Governor Broward

AND THE DETAILS OF DREDGING: 1908

by Joe Knetsch

Few individuals have aroused the curiosity and interest of Floridians more than Governor Napoleon Bonaparte Broward. Not only has one of the state's most prosperous counties been named after him, but countless articles and books published in the eighty years since his term of office ended have referred to, analyzed, and commented upon both his dynamic personality and his progressive legislation. In recent years, however, the formerly favorable press has frequently turned to criticizing Broward and his generation of state officials for befouling the Everglades and ruining the natural environment of southern Florida. This historical criticism stems from concerns over modern problems of ever-increasing population growth and all that this phenomenon entails. In a number of recent accounts, the present problems of water supply, water quality, and living space have all been traced to Governor Broward and laid upon his historical doorstep. This unfair heaping of blame, disregarding the context of the time in which the Governor lived, serves as an example of the normal human foible of pointing the finger for current problems at someone else, preferably someone dead. Because of Broward’s involvement with the drainage movement, he has become a convenient target for opportunistic critics of both former and current state policies.

That Napoleon B. Broward became deeply involved with the drainage of the Everglades comes as no surprise. Coming from an old and established Florida family whose wealth had been destroyed by the War Between the States, he had to work his way upward in the changing world of the late nineteenth century. His wide variety of work experiences laid the groundwork for his championing of the drainage cause. In his campaign autobiography (reprinted in Broward Legacy, volume 5, numbers 1 & 2, winter/spring 1982), Broward listed a number of his experiences and indicated the general direction of his life and philosophy. Of interest to the drainage story were the years he spent in shipping, in designing and building the famous tug Three Friends, and his interest in mining phosphate on Black Creek and on the Itchetucknee River. Of related importance was the time he spent on St. Johns River steamboats and in the marine wrecking business. All of these experiences gave Broward knowledge of the engineering problems associated with mining, dredging, and canal construction. It was this practical experience which caused his colleagues on the Board of Trustees of the Internal Improvement Trust Fund (called simply “Trustees” throughout the remainder of this article) to give him nearly total control of its drainage.

A man of boundless energy and determination, Napoleon Bonaparte Broward took a personal interest in the “nuts and bolts” of virtually every project in which he became involved. Everglades drainage was no exception. Although Broward had promoted drainage with the simplistic slogan, “Water will run downhill,” he nonetheless recognized that complex engineering difficulties would have to be overcome to translate this gravitational concept to reality, and he plunged into this task with characteristic vigor.

Using Broward’s correspondence, the Minutes of the Trustees of the Internal Improvement Fund, and other government documents, Joe Knetsch describes the Governor’s personal direction of the drainage project during his last year in office. During this exceptionally busy year, Broward oversaw completion of the Newman Survey of New River Canal routes, maintained close supervision of ongoing dredging efforts, and contracted for the construction of two additional dredges. Unlike the two initial dredges, which were assembled at New River in 1906, these new machines were to be constructed in Ohio, mounted on hulls at Tampa, and transported to the dredging site ready for use, an intricate procedure which occupied much of Broward’s attention.

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policy, especially in the ordering and construction of the state-owned dredges.8

One of the major reasons for the drainage of the Everglades was to prepare the soil for the planting of sugar and rice. Both of these crops had been experimented with under similar circumstances in Louisiana and had been found susceptible to production on land similar to the Everglades. Both of these plants also had to be grown on “thoroughly drained land.” As drainage efforts began in the Everglades, the area near Fort Lauderdale was targeted for further experiments in the growth of these two crops. On January 27, 1908, Governor Broward received an evaluation from State Chemist R. E. Rose of several experiments with “Damarana No. 74 sugar cane” which had been conducted by Dr. W. C. Stubbs of the Louisiana Sugar Experiment Station. Rose thought that this cane should be planted in the Everglades and therefore sent 550 stalks, or 1,325 pounds, of cane seedling to Reed A. Bryan, the man in charge of dredging operations at Fort Lauderdale.9 Broward, being personally involved in almost all facets of the drainage program, visited Bryan in the last week in January and, it was presumed, discussed this shipment of cane and the prospects of further experimentation with his foreman. Yet, with all of the hoped-for benes of increased crop production still in the future, the immediate purpose of the Governor’s trip was not specific crop experiments but the continued dredging operation that would make them possible.

In 1908, the dredging operations had carried themselves into the glades west of Fort Lauderdale. By the end of the year, prior to Governor Albert W. Gilchrist’s being sworn into office, the total length of canal dredged was 6.25 miles on the North New River Canal and 6.7 miles on the South New River Canal. Although this may not appear to have been great progress, the amount of material excavated was considerable. On the North New River Canal, 915,000 cubic yards of muck and rock had been removed, while 795,000 cubic yards had been dredged from the South New River Canal.8 These totals represented the amount done during the entire governorship of Napoleon B. Broward. They were not insignificant totals for the beginning of a tremendous project which everyone knew would take many years to complete.

As a former steamboat pilot, phosphate miner, and shipbuilder, Broward was capable of actually operating a dredge. He knew from his experiences the problems that would be encountered and how some of these could be handled. Thus he was not uncomfortable with his role as chief negotiator with the dredge builders and the designers of the dredges’ hulls. In late 1907, he had visited the dredges Everglades and Okeechobee, then operating on New River, and discussed future operations with John W. Newman, the civil engineer in charge of mapping and testing the proposed routes for the canals.6 It was probably at this meeting that he concluded that two more dredges were needed to continue the work. Broward also consulted with the Bureau of Drainage Investigations in Washington, D.C., concerning the need for additional equipment.7 It was not until July 1908, however, that he could concentrate on the construction of the two new dredges.

The reason for his delay in pushing for dredge construction had little to do with technical difficulties. Instead, Broward was in the midst of a monumental political struggle which occupied most of his attention and energies. The office of United States Senator had been in the hands of Stephen R. Mallory, who, in late 1907, decided not to seek reelection. On December 23, 1907, shortly after making the announcement that he would not run, Mallory died in Pensacola. Governor Broward then appointed William James Bryan, an old friend and his campaign manager, to fill the unexpired term. With his election looming on the horizon, Broward, who had been considered a prime candidate for the post himself, chose not to oppose his appointee. The already tangled situation became more complex when, just forty days after taking the oath of office, William James Bryan died of typhoid fever. This time, Broward appointed William Hall Milton of Marianna to fill the vacancy. Speculation soon followed that Milton, known to be without a strong powerbase in the state, would step aside and allow Broward to seek the seat in the upcoming primaries. Broward did not disappoint his critics or his friends and announced his candidacy for the senate seat on April 1, 1908. His main opponent was Duncan Upshaw Fletcher, a fellow Jacksonville resident and former ally. In the primary election of May, Broward captured over 19,000 votes and Fletcher over 17,000 ballots. The other two candidates, John S. Beard and William B. Lamar, carried enough votes between them to force a run-off election between the two frontrunners. With much of the “railroad press” and other powerful interests against him, Broward faced a difficult battle. The final vote was close, and the issue remained in doubt until the early hours of the morning after the election. The results put Fletcher into the seat by a 29,151 to 25,563 margin.9 Thus, until this election was over, Broward had little time to push for the construction of new dredges.

The election should not be, and was not, viewed as a criticism of Broward’s drainage program. In the first decade of the twentieth century, nearly everyone in the state looked forward to the day when the Everglades would be drained and the land opened up to farming. Broward’s program had advocated allowing the small farmers a chance to enjoy the fruits of this rich land. In this goal he was opposed by the powerful land and railroad companies which had received large grants of land as incentives for drainage and railroad construction. These firms were, mostly, the same companies who

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Governor Napoleon Bonaparte Broward.

Duncan U. Fletcher, United States Senator from Florida, 1909-1936.
John W. Newman's 1908 survey map showing the North New River and South New River Canal routes and adjacent Everglades lands in Broward County. Note Pine Island in the upper left hand portion of the map in Sections 17, 18, 19, and 20.

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The Tampa Foundry and Machine Company works, where the hulls of the dredges Miami and Caloosahatchee were constructed.

had filed suit against the Trustees to void the drainage tax of 1907. The other vocal opponents of Broward's drainage program, especially John Beard, did not oppose drainage as such, but feared that the probable loss, in court, of cases against the railroads and others would turn over to those interests all of the improvements made at taxpayers' expense.9 Thus, while certain specifics of Broward's program encountered opposition, the actual drainage ideal was supported by a vast majority of Floridians.

Dredging and draining the land, however, was not a simple operation of putting a dredge in the middle of the glades and digging a canal to the ocean. The engineering involved was, in reality, quite complicated. First, a survey had to ascertain the proper route(s) for a canal, primarily by means of soil testing, boring for samples, and measuring the shortest possible distance through the most easily excavated material. The gentleman responsible for this phase of the operation on the New River routes was John W. Newman. Newman's survey, recognized as one of the most important in Broward County's history, found the routes for the two major New River canals and formed the basis for land sales along those routes which, in turn, were to help finance the dredging operations.

After surveys were completed, state officials had to select the proper size and type of dredges and order their construction. On some projects, different types of dredges were used at different phases of construction. During Broward's era, four types of dredging machines were being used extensively. These types were the ladder dredge, which was very popular in Europe but not in North America, and the dipper, grapple, and hydraulic dredges. Each one had its advantages and disadvantages, depending on the type of soil, rock, or muck which had to be removed. Once the type had been chosen, the size of the bucket, grapple, or pipe was the primary concern. This selecting process depended on the depth, width, and slope of the canal desired. Indeed, the variables to be considered were many, and each added a complication for the engineer and person in charge of ordering the dredges, in this case, Governor Broward.10

After studying several alternatives, Broward elected to use dipper dredges similar to the Everglades and Okeechobee, which had begun work in the glades two years earlier. The next phase was the actual ordering of equipment and overseeing the dredges' construction. Again, the Governor was kept constantly informed on the progress of construction of both the dredging machinery and the hull upon which it would be placed. In this case, the accepted bid for dredge construction came from the Marion Steam Shovel Company of Marion, Ohio, and the hull was to be constructed by the Tampa Foundry and Machine Company of Tampa, Florida. To Governor Broward fell the duty of coordinating two very different efforts over a long distance, an often frustrating task.

As early as March 1908, prior to announcing his candidacy for the United States Senate seat, Broward had inquired of the Tampa Foundry and Machine Company the costs of building a dredge hull and launching it in the Tampa area.11 By early July, after the election, he gave almost full attention to getting the two additional dredges constructed and was in almost constant correspondence with the foundry. It appears that Broward was not sure, at first, what size dredge he would recommend to the Trustees and

Letterhead of the Marion Steam Shovel Company, which constructed the state dredges in 1908.
thus sought a number of options from the Tampa firm. On August 12, the Tampa Foundry and Machine Company informed the Governor that it could build a four cubic yard dipper dredge, "launched and tested at Tampa," for $36,000. By this date, it appears that the Governor had chosen the size of machine he felt would do the job and had asked for specifics prior to requesting an actual bid. However, a closer look at the Minutes of the Board of Trustees reveals that one week later, on August 17, 1908, the Governor, acting as president of the said board, was granted power to negotiate with the Tampa and Ohio firms for the two additional dredges, one of which would be a four and one-half cubic yard dredge and the other capable of modification for a two and one-half cubic yard dipper. The price of the contract with the Tampa Foundry and Machine Company was $22,000 per hull, a price substantially lower than the figure cited in earlier correspondence. Whether this change in price reflected a change in the size of the hull or simply hard bargaining on the part of the Trustees remains a matter of speculation unanswered by the available documents.

Why was the dipper type of dredge chosen over the ladder, grapple, or hydraulic? The basic answer to this question lay in the fact that the dipper was very efficient when digging in hard materials, especially when the required depth was not too great. This advantage was of great importance when digging in the glades adjacent to Pine Island because of the hard rock limestone found in that section. Indeed, it was of paramount importance to have a machine capable of handling this tough material because much of the most difficult canal construction took place in the coastal ridge of present-day Broward, Dade, and Palm Beach counties. The softer muck of the Everglades proper awaited only after the penetration of this barrier. In the hard rock of the coastal ridge, the ladder type of dredge would have broken down more often because of its continuous motion and the fact that its buckets were not designed for hard rock. Not only did a breakdown of machinery cost time and money in lost effort and repair work, but necessary repairs may not have been possible in the area being dredged. The grapple-type dredge, depending on a claw-like mechanism, could not penetrate deeply enough to get the necessary volume to complete the task. The last type of dredge, the hydraulic, was designed for soft material work in harbors, rivers, and relatively static water bodies, and was not built to tear into rock formations. Thus, Broward had, in reality, little practical choice in the type of dredge to choose for the job.

The dipper dredge of the early twentieth century relied upon two men for its basic operation, in addition to a usual crew of fireman, oiler, deckhands, and engineer. The operator, or runner, controlled the bucket hoist, backing chain, and boom motion, using a series of throttles to operate the backing, swinging, and friction engines. The cranesman, or "dipper tender" ran the dipper stick friction on the boom and opened and closed the bucket. The Governor then, from himself with such specifics as the size and diameter of the spuds (the "arms" which held the dredge in position while the digging took place and which were often seen extending to the banks of the canal). Such attention to detail indicates the extent to which Broward was involved in the construction process. Few office holders of his day could have managed this operation in the interest of the Trustees as Broward did.

Although these new dredges, to be named the Caloosahatchee and the Miami, were not to be completed until after Broward had left the Governor's Mansion, he continued to negotiate the details of their construction throughout the remainder of his term. He constantly kept a watchful eye on the contractors to assure quality dredges and to make sure they did not scrimp on the various parts. On October 12, 1908, Broward reminded E.D. Packard of the Marion Steam Shovel Company of the latter's promise to use "outside-packer, brassfitted, boiler feed pumps" for the two dredges, even though they would cost the company $75.00 more than other pumps used on similar dredges. The Governor expected that these specific pumps would be provided and that this contract be "reciprocated in character when the time comes." He added that he did not consider this a whimsical or unnecessary demand.

Broward also became involved with the intricate arrangements of obtaining marine insurance to cover the shipping of the dredges from Tampa to southeast Florida and dealing with increased shipping costs imposed by the railroads for conveying the dredges from Marion, Ohio, to Tampa. In all of these petty problems and major expenses, Governor Broward exhibited remarkable fortitude and tolerance.

The business of supplying the existing dredges, Everglades and Okeechobee with fuel, food, and repairs was among the many details of the dredging operation that captured the Governor's attention. This supply business proved very lucrative for many of the local operators in the lightly populated Fort Lauderdale area. P.N. Bryan

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Diagram of a dipper dredge, from the stationary of the dredge Okeechobee, constructed on New River in 1906.

and Sons often provided wood for the dredges and received handsome prices for this hard-to-come-by commodity. On February 24, 1908, the state authorized a payment of $1,794 to the firm, and on August 1, 1908, the Trustees paid the Bryans $938 for wood provided.21 From existing correspondence, it also appears that the state did not always get the money to the Bryan firm in an expeditious manner. September 12, 1908, finds Tom Bryan writing the Governor that his brother, Reed A. Bryan, had left him with the responsibility of paying several bills, but that he was unable to meet present obligations since the wood check had not yet arrived. The “clerk” for the Governor replied in a manner familiar to modern readers: “The governor directs me to acknowledge receipt of your favor of September 12th and to advise that the check for wood has gone forward.” (i.e. “The check is in the mail.”)22 Stranahan & Company also benefited from the dredging operations by supplying groceries for the dredge crew. For the same dates as those cited above, the Stranahan store received $1,026.20 for the former date and $507.04 for the latter.23

As Reed A. Bryan was the Trustees’ agent for the entire dredging operation, he frequently gave local businesses supply contracts or rental options. Because the area was thinly populated, and it was expensive to bring in meat, wood, gasoline, and other materials, it was more efficient to rely as much as possible on local suppliers and expertise. Repairs were often done on the site, and the welders, boatmen, and others involved were often carried to the job, rather than breaking down the entire operation for long distance repairs.24 The entire logistics of the normal dredging operation required as much rapid repair and local supply as possible for the project to be completed on schedule.

As if the problems discussed above were not enough to occupy the Governor’s attention, he was in frequent contact with the civil engineer, John W. Newman, who often asked for Broward’s advice on purely technical matters which would have frustrated others. At times, even the Governor’s patience was tried. On September 8, 1908, he wrote Newman:

As to your statement that the Okeechobee would be compelled to dig herself around, move much of the dirt twice, and that it would cost $600, I think it is unnecessary to state this to me. A dredge 105’ x 36’ cannot turn at right angles in a 60’ canal. It is not necessary that she turn abruptly at right angles to do what is necessary to be done. By beginning to dig gradually southward, 120 ft. from the Davie ditch, would permit her to swing sufficiently into it to do all that is necessary, and it would not cost more than $50 or $100 to take the sand on the side of the canal back thirty or forty feet for the length of the dredge by wheel-barrows.

Newman had tried to argue that the Davie ditch was not big enough to handle the material taken out by dredging, and that the water volume would cause too much damage. Broward repudiated Newman’s argument and added that, if excavated the way he outlined, the turning area would act as a reservoir to catch the sand as it silted down the canal. This, he believed, would aid the project by giving it a landing area for the transporting of goods up the canal and would keep dredging costs down, the alternative requiring the dredge to back down the canal and reexcavate the sand.25 It should also be recorded that Newman took the Governor’s advice, and all worked out well.26

Nature, too, had a way of attracting the attention of Governor Broward. In October of 1908, the rains fell heavily on the area around Fort Lauderdale. The heavy rains did considerable damage to some of the work already completed and necessitated extensive redredging. A clearer picture of the results of these rains can be seen in the following letter from Engineer Newman:

Dear Governor,

You have perhaps heard of the present tremendous rains.

I propose to give you an idea of them. I went to Fort Lauderdale yesterday to take note.

At high tide water surrounded Tom Bryan’s new stone house. All the land on New River is under water even at low tide.

On my return, in our lighter-launch I passed over dam No. 1 and met our small launch below Dam No. 2.

Dam No. 1 stands — but is submerged.

Dam No. 2 stands.

The water rose rapidly 3 feet in the glades in Sec. 16, and washed in the bank on the east side of Sec. 16. I have diked off

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the water at this point preventing further damage.
Lost 3 days from digging.
Begin to dig tomorrow ...

This letter concluded with Newman's hope that some of the lands could still be given protection, but did not hold out great hopes for all of the land being spared the problems of being submerged for extended periods.27 As further evidence of the devastation caused by the flood of 1908, Charles Pratt, a local surveyor and engineer, wrote the Governor on October 19, and noted the water flowing "in steady streams" into the river from the surrounding fields. He also stated that at the Bryan Packing House on the river in Section 20, the water had fallen by as much as thirty to thirty-six inches from the extreme high water of October 8.28

Land sales, a high priority item in the drainage project, also received abundant notice from the Governor. Commissioner of Agriculture B.E. McLin kept Broward informed about all land sales in the drained area around the canals. He noted, for example, that James Cordner had purchased numerous lots in the Newman Survey area. McLin also notified the Governor about the squatting taking place in the vicinity, particularly by one Charles Root, whom Reed Bryan had reported occupying land on Lot 1 of Tier 14.29 The Trustees, at McLin's request, resolved to notify all trespassers that they must move off the land or be subject to whatever action the county solicitor or the state attorney would see fit to take.30 One of the crowning sales of the drainage project, or so it was thought at the time, came near the end of Broward's term in office. This sale was to one Richard J. Bolles of Colorado. Although Bolles' purchase of 500,000 acres of Everglades land promised to bring $1,000,000 into the state coffers, it was to lead to many complications and heartaches in the years to come.

Governor Broward's immense energy and vast experience gave him the ability to become involved in the everyday details of one of the most ambitious projects attempted in Flor-

da. As indicated above, many of these details were highly technical in nature and complex in application. That the Governor was able to keep a firm hand on these intricate plans shows a remarkable mind at work; the competency he displayed in achieving the tasks at hand demonstrates one of his more unique abilities. Although modern critics may charge that he violated the delicate balance of nature in the Everglades, he did not do so for greed, avarice, or malicious reasons. Like nearly every contemporary, including Theodore Roosevelt and Gifford Pinchot, he believed in the drainage of the Everglades and other "waste lands" for the benefit of the state and the nation, especially the smaller farmers. His career in the drainage movement deserves a closer scrutiny through the eyes of those with historical perspective, not opportunistic critics looking for a scapegoat for the faults of their own generation. Broward's abilities, competence, and progressive spirit deserve better from a generation now searching for answers to questions nobody asked in the Governor's time.

--- Footnotes ---

1. For the best account of the life of Napoleon Bonaparte Broward, see Samuel Proctor's fine biography, Napoleon Bonaparte Broward: Florida's Fighting Democrat (Gainesville: University of Florida Press, 1950). Though in need of some updating, it remains the standard in the field and is one of the most readable books on any phase of Florida's colorful history.

2. Minutes: Trustees of the Internal Improvement Fund, State of Florida, vol. 7, pp. 281-83. For purposes of this article, all further citations will be Trustees Minutes. Also, the resolution found on the pages indicated is representative of other resolutions regarding the construction of the ditches and Broward's role therein. As this article focuses on the year 1908 and the building of two ditches, Miami and Caloosahatchee, this citation will suffice.

3. Governor's Correspondence: Governor Broward, 1908 (hereafter cited as Governor's Correspondence), letter of January 27, 1908, R.E. Rose to N.B. Broward. All letters in this file can be found at the Florida Department of State, Documents Section, R.A. Gray Building, Tallahassee, Florida.

4. Governor's Correspondence, letter of January 28, 1908, "Private Secretary" to Reed A. Bryan.


7. Ibid., p. 147. This trip was made in late 1907, and cost the taxpayers a grand total of $102.80.

8. Proctor, Napoleon Bonaparte Broward, pp. 261-91. This chapter (Chapter 16) gives an excellent overview of this important political struggle.

9. Ibid., pp. 245-47.

10. A good discussion of these problems can be found in F. Lester Simon, Dredging Engineering (New York: McGraw-Hill Book Company, 1920). My thanks to Ms. Oriana West of the Army Corps of Engineers' Technical Library, Jacksonville District, for steering me to this most useful source. This volume contains many descriptions of the problems associated with dredging canals such as those under investigation here. It is a very useful volume for comprehending canal construction and does not assume a great deal of advance knowledge. For a technical text, it is fairly readable for the layman.

11. Governor's Correspondence, letter of July 10, 1908, Ernest Kreher to N.B. Broward.

12. Governor's Correspondence, letter of August 12, 1908, Ernest Kreher to N.B. Broward.


15. Governor's Correspondence, letter of August 8, 1908, N.B. Broward to Ernest Kreher.

16. Ibid.

17. Governor's Correspondence, letter of September 1, 1908, N.B. Broward to Marion Steam Shovel Company.

18. Governor's Correspondence, letter of September 4, 1908, F.H. King to N.B. Broward.

19. Governor's Correspondence, letter of October 12, 1908, N.B. Broward to R.D. Packard.

20. Governor's Correspondence, letters of November 3, 6, 9, 11, 15, December 3, 8, 10, and 14, 1908. The last letter enumerated even suggested that the Three Friends might be used in towing the dredges from Tampa to southeast Florida.


22. Governor's Correspondence, letters of September 12 and 19, 1908. The former is from Tom Bryan to N.B. Broward and the latter is the reply of a clerk on the Governor's staff.


24. For a good description of why these statements hold up, see Lawrence Will's entertaining A Dredgeman of Cape Sable (St. Petersburg: Great Outdoors Publishing Co., 1967).

25. Governor's Correspondence, letter of September 8, 1908, N.B. Broward to John W. Newman.

26. Governor's Correspondence, letter of September 10, 1908, John W. Newman to N.B. Broward.

27. Governor's Correspondence, letter of October 8, 1908, John W. Newman to N.B. Broward.

28. Governor's Correspondence, letter of October 19, 1908, Charles Pratt to N.B. Broward.

29. Governor's Correspondence, letter of October 27, 1908, B.E. McLin to N.B. Broward.


The complete correspondence cited in this article is available for examination at the Broward County Historical Commission office.