TIDE-FLOW METHOD OF CULTIVATION AS EMPLOYED BY THE CAROLINA RICE INDUSTRY

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ABSTRACT

The tide-flow method of rice cultivation was developed around the close of the 18th century after a systematic water culture for the crop had been evolved. This new method brought into focus the great level areas of marsh and swampland found along the coast of the Carolinas and Georgia. Located on the lower reaches of the fresh-water rivers, these areas up to this time

were considered of little or no value because they were subject to periodic overflow. These tide-flow swamps were formed when the advancing tide turned back the river current and flooded the adjacent lowlands. They could be made to produce rice crops by utilizing the rise and fall of the river tides for their irrigation and drainage. The best conditions were found at special points along certain rivers from the lower Cape Fear River in North Carolina, to the neighborhood of Jacksonville, Florida.

In the clearing and preparation of tide-flow swamps for cultivation, it was necessary, first of all, to select a tract which was low enough to be flooded at high tide and high enough to be drained when the tide was out. In the clearing of timber, it was not necessary to clear away the large trees at first if hoe cultivation predominated. Where the plow was used in cultivation, the trees were felled in the direction of the furrow, but where the hoe was used entirely it was considered desirable for the trees to fall at right angles to the row.

The banking in of the area cultivated required considerable engineering skill. The outer bank paralleling the river was built to exceed the height of the highest high tide, *i. e.*, the spring tide. Openings or trunks were placed through the dike permitting the flooding and drainage of the fields behind it. These trunks were rectangular wooden culverts from twenty to thirty feet long, equipped at each end with a door pivoted above and controlled by a rachet. To flood the crop, the outer door was racked up and the inner one let down. At high tide the pressure of water from without would open the inner door and a stream would flow through until the water levels inside and out were equalized. But when the tide fell, the beginning of any return current would promptly close the door and keep the water impounded upon the crop. When drainage was desired, the inner door was raised and the outer one lowered. At low tide this would expose the ground and empty the ditches and empty them again at each recurring low tide while preventing inflow at all times. Thus an automatic and complete control was established as long as the drains, trunks, and gates were kept in good order.

Additional dikes, called "cross dams" were erected within the outer embankments enclosing fields an acre or two in extent. These were also fitted with trunks and sluices in order to control water depth and to permit drainage or the flooding of different fields. In each field a large and deep "face ditch" was dug, leaving a margin of from ten to twenty feet between it and the enclosing embankment or dam. The field was then subdivided into sections, usually long parallelograms, by "quarter-drains," small ditches running parallel to one another and opening at each end into face ditches.

The rice was seeded in March, April, and May. Some planters flooded their fields prior to planting, putting on the water about the end of February and keeping it on until about the 25th of March in order to clear the fields of vegetation. The sowing was done by two methods. One was to have the rice thrown into the trenches by the sowers who were followed by "coverers" who hauled the earth over the trench with a covering board which resembled a rake in construction. The other means of sowing was known as the "clayed" method. The seed rice was mixed with wet clay and sown in the trenches.

As soon as the planting operation was completed the water was let on the fields in what was known as the "sprout-flow." The water was kept on from three to six days and possibly longer as the weather demanded, or until the rice was "pipped" or sprouted. The second flooding, or flowing, as it was called, was known by three names. "Point," "stretch," or "long-flow." As soon as the rice shoots could be "trailed," or seen from bank to bank, the water was again put on. This time it was quite deep, overtopping the grain by several inches, so that the rice would be "stretched." This flowing lasted from twenty-one to sixty days, or as long as the rice showed good growth and no signs of sickness. From three to six inches was added to its height by this flowing. At the end of the period, the water was again drained

off, very slowly, so as not to throw down the rice in the low places, and the fields remained dry for about forty days, during which time they were hoed twice.

The third or final flowing occurred during the month of August and was known as the "lay-by", or "harvest flow." This flowing was put on to assist the ears of grain to fill and the water was first allowed to overtop the plant for two or three days to give it a final stretching and then lowered to just below the maturing heads. This flow, in addition to assisting the plants in their final growth, also helped the stalks to uphold their heavy heads against the winds. At the end of the month the water was drawn off and harvesting operation began about the first of September.