern side, are rimmed by a rock ledge. We furthermore learned that all of the lakes are several feet above sea level, and we decided that there was nothing whatever to prevent the water of the lakes from flowing into the ocean and leaving the land drained, if vents could be made in this long ledge of rock. The chief question before us pertained to the practicability of cutting through the ledge in various places, and dredging out outlets into the Atlantic, which is not more than 2 or 3 miles away at numerous points.

Experiment proved that this work would present no great difficulties. It was merely a matter of a great deal of digging. Henry M. Flagler took up the project, and it is being carried out by his lieutenants. We are not only making artificial outlets through the rock, but are also, by ditching and dredging, turning large bodies of water into rivers and creeks which flow to the ocean. The work has progressed far enough to enable me to predict confidently the opening in Florida, within a very few years, of a great tract of land of almost unprecedented fertility.

I have been in correspondence with the largest builders of dredges adapted for the work necessary to be done in the drainage of the region around Lake Okeechobee, and find that, with the use of 4 dredges, efficiently equipped, the cut 200 feet wide and 15 feet deep from Lake Okeechobee to St. Lucie River, a distance of 24 miles, can be cut in 18 months, at a cost of approximately $250,000, basing the cost at the figures made in the report of Col. J. M. Kreamer, previously cited, and upon a personal knowledge of the character and quantity of work to be done, and these dredges could be at work in 6 months after being contracted for.

By the opening of this canal, as suggested, and further deepening the waterways connected with the Caloosahatchee River, a continuous waterway for freight traffic would be opened up from Fort Myers on the west, to the Indian River on the east, and, upon the completion of the Florida East Coast Canal, direct to Jacksonville, where connection with steamship lines to northern ports could be had.

This canal, by lowering the water of Lake Okeechobee not more than 3 or 4 feet, to be controlled by proper locks, would drain a vast acreage of the most fertile land in the world, opening up to cultivation in the territory immediately surrounding Lake Okeechobee a larger acreage of cultivable land than is now under cultivation in the whole State of Florida; and with the drainage extended through the Everglades to the south, ultimately about 6,000,000 acres of the finest land in the country would be rendered cultivable—an area capable of producing the entire tonnage of cane sugar used in this country, a crop which alone would be of untold value to the State.

The vital importance of the questions and the best interests involved, together with the array of legal talent employed by the railroad and canal companies, claimants, under the alleged land grants against the Trustees, made it necessary that the Trustees em-

ploy able counsel to represent the great trusts imposed upon them, and they have employed Col. R. W. Williams, of Tallahassee; Messrs. Bryan & Bryan and Hon. W. S. Jennings, of Jacksonville; and Hon. W. B. Farley, of Marianna.

I became firmly convinced many months ago that the lands belong to the Internal Improvement Fund for the purposes of drainage and reclamation, and have so publicly expressed these views throughout the State of Florida. Upon more thorough investigation, having been more fully advised and having assumed the responsibility of the trusteeship, I am more and more impressed with the correctness of my former views, and I am more fully determined to exert every proper effort to discharge the duties devolving upon me, in part, as trustee, and solely as governor, to the end that the remainder of this fund now available may be used for the purposes and trusts expressed in the laws heretofore referred to. It can not be said that the Trustees have, in the past, recognized the right of the railroads, under legislative land grants, as being superior to the duties of the Trustees to drain, when drainage contracts to convey the title to large areas of the land have, from time to time, been made by the Trustees since the grants were made to the railroads and claimed to have been earned by them.

In 1898, when the railroads were claiming more lands than had been patented, and when the governor, then one of the Trustees, had been a Trustee from 1881 to 1885 as governor, and from 1890 to 1897 Trustee as comptroller, and from 1897 Trustee as governor, and when the attorney general and the commissioner of agriculture, two of the Trustees, had been such since 1889, and when the regularly retained legal adviser of the Trustees was one of the Trustees from 1877 to 1885, during which period nearly all of the land grants were made and claimed to have been earned, contract for drainage was made by the Trustees which provided for a conveyance of about 800,000 acres of land then claimed by the railroads as having been granted to and earned by them (p. 437, Minutes of the Trustees, 1898) the validity of that contract was never seriously questioned.

The acts of the Trustees in the past are not inconsistent with the recognition of their primary duties to carry out the trusts, as expressed in the internal-improvement act, to drain and reclaim the swamp and overflowed lands in this State, as therein provided for. There being an estimated area of 6,000,000 acres of swamp and overflowed lands unfit for cultivation and available in the territory of the Kissimmee Valley, Lake Okeechobee, and the Everglades—3,000,000 acres of which territory have heretofore been deeded by the Trustees of the Internal Improvement Fund to the various railroad and canal corporations, which 3,000,000 acres would be greatly benefited by the successful drainage and reclamation of the 3,000,000 acres now vested in the Trustees and under their control and management, it has become necessary, in considering the plan of drainage and reclamation of the Everglades, to consider the benefits of this adjacent territory; and it is found that a constitutional amendment is necessary to enable the Trustees to require a proper contribution on the part of the owners of the lands heretofore deeded in proportion to benefits that the land will derive by means of such drainage and reclamation. I therefore recommend that a constitutional amendment be proposed, creating a drainage district, embracing the Everglades and the adja-