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Reclamation of the Florida Everglades

THE EVERGLADES OF FLORIDA, LOCATION, EXTENT, ETC.

CHAPTER I.

The territory known generally as the Florida Everglades, meaning thereby the submerged and partly overflowed lands which are below the level of Lake Okeechobee and lie to the East, West and South of this lake, extends from Cape Sable in Latitude 25.10 degrees North to Latitude 27.10 degrees North, and embraces the whole Florida peninsula between those limits, except the elevated rim of higher land extending along the coast line of the peninsula, which holds back the waters of this extensive body of submerged land; and which rim varies in width from two or three miles to ten or fifteen.

This rim or strip of high land, for several hundred miles on the Atlantic and Gulf coasts of the lower peninsula, is penetrated by lateral depressions from the Glades, generally about two to four miles apart, which permit the Glade waters in times of freshet or protracted rains to overflow them, but which are sufficiently high at their outer ends to prevent the drainage of the Glade waters into the bays, sounds and rivers communicating with the ocean.

So that broadly speaking, it may be said that this territory some 120 miles long by say an average of 80 miles wide, and containing upwards of five million acres of land, is susceptible of drainage and irrigation, if it can be shown that the average level of Lake Okeechobee which is the natural storage reservoir—is sufficiently high in elevation to permit the discharge of its waters upon the lower lands beneath it; and that these lower lands are themselves sufficiently elevated to drain freely into the rivers, bays and sounds communicating with the ocean.

Any doubts which may have been or are still entertained upon this subject, have been completely set at rest by the reports of the U. S. Government Engineers, supplemented as they are by the results of the investigations of engineers in the service of the State of Florida, and in the employment of Railroad Corporations and of private parties. It has been, by these careful and thorough investigators, ascertained that the mean level of Lake Okeechobee, within its enclosing walls, is twenty-one feet above the mean level of the ocean, into which its surplus waters, after passing the submerged Everglade plateau below it, are discharged. (Report of Buckingham Smith to the U. S. Senate, June 1st,

1848; General Meigs U. S. Engineering Corps report of survey made March and April 1879; General Gilmore, report to U. S. Senate, June, 1882; Chas. F. Hopkins report to Chief Engineer Okeechobee Drainage Company, Feb. 4th, 1884; Capt. Wm. Black, U. S. Engineer Corps, report of survey made March and April 1887; Jos. M. Kreamer, Chief Engineer Okeechobee Drainage Company, report to R. Sollinger, Sept. 10th, 1889; J. E. Ingraham, 3rd Vice-President F. E. C. R. R. Co., report of 1892; James W. Stewart, U. S. Drainage Engineer, field notes of his report May 18, 1907, to the Chief of Irrigation and Drainage Investigation U. S. Department of Agriculture, J. O. Wright, Supervising Drainage Engineer, U. S. Department of Agriculture, report of June 25th, 1909.)

It has also been ascertained by the same investigators, that the plane or horizon of the Glades proper, inside the coastal elevated rim to which reference is above made, is at an average elevation of seven to ten feet above the ocean mean; and that the submerged land in the main ascends gradually as the lake is approached.

This data is corroborated by the natural flow of the waters of Lake Okeechobee and of the Everglade terrace. At nearly all times except in periods of protracted drought or late in the spring before the summer rains begin, the lake is discharging its surplus waters into the Everglade horizon, and these submerged lands again are pouring their waters into the ocean by the ancient rivers and innumerable creeks and underground channels which have cut or worn their passage through the coastal rim referred to. Of such rivers and creeks heading in the Everglades, may be mentioned the Loxahatchie, St. Lucie, Hillsboro, New, Middle and Miami rivers, and Snake, Arch, Snapper and Black creeks on the East Coast, and Shark, Calusahatchie and Harney rivers and many creeks and outlets unknown to the writer on South and West coasts. Some of these rivers in the summer and autumn months, as at Miami, develop a current of four miles an hour, half way between the rapids at their source and their discharge into the bays and ocean.

So that it may be assumed, with the above mentioned data respecting the levels of the Everglade plateau, established, that there is no insuperable obstacle presented to its drainage; and that if the land when reclaimed is of greater value intrinsically than the cost of its reclamation, the project will go on uninterruptedly until the end is attained and this extensive territory is brought under the control of the husbandman.

It should be remarked that in addition to the territory comprising the Everglades proper, there are some four million acres of half swamp lands intimately connected with it, which will be affected beneficially by its reclamation. These lands lie to the North, Northeast and Northwest of Lake Okeechobee and constitute the low water shed tributary to

this lake. They extend as far North as the latitude of Lake Kissimmee and beyond, and are so flat and nearly level that when Lake Okeechobee reaches its high water stage, this country is saturated and partly submerged except in the cases of isolated hammocks and pine lands. (Report of J. O. Wright, Supervising Engineer U. S. Department of Agriculture, Office of Experimental Stations, June 25, 1909, and also field notes of J. T. Stewart, U. S. Drainage Engineer in his report to Dr. Elwood Meade, Chief of Irrigation and Drainage Investigations, May 18, 1907, U. S. Department of Agriculture.)

Allusion is made to this phase of the subject, in order to emphasize the great importance of the drainage scheme, not only for the reclamation of the Everglades proper; but as a collateral and necessary adjunct thereto, the further reclamation of these other millions of acres of lands.

Character of the Everglade Soil When Drained.

CHAPTER II.

It is therefore pertinent to consider very generally the structure of the formation underlying the Everglades; the present character of the soil as it now exists in a submerged condition, and incidentally its favorably changed condition when drained and surface dried; the climate with respect to its temperature and the permanency of the same and its humidity; the plant growth of the Everglades and of similar adjacent lands, as affording inferences for the successful growth of like vegetation on the reclaimed areas; the fertility of the lands when drained; the transportation facilities after the reclamation is accomplished; the expense of the drainage operations; and finally whether the results to be accomplished are sufficiently great to justify the expense incurred in the reclamation project.

The formation of the lower Florida peninsula, so far as observed, appears to be almost universally a cream colored coralline limestone, slightly changed in some localities, as at Redlands in the rich Homestead country below Miami, by a red clay admixture.

Whether this formation arises from the deposit of limestone particles originally found on the ocean beaches, and blown inland by the winds during past ages, so as to form extensive basins with a ridge of hardened sand hills enclosing them—as has been suggested by some geologists, or is the result of the work of coralline organisms at dif-