

NOTES ON THE DELTA OF THE MISSISSIPPI RIVER.

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The large scale map of the Alluvial Valley of the Lower Mississippi River published by the Mississippi River Commission, St. Louis, Mo., is a fine example of map making and a most valuable adjunct to geography study in the public high schools and colleges.

A study of this map reveals many interesting facts related to the growth of the delta that the stream has formed in the edge of the Gulf of Mexico. Various questions are suggested by this study. What land area has been added to the continent by the river? What facts or features observable on the map indicate delta area? What is the origin of such lakes as Pontchartrain, Maurepas and Grand? How do the lakes in the delta differ from those along the river above Baton Rouge? What do the bays along the seaward border of the delta indicate as to the manner of growth of the land area and of the origin of lakes in the delta? Why does the river become straighter toward the mouth? What is the cause of the abrupt bend just below New Orleans? Why does the river flow so persistently to the southeast through the delta?

It is generally stated that the delta extends from the mouth of Red River southward because here the distributary farthest upstream leaves the river. This statement seems somewhat arbitrarily derived from the earlier definition which describes a delta as the land included within the divided mouths of a river, rather than the land formed by a river about its mouth. A line extended from Baton Rouge to New Iberia connects the south edges of the uplands on the opposite sides of the river and seems a proper division between the filled valley above and the area of added land or delta proper. South of this line, the great fan of the delta projects, breaking the great curve of the north shore of the gulf. Below this line the shape and size of the lakes change abruptly from narrow, ox-bow lakes, formed by the river cutting across the necks of its bends, to large, broad, irregular shaped lakes, evidently formed by irregular deposit, leaving areas of the gulf unfilled. Lake Pontchartrain, for example, is a portion of the former gulf surface inclosed between the uplands to the north of it and the advancing delta on the south. Notice how near the south shore of this lake the river flows. Notice the stream from within the limits of New Orleans extending along the strip of land

between Lake Pontchartrain and Lake Borgne. This stream is evidently a former distributary of the main stream. The bays along the edge of the delta of which Baratavia, Timbalier and Terre Bonne are examples, show how the advancing delta arms extend around areas of gulf and hem them in. Notice particularly Bay Marchand, at the mouth of Bayou la Fourche, and the separation of Timbalier and Terre Bonne bays by the long narrow delta of Bayou Terre Bonne.

This inclosing process is aided by the formation of barrier beaches from point to point by wave action. True delta area is further indicated by the straighter course of the river below Baton Rouge. The river is very meandering through the whole length of the alluvial valley on account of the gentle slope of the river bed, but below Baton Rouge it becomes increasingly straight, although in the distance of two hundred forty miles the fall is but five feet, or one-fourth inch per mile. As streams always acquire the meandering habit on gentle slopes, this apparent contradiction of the law of stream flow furnishes an interesting problem. I propose this explanation: The river flowing into the gulf produces a current some distance out from the shore along the sides of which the sediment is deposited more rapidly than in the swifter central line of flow. Finally the narrow mud banks appear above the surface along the course laid out by the current in the still waters of the gulf. The tendency to meander shown at the head of the delta indicates the inclination of the stream to conform to law. The stream is forming meanders. Below New Orleans an abrupt bend appears as an apparent refutation of the explanation of the straight lower course. This bend represents an accident in the direct forward movement of the delta. Observe the streams beginning near the eastern curve of this bend and the tract of land extending east and partially inclosing Lake Borgne and Mississippi Sound on the south. These streams and this strip of land indicate a former course of the river. A crevass across the narrow south bank caused the abandonment of the part below and the abrupt turn of the river. A crevass called "The Jump," twenty miles above the mouth of the river, indicates how a repetition of the above accident may occur. A submarine fan is approaching the surface outside of this gap. The southeast trend of the river through the delta and of the main area of the delta itself may be due to the eastward movement of the Gulf Stream off shore which deflected the incoming river current to the east.

