A Contribution to the Geomorphology of the False River Area, Louisiana.

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A CONTRIBUTION TO THE GEOMORPHOLOGY OF THE FALSE
RIVER AREA, LOUISIANA

A Dissertation

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Frontispiece -- The False River area, Louisiana, according to the U. S. Department of Agriculture, Agricultural Adjustment Administration, aerial photograph index map, 1941.
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ABSTRACT

False River is an ox-bow lake severed from the latest course of the Mississippi. It is the lower-most cutoff on the New Orleans channel of the river, the oldest to be completed within historic times, and one of the longest meander loops ever formed by the Mississippi.

The dissertation deals with the processes responsible for the landforms in the False River area, and is based upon field work, the study of aerial photographs, the investigation of historical sources, and, to a lesser degree, the observation of results obtained in laboratory experiments dealing with river models.

There are two distinct stages in the evolution of the area because the processes which prevailed while False River was part of the active Mississippi were quite different from those obtaining since the cutoff.

Deformities observed in the old Mississippi channel are related to points of resistance ("clay plugs"), fine-grained fill of old cutoff lakes.

With regard to the unusual length of the False River channel, it is pointed out that a cutoff does not depend so much on the development of the severed loop itself, as on that of adjacent meanders. The concept is advanced that,
whereas overdevelopment of contiguous upstream and downstream loops tends to cut short the growth of an intermediate meander (by precipitating the cutoff), underdevelopment permits the middle loop to acquire unusual length. In retarding the development of the immediate upstream and downstream loops, the Pleistocene terrace bluffs, to the east, played a decisive part in the Westward growth of the oversized False River loop.

The actual cutoff, is generally attributed to human interference, viz. to a trench dug across the slender pedicle of the meander loop. The writer attempts to demonstrate, however, that the cutoff was not artificially induced or even accelerated. Evidence is also presented to the effect that, contrary to general belief, the Point Coupée Cutoff was consummated before 1722.

After a meander loop has been severed from the river, deterioration sets in. Two entirely different processes of sedimentation may concur in the filling of the old channel: (1) a considerable portion of bed load may be diverted into one or both ends of the abandoned channel; and (2) suspended load settles out of silt-laden flood waters. Some measure of protection from the invasion of floodwaters was afforded the False River area by the line of artificial levees, which early extended upstream from New Orleans, although overtopping and breaching occurred during every great flood.

Considerable differences in the development of the alluvial fill at the upper and lower extremities of the old
channel suggest that diversion of bed load played a consider­ able role in the filling of the lower end of the horseshoe. Small serpentining streams not only advance these terminal deposits into the open water, but also build up natural levees on the fill, isolating several small areas, giving rise to local lakes or swamps.

Deterioration of the crevasse channels leading out of False River is the result of both natural and artificial causes. Three of the latter, are mentioned by the writer: the construction of dikes and roads across the outlets; accelerated erosion through cultivation; and the introduction of the water hyacinth. The discussion closes with the thought that the post cutoff evolution of False River and contiguous area might have been very different if cultural resources had been applied in another direction.
Fig. 1 -- Location map of False River Area, Louisiana.
CHAPTER I
INTRODUCTION

False River is a large ox-bow lake which occupies a channel severed from the latest course of the Mississippi, a river which has assumed through the milleniums, many different positions in its alluvial valley. The lake and its vicinity are well deserving of the geomorphologist's attention, for False River Cutoff is remarkable in more than one respect. It is (1) the lowermost as yet identified on the river (over 700 midstream river miles below Cairo, Ill.); (2) the oldest to be completed within historic times (although the actual completion seems to have escaped observation); and (3) one of the longest meander loops to have been detached from the river.  

The fact that more than a century ago Sir Charles Lyell described the abandoned channel as a "striking monument" of a supposed generalized eastward trend of the Mississippi and that False River has been chosen as an example of "An Oxbow Lake on the Mississippi Floodplain" by one well known geological text-book has probably brought it to the attention of countless students of geology outside the state of Louisiana. Yet it has not been singled out for detailed
geomorphological study, nor does there seem to be a complete investigation of a similar cutoff that could be applied to False River. It is therefore doubtful whether many students could possess the information with which to answer all of the questions given in the cited text-book.

It is not the purpose of the present study to present a complete and definite solution to the different geomorphological problems of the area. To do so would require a measure of labor and equipment beyond the means of the individual research student. A number of expensive borings, for example, are indispensable to the complete elucidation of problems such as irregularities in the shape of the old river channel, quality and distribution of sediments filling the ends of the cutoff loop, etc.

It is hoped, however, that some contribution may be made to a clearer formulation of the problems involved in the geomorphic evolution of False River and similar ox-bow lakes.

**Location**

The False River area is located in the easternmost salient of Pointe Coupée Parish.

**Pointe Coupée Parish.** The Acadian settlement fringing the lake and that which, even before it, peopled the banks of the Mississippi immediately upstream (Pointe Coupée settlement, proper) became, under French rule, the nucleus of the political unit known today as Pointe Coupée Parish.
Roughly L-shaped, like the state, the Parish may be considered part of "Southern" Louisiana, not only because it lies immediately south of the center of the State, but because of its cultural ties and affinities. Pointe Coupée lies at the confluence of the Red River and the Mississippi; the fact that here also is the first distributary (Atchafalaya) of the Mississippi River makes it the actual apex of the Lower Mississippi River Delta.

Pointe Coupée is surrounded by the following parishes: on the north, by Avoyelles and Concordia; on the east, by West Feliciana and West Baton Rouge; on the south, by Iberville; and on the west, by Avoyelles and St. Landry. In the records of the legislature of Louisiana one may find many acts such as "An act to amend the act entitled 'An act to determine the boundaries of the Parish of Pointe Coupee'" or "An act . . . to repeal an act to change the boundaries . . . of Pointe Coupie." It was certainly a "troublesome boundary" and as late as 1850 the State Engineer reported that "... many people doubt as to which parish they reside in ..." A typical case is that of one Willie Barrow, whose plantation was, by legislative action, shuttled back and forth between the parishes of Iberville and Pointe Coupée.

Notwithstanding the fluidity of its boundary this political unit was formed early. The nucleus of the Pointe Coupée Parish was the area of the Point Coupée settlement.
proper on the banks of the Mississippi River (the original site of which has caved into the river) and the area of the False River settlement, treated in the present investigation. Crystallizing into a unit under the French, Pointe Coupée was one of the eleven districts into which the Spanish Governor Don Alexandro O'Reilly divided Louisiana. It was still a major division of the province at the end of the Spanish period.

In 1805, shortly after the acquisition of the Louisiana territory by the United States, Pointe Coupée, one of the twelve counties established by the Legislative Council, was to "comprehend the eclesiastical parish of St. Francis . . ." In 1807, Pointe Coupée was set up as a (lay) "parish." The False River area. The area here considered cannot be sharply separated from adjacent geomorphological areas by sharp lines. Much less can it, therefore, be precisely limited by any one of the established artificial boundaries. The dissertation is concerned essentially with the abandoned meander loop partly occupied by False River lake, the higher alluvial lands along either side of the old channel and the territories immediately adjacent to them.

This area is located on the youngest and topographically lowest alluvial surface occupied by the Mississippi River. The formation of this surface began with the last universal (glacio-eustatic) rise in sea level. Its general
characteristics were outlined during early Recent time, the finer details being the product of Modern time. Relief

The first impression of a flood plain is that of a uniformly flat surface upon which existing artificial levees stand out as low ridges. Names such as "North Highlands," "University Hills," "Highland Heights," "College Hills," "Highland Road," are abundant on the Pleistocene terrace in the vicinity of nearby Baton Rouge. This terrace (known as the "Prairie") only stands some twenty to twenty-five feet higher than the higher parts of the floodplain at this locality—erosion along the edges of the terrace has reduced this difference in altitude to even less significant values. Such local appellations as are cited above strike one as being slightly ludicrous for such minute relief. One may perhaps be inclined to attribute them to wishful thinking on the part of a lowland population.

There is nothing like a flood to bring out forcefully extremely minor topographic contrasts that escape the untrained eye under normal circumstances. When the river tops its artificial levees, or even after exceedingly heavy and continued rains, places in slightly lower locations may experience impassable roads, houses partially filled with silt, crops destroyed, or lives lost. Even in ordinary times, when the river stage is low and rainfall is not
measured in inches per hour, areas of lower elevation mean inferior drainage, heavy soils, and are a limiting factor in the choice of crops.

"Geography," states Sauer, "is distinctly anthropocentric, in the sense of value or use of the earth to man." A relief of a few feet is often just as much if not more important to the lowlander, as a few hundred feet to the highlander. There probably can be no more striking example than the application of the generic term cordilheira (i.e. cordillera) to the slight alluvial ridges of the Paraguay flood plain, in the state of Mato Grosso, Brazil. With this in mind, the discussion of the exceedingly small relief of the False River area will not appear to be purely academic.

The greater portion of the area lies between twenty-five and thirty-five feet above mean sea level, local relief being the result of two factors: (1) the general valley slope, and (2) the geomorphic processes (mainly depositional) which have formed as it were a "postiche" or superadded topography.

Morphological Sequence

Geomorphic processes responsible for the present topography occurred in two distinct stages: (1) those which took place while the Mississippi occupied the False River channel and (2) those that have acted upon the abandoned channel and contiguous area since the relatively recent occurrence of the cutoff.
During the first stage, the channel was the scene of the usual depositional and erosional activities which characterize a meandering river. During this phase, the meander loop (by analogy with living organisms, where destructive and constructive metabolisms occur simultaneously and are intrinsic to life) may be thought of as being alive. Once the cutoff has been effected, the loop becomes separated from the source of its life—the river—and may be said to be inactive or dead; the dynamic coexistence of erosion and alluviation which characterizes the active channel ceases to exist and the channel deteriorates.
REFERENCES

1 The longest, according to D. O. Elliott, *The Improvement of the Lower Mississippi River for Flood Control and Navigation*, 3 vols., Vicksburg, Miss., U. S. Waterways Experiment Station, 1932, I, p. 59. Reconstruction of other old Mississippi River channels, as completed by Harold N. Fisk, *Geological Investigation of the Alluvial Valley of the Lower Mississippi River*, Vicksburg, Miss., Mississippi River Commission, 1944, indicates the former existence of other loops, as long and even longer than the False River loop.


7 Report by the State Engineer, January 1850, House Journal, Louisiana, p. 6.


By definition, that part of the Recent during which present-day topographic features have been created.


Highest elevation in the immediate vicinity of False River is 40 ft. Lowest at river's edge at mean river stage is 5 ft.
CHAPTER II

GEOMORPHIC FEATURES OF THE PRE-CUTOFF PHASE

The Abandoned Channel

The outstanding feature in the False River area is of course the channel abandoned by the Mississippi. The severed channel as it exists today has a total length of about twenty-two miles: four and a half miles of alluvial fill at the upper end, ten and a half miles of open water (False River proper) and seven miles of alluvial fill at the lower end. A study of the reconstituted Mississippi course before the cutoff shows that the total length of the bend lopped off was two or three miles longer than the twenty-two-mile section in existence today: moderate westward movement of the post-cutoff active channel of the Mississippi has cut into and somewhat shortened the old horseshoe channel. The width of this channel varies from three-tenths of a mile at the narrowest section (just west of Oscar) to three-fourths of a mile (just east of New Roads).

Tortuosity and True Meandering

It is a well known fact that the lower Mississippi River, from Cairo, Illinois, to about Baton Rouge, Louisiana, assumes a tortuous course, made up of a number of more or
less regular loops. The problem in hand deals with one such large loop. When rivers, flowing unrestricted in erodible alluvial sediments, describe sinuous patterns, they are said to meander. Not all tortuosity in rivers is the result of a meandering process. A few text-book examples of a meandering river prove, upon closer scrutiny, to be merely the effect of local structure upon the windings of the stream. Russell has indicated the necessity of distinguishing between "the crooked streams whose patterns originate during corrasion and those whose patterns originate during alluviation,"\(^1\) i.e. truly meandering streams.

The meandering process does not always result in a smooth, regular, almost geometric meander loop. When the alluvial materials do not present equal resistance to erosion, their influence will be reflected in the shape of the meander. It is evident that the False River channel does not belong to the first of the two groups in Russell's classification: its behavior was subject to the laws of meandering, although, as in the case of probably most other loops, these laws are conditioned by pre-existing differences in floodplain material.

River meandering is a very complex phenomenon. The Mississippi River Commission has studied the problem of meandering "since the time of its organization.\(^2\) It is not the purpose of this paper to review the numerous hypothesis which have been brought forth to explain the origin of
meandering. A classification of such theories has been attempted by O. Maull, who properly stresses the need for distinguishing between the conditions giving rise to meandering and the processes involved in the development of such features. Russell has recently reviewed a number of modern concepts regarding meandering and the necessary conditions for this phenomenon to occur. Although a number of factors which influence meandering appear to have been satisfactorily isolated, there is still disagreement upon some basic questions. Regardless of whichever school of thought will be proven correct, it is certain that the large False River loop evolved from what was originally a relatively straight reach.

Sweeping

The general downstream migratory movement of the bends of a true meandering river is probably as characteristic of the phenomenon of meandering as the formation of the very loops themselves. Some qualifying statements, however, appear to be in order.

One illustrative simile which should be dropped is that of the rhythmic oscillation of a loop travelling along a rope which is fastened at one extremity and sharply jerked at the other. Not only is the manner of motion quite different in the case of the meander loop, but the individual sinuosities of the river do not get very far downstream before they are
Anyone at all familiar with floodplain geomorphology will find it impossible to accept the idea that a given meander loop on the lower course of the river was born say at Cairo, Illinois, from whence it has migrated downstream. Yet the possibility was once advanced that the course of the Mississippi below Baton Rouge is lacking in meanders because these have not yet reached this section in their downward migration.

Whereas most text-books speak of downvalley shifting of meanders or "sweeping,"7 a number of the illustrations which accompany such statements indicate that sometimes there is also an upstream movement of a section of the channel.

Differences in erodibility of alluvial material are, of course, an important factor in determining the axis of greater development of a loop. Given homogeneous material, the position of the directive of a given section of meander (which determines the angle of attack of the stream against its banks or the position for the formation of a point bar) seems to be an important but sometimes overlooked factor.

The fact that parts of meanders migrate upstream appears nicely on the sketch map of the Mississippi River reproduced in De Martonne.8 The entrance to the first and third meander loops point downstream: the first and third meanders have swept downstream. The river enters the second and fourth loops in an up-valley direction: these meander loops have "swept" up-valley. Another text-book example of the same kind
is the section of the Mississippi River Commission map of vicinity of Greenville reproduced by Tarr and Martin.\(^9\)

The examination of the original Mississippi River Commission map reveals a number of such cases. The follow­ing are two instances observable on the map of the "Lower Mississippi River; Stream Channels 1930-1932 and 1940-1941, Cairo, Ill., to Baton Rouge, La."\(^{10}\) (1) St. Francis bend\(^{11}\) has migrated north or up-valley by approximately the breadth of the river in 10 years. The river swept into this bend coming from almost due south. (2) At Deer Park Bend\(^{12}\) the river had swept up-valley for close to two-tenths of a mile before the Glassock Cutoff was made in 1933, i.e. in not more than three years. Here also the directive of the bend is roughly up-valley.

The conclusion must be reached that, whereas sweeping meanders generally show a downvalley tendency, this tendency may be offset locally to a certain extent by a strong up-valley directive.

**Evolution of False River Channel**

The story of the development of human society is now spelled out in graphic symbols on paper. The story of the development of a tree is set down in its growth rings; dendrochronologists not only can learn the plant's age by a ring count, but can also obtain information such as indicates which side was underdeveloped for lack of sunshine,
a sudden change in environmental conditions, etc. Parallel swash lines on the beach mark the decreasing range of the tides and give an indication of the relative position of sun, earth, and moon.

The False River channel, evolving from a more or less straight reach, occupied intermediate positions between its initial position (unknown) and its final position (present-day False River channel), when growth was halted by the cutoff. As the curvature became more and more accentuated, the loop enlarged, and the channel progressively drew away from its initial position. The concave bank advanced continuously into new territory as successive deposits were formed in the slack water on the convex bank. These deposits, to a very limited extent, may be compared with the marks left by the receding tide on the beach. Like the growth rings in trees, the consecutive deposits on the point also indicate in which direction the loop developed more vigorously. This history of the evolution of the meander loop is strikingly clear on aerial photographs. It is expressed by a series of sub-parallel and closely spaced lines which mark successive positions of the channel. The name "accretion scars" has been employed by the Mississippi River Commission\textsuperscript{13} to designate these arcs. The term "growth arcs" might be preferable: while indicating the functional relationship between the arcs and the development of the meander loop, it does not carry with it a genetic theory (accretion and/or
scour). The "growth arcs" of False River (to which further reference will be made) are represented on Plate I.\[14\]

The study of the ridge and swale pattern as shown on aerial photos, coupled with the position of the Pleistocene terrace bluffs and existing drainage lines, justifies the preparation of Plate II, where some hypothetical ancient courses are represented. In the preparation of such maps as Plate II, from the information obtained from aerial photographs and represented diagrammatically on Plate I, an obvious rule is that growth-arcs which truncate others are younger than the ones truncated.

Let us now examine the evidence of the growth arcs reproduced on Plate I. The study of the arcs shows that the small embryo of the False River meander loop was located two or three miles east of the present site of New Roads, approximately at (1). As the meander loop developed, it spread southward. The initial axis of greatest development is indicated approximately by the arrow (a). Later the axis of greater development shifted to a southwesterly position and is represented by arrow (b).

Although we are concerned only with one individual loop, it is necessary to bear in mind that a meander loop is not isolated in space, but is a part of the sinuous course of the river.

In terms of river cross section, it is possible, of course, to distinguish bends and reaches, the former being
GEOMORPHOLOGICAL FEATURES OF THE FALSE RIVER AREA

GENERALIZED FROM AERIAL PHOTOGRAPH INDEX MAP "POINTS COUPEE PARISH, LOUISIANA". (U.S. DEPARTMENT OF AGRICULTURE, AGRICULTURAL ADJUSTMENT ADMINISTRATION: 1941).

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PRESENT AND RECONSTRUCTED COURSES OF THE MISSISSIPPI RIVER IN THE FALSE RIVER AREA


HYPOTHETICAL CHANNEL AT THE TIME THE CUT-OFF OCCURRED. RECONSTRUCTED FROM GROWTH ARCS, DRAINAGE LINES, POSITION OF TERRACE BLUFFS, ETC.

HYPOTHETICAL CHANNEL A FEW CENTURIES BEFORE THE CUT-OFF OCCURRED.

SCALE

0 1 2 3 MILES

PLATE II

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characterized by asymmetrical cross sections with deep pools; the latter, by symmetrical shallow cross-sections or crossings. One bend is separated from the next by a crossing.

The word "meander loop," as here employed, is not synonymous with "bend." By loop we mean (1) in the case of a completed cutoff, that section of channel detached from the river or (2) in the case of a portion of active channel, that section of channel which circumscribes a peninsula or point, measuring from the narrowest part of the neck, isthmus or peduncle where a cutoff would be most likely to develop. A loop has by definition a greater extent than a bend. A glance at the maps of the Mississippi River will show that a loop is formed generally by the respective bend, plus the upstream and downstream crossings, plus a portion of the first upstream and downstream bends.

The point immediately above the False River Point (which is better known as "L'Isle" or "The Island"), will be referred to as "Waterloo Point." The section of the Mississippi River which before the cut-off partly circumscribed this point would quite naturally be called Waterloo loop. Part of this loop, was Waterloo bend. The False River loop is equivalent to that portion of the old Mississippi course detached by the cutoff and, as indicated, may also be referred to as the False River channel. The westernmost part of the loop containing the deep pool, is,
of course, False River bend. It is roughly equivalent to the present day extent of False River Lake.

The crossing between Waterloo and False River bends was in the vicinity of New Roads. It is easy to see that not only the crossing but also a small portion of their respective bends would be the common property of both Waterloo and False River loops. Part of the upper arm of a loop is a component part of the lower arm of the loop immediately above. The same relation is of course true for the lower arm with respect to the first down-stream loop. The loop immediately below False River loop may be referred to as Point Menoir loop as it used to flow around what is now known as Point Menoir.

The development of the False River loop was accompanied by the not so vigorous growth of the contiguous Waterloo and Point Menoir loops.

An initial northward advance of the Point Menoir loop (comprehending, as we have seen, a portion of the lower arm of False River loop) truncated the growth arcs of the False River loop at the heavy line marked (2). Later, the whole Point Menoir loop swung away northeastward (compare the two reconstructed courses on Plate II). A strong up-valley component may be noted here. As Point Menoir loop moved away, its upper arm left the growth arcs at (3), which mark intermediate positions of this small section of channel, from the time it truncated the earlier arcs at (2), until it came to occupy the channel which was cutoff.
The development and southward sweep of the Waterloo loop left equally noticeable marks in our area. Quite a long time after the truncation at (2) by the Point Menoir loop, the Waterloo loop swept south, obliterating the initial growth arcs left by the embryonic False River loop at (1) and itself leaving the growth arcs at (4). We are able to state that this southward sweep is chronologically younger than the truncation at (2) for more than one reason.

A prolongation of the line occupied by the truncating channel at (2) shows that if the two conditions had been concomittant the cutoff would have been brought about prematurely by the intersection of the downstream arm of Waterloo loop with the upstream arm of the Point Menoir loop. By the time the lower arm of Waterloo loop had advanced to its present position, the upper arm of Point Menoir loop had, of course, attained the position which it occupied at the time of the cut-off.

Further proof that the last advance of Waterloo loop towards the southeast was very recent is supplied by the fact that the growth arcs at (4) are perfectly visible under a thin veneer of natural levee, subsequently deposited.

Still another interesting line of evidence is offered by the somewhat abnormal width of the river in front of New Roads. The left bank of False River channel occupied the position indicated by the heavy line at (5), south of its present course. As the Waterloo loop swung south at (4), the
thread of the current, which had been entering the channel section at (5) from a northeasterly direction, was given a strong southeasterly directive. This current, impinging strongly against the right bank in the proximity of the present site of New Roads, produced active erosion at this point. The channel widened, and before deposition on the left bank could catch up, the cutoff occurred. Changes in directive are also responsible for the feather-like pattern of the arcs at (6) and (7).

Plate II summarizes the general trend of the False River, Waterloo and Point Menoir loops. Attention is invited to the fact that the Point Menoir loop swept northeastward, having, therefore, an up-valley component.

It is interesting to note that Cane Bayou, shown in the lower right corner of Plate I, marks, without any doubt, the right bank of an old course of the Mississippi River. The old natural levee stands out on aerial photographs. It looks equally fresh in the field and, like other natural levees, is cultivated. As the river moved eastward, it naturally moved into and destroyed its eastern or left-bank natural levee. In the case of the False River course, both natural levees were preserved by virtue of the cutoff. In the case of the Cane Bayou course of the Mississippi, only one side is intact. Cane bayou hugs the inside of the levee. The presence of swampy soil and a relict lake (Lake Clause) in the fill of the old channel are indications that this was
active not too long ago. It has been assumed in the preparation of Plate II that Cane Bayou marks the position of the channel at the occasion of the False River cutoff.

**Length of the False River Channel**

The unusual length of the False River loop has already been indicated. It has also been stated that the False River loop, when detached from the river, was even longer than the existing remnant. A length of about twenty-four miles is suggested for the loop before the cut-off occurred. This assumption is based upon measurements of the reconstructed pre-cutoff course and not upon the estimates given by early travelers or chroniclers. Even if all such writers did not consider a league as "... the time it took to smoke a pipe ...,"\(^{17}\) it is certain there was not much precision involved in the measures given by them.\(^{18}\)

The complexity of the meandering phenomenon cannot be overemphasized, especially as this complexity is present in all aspects of the phenomenon: shape of the loop, length of the loop, position of the loop, etc. The variables are all inter-related. A change in one variable affects all the others: "The laws governing one variable are opposed by the laws governing other variables which limits the action of the first."\(^{19}\) In attempting to explain the length of the False River loop, the intricacy of the problem must be constantly kept in mind. The length of False River loop is
due to one particular combination of influences. The length of the old Mississippi River channel through the Lake Chicot loop (about twenty miles long, before the prehistoric cutoff occurred) for example, may have been due to entirely different reasons.

With this in mind, let us examine some of the variables that might possibly have contributed to the elongation of False River loop.

Laboratory models have shown that increased discharge brings about an increase in sinuosity and in the length of radii of bends or loops. The fact that False River loop and Raccourci loop (also quite long: 19 miles) are both below the former mouth of Red River gives one grounds to suspect that, in their case, the addition of the discharge of the Red River to the volume of the Mississippi may have had some effect on making the loops longer than the average. Red River has a small volume in comparison with the Mississippi, also small meander loops. The Mississippi has a large volume and large loops. The volume of the Mississippi plus the volume of the Red might conceivably be accompanied by even larger loops. It must be remembered that, before the 19th century, a larger proportion of the Red River waters probably discharged into the Mississippi River (clearing of the Atchafalaya raft in 1840-1860). The effect of the additional Red River waters would be certainly small; the
complexity of the phenomenon obliges one, however, to consider all possible influences instead of endeavoring to explain everything as a result of one sole variable. It must be remembered, however, that in a natural condition (before levees were built) a considerable amount of the discharge of the Red River left its channel before reaching the Mississippi, by overtopping of low natural levees.

Within certain limits, an increase of the valley slope also tends to cause larger meander loops. After the limit is passed, the tendency to braid is manifested. It might be supposed a priori that the entrance of the Red River sediments would produce an alluvial cone in the Mississippi Valley. This cone would increase the slope down-valley, having naturally the opposite effect upstream. Available profiles of the Mississippi, however, do not seem to confirm such a possibility. This is understandable in view of the fact that Red River only recently abandoned its Bayou Boeuf course, to the west of Avoyelles Prairie. Little time has been available for cone building in the territory upstream from False River and, for the most part, the Red has not greatly altered the old and abandoned Mississippi channels it has adopted after leaving Moncla Gap through the Prairie Terrace, north of Avoyelles Prairie.

Other conditions being equal, an increase in the rate of bed load entering the meander, tends to increase the size of the loop by accelerating deposition on the point, thus
forcing the river outwards in the direction of the concave bank more rapidly. This increase in bed load could, for example, be brought about by excessive erosion, immediately upstream, if easily erodible bank material is present. In the case of False River it seems safe to eliminate this possibility, as the bend above (at Waterloo Point) had to develop in relatively resistant material. The Pleistocene terrace bluffs into which the river cut, being more coherent than the Recent floodplain, retarded this loop's eastward progress and consequently did not furnish an excessive amount of load to the next downstream point. This idea must not be carried too far. Though somewhat more resistant, the terrace is made up of alluvium and, therefore, will retreat, even if slowly in the face of active undercutting. This retreat appears to be indicated by the meander bites which both Waterloo and Point Menoir loops have made in the terrace front (see Plate II). A fair amount of material was probably supplied by the bend at Waterloo Point to the growth of False River Point, i.e., "The Island," though this material was fed very gradually to the river.

There is another reason why the growth of False River Point would not be impeded for lack of deposition. In the case of laboratory streams, flowing through material of uniform erodibility, material eroded from the concave bank will generally be deposited to a large extent on the first down-stream convex bar, which occurs, naturally on the same
side of the river as the eroding bank. Yet in the case of laboratory streams flowing through heterogeneous material, Friedkin has noticed that "most of the bed load eroded from an easily eroded concave bank passed through the bends that eroded slowly and where the flow was well confined until it reached an area where bank erosion had left a slack water area that permitted deposition." If this is also true in nature, the material which built up the False River point may have been derived farther up-stream rather than at the concave bank of the Waterloo loop, passing through the Waterloo channel without appreciable deposition.

The fineness of the material brought in by Red River and the distance of its mouth from False River permits one to discard the thought that this tributary could have influenced to an appreciable extent the growth of the False River point, by making available a greater supply of bed-load for its construction.

Apparently more important than the factors hitherto examined in the lengthening of the False River channel, is the presence of the Pleistocene terrace bluffs. This statement may seem somewhat extraordinary for two reasons: (1) False River loop itself actually points away from the valley wall, developing out into Recent floodplain deposits and would seem, therefore, to be little influenced by the bluffs, which it is leaving behind; and (2) it has been indicated a few pages back that, as far as furnishing of
sediments for the growth of the False River point, the presence of the terrace would have an unfavorable effect.

The presence of the bluffs seems to have been, nevertheless, the decisive factor in the production of a somewhat oversized meander loop at False River. It was precisely in retarding the development of Waterloo and Point Menoir loops that the bluffs seem to have helped along the growth of the intermediate False River loop. A clarification of this statement will now be attempted.

The cutoff puts an end to the growth of the loop. The sooner the cutoff occurs, the less time the loop will have had to develop and the smaller it will be. The more retarded the cutoff, the longer the respective loop will be.

It has already been indicated that meander loops are not isolated entities and that each loop shares a portion of its length with the adjoining loops. Nowhere, except in theory, does one see a single loop developing by itself on a more or less straight river and being cut off by the river when its dimensions reach a certain limit. One finds rather an entire sequence of meanders.

The cutting-off of meanders does not depend merely on the development of the loop itself, but especially on the development of the neighboring meanders. If we suppose a sequence of geometric meander loops developing on homogeneous material, it will be seen that it is always the development of the upstream and downstream neighbors, and
not its own development, which produces the cutting-off of a given meander loop. Thus in Figure 2 a, the development of loops A and C tend to bring about the cutoff of B, while the growth of B and D tend to cut off C.

Let us now bring the supposition a little closer to actual facts. Figure 2 b shows the overdevelopment of loops B and D while C develops normally. This condition might be brought about by a difference in erodibility of the alluvial material in which the various loops develop. It will be seen that loop C may be cut off without having developed appreciably.

Conversely, if we suppose loops B and D developing at less than the average rate, this condition, represented by Fig. 2 c, will favor the overdevelopment of intermediate loop C. Loop C can grow beyond normal size without being stopped by a cutoff. Although these suppositions are somewhat theoretical and over-simplified, the third condition (Fig. 2 c) proves quite helpful in understanding the size of False River loop. The pre-cutoff shape of both Waterloo and Point Menoir loops, shown on Plate II, clearly indicates the inhibiting effect of the bluffs. It is easy to understand that, had this restrictive influence been absent, they would have been more rapidly developed. Waterloo and Point Menoir would obviously have intersected, thus anticipating the detachment of False River loop.
Fig. 2 -- Influence of development of immediate upstream and downstream loops on the size of intermediate meander loop. a) Development of loops A and C tends to bring about the cutoff of B, while the growth of B and D tends to cutoff C; b) overdevelopment of loops B and D may bring about cutoff of C before it has grown appreciably; c) underdevelopment of loops B and D favors overdevelopment of loop C.
With less time to develop, False River loop would have been smaller. Even aside from this line of reasoning, it seems that the fixation of Waterloo bend against the bluffs should, by furnishing a constant directive to the False River meander (see arrow on hypothetical channel at the time of cutoff Plate II), favor the growth of the False River point.

It is interesting to note that the old Lake Saint Joseph meander loop, located some 140 river miles upstream from False River, is shown in Fisk's reconstruction as having also been unusually long. As in the case of False River, the growth of its downstream neighbor was obviously stunted by the presence of the upland escarpment at Grand Gulf.

**Deformity of False River Channel**

Ideal or theoretical meander loops constitute a succession of geometric S-shaped curves. Minor departures from this pattern are quite normal, and to be expected. Major departures, indicating external restraint, are known as "deformities" or "warps."

The general outline of False River channel shows a distinctly lopsided development. This is not a unique feature. "Many such [departures from S-shapes] occur along valley walls." The existence of the more resistant terrace bluffs to the east and more erodible floodplain deposits to
the west is responsible for an unbalanced development of the lower Mississippi meanders. A closer examination shows that, not only is the general shape of False River lopsided, but that it is in fact a compound curve, having a number of sharp angles.

In laboratory experiments at the United States Waterways Experiment Station, meanders are of more or less uniform shape, when they are allowed to develop in homogeneous material. The reason why in nature one meander has a different shape from another is, in part, the heterogeneous nature of the alluvial fill encountered by the channel in its wanderings.

The inhibitive effect of buried ledges of rock upon the stream channel's ramblings appears to have been first treated scientifically by H. Miller, in 1883. The concept became widely known with its treatment by W. M. Davis in his paper on "River Terraces in New England." Of much more recent date is the observation that contrasts in materials of the alluvium itself may offer almost as much resistance to the migration of the river as solid rock. Thus, it has been noted that the most common cause for deformities in the mid-valley meandering of the present Mississippi River channel is the presence of the so-called "clay-plugs" or "points of resistance" in the alluvium.

Travelling by boat along the river, one sees a number of points which jut out into the river because contiguous
caving banks, both up- and down-stream, have receded more rapidly. As the surface of the actively eroded bank is not covered with slump material, one may often recognize these more resistant bodies on the basis of their color; composed of fine sediments, they are generally darker than the more erodible sand and coarse silt which is found along the greater part of the banks. Undoubtedly, such points of resistance (commonly called "false capes" along the Mississippi), which so strongly influence the meandering of the present-day river, would also have influenced the development of the False River loop if present in the alluvium.

We will, therefore, in the first place, consider briefly the origin of these points of resistance and then direct our attention to any evidence concerning their existence in the False River loop.

**How Points Of Resistance (Clay Plugs) Are Formed**

It must be recalled that the flood plain is not simply a pre-existing surface upon which the river migrates back and forth. The river channel is cut in the top of a large mass of alluvium deposited since the last general rise of sea-level began in Recent times. The entire mass of Recent alluvium was built up by just such processes of selective deposition as characterize the river's present-day geomorphic activity; natural levee deposits, laid down close to the channel, for example, being coarser than backswamp materials. The river,
swinging back and forth, will encounter and erode sediments previously deposited, among which are the fills of old cutoff lakes. In some cases, the fill, having been made rapidly and with coarser material (sand), will not exert much influence on the meandering of the present-day river. In other cases, the fill will be composed of fine silts or even clays, and will constitute a generally crescentic body of tough, compact material. This body commonly occupies the middle of the loop formed by an old cutoff channel, as the ends usually fill more rapidly with coarser material. The finer sediments may occupy the whole depth of the former channel; bodies of fine sediments, thus formed are sometimes over one hundred feet deep and several miles in length. These are the typical "clay plugs" of the flood plain. They stand as buttresses against erosional attack, and interfere with the normal meandering of rivers.

Points Of Resistance Caused Deformities In The False River Channel

The presence of convexities on the concave bank is by itself one reason to suspect the presence of points of resistance. Two possible points are indicated on Plate II. Although overlain by subsequent natural levee deposits, the clay (or silt) bodies are, as indicated above, generally visible in the banks of active channels. In a cutoff channel,
neither the clay plugs nor the coarser alluvium on their sides are subject to active erosion. The sites of the plugs are commonly hidden as a result of slumping of the banks, a process which, eventually, buries them under coarser material derived from the overlying natural levee. The points of resistance cannot as a rule be recognized on the surface, though in some cases they may be responsible for a subdued "false cape." Bore-holes are the best way of confirming the presence of clay-plugs: accurate outlines of a subsurface plug may be thus obtained.

Upon becoming detached, the ancestral channel which gives origin to a "plug," for a time remains filled with water, giving rise to a so-called horseshoe lake. Vegetation grows on the terminal and marginal alluvial deposits. Alluvial fill gradually replaces open water. The vegetation is adapted to the swampy soil. Minor long term fluctuations in the water table, resulting in parallel oscillations in the level of the lake, explain why successive generations of trees may be located within a small range of levels, as they gradually became immersed in the ooze. Cypress stumps, because of their great resistance to rot, remain preserved in such deposits.

If the river in a later day swings back again and encroaches upon such a "clay" plug, it may erode it to some extent and exhume longburied cypress stumps. The presence
of cypress stumps along an actively caving-channel is, therefore, a common indication of an old swamp deposit which may cap a clay plug and always merits investigation.

A number of cypress stumps at one of the localities where a point of resistance was suspected, on the outside banks of False River loop, between Oscar and Mix, at about 3.3 miles from the junction of Highways 93 and C-1473, led the writer to suspect that they might be "fossil," i.e., they might mark the site of a clay plug from some ancient Mississippi channel. The stumps are very much rotted and in some cases are hollow. The preliminary question is, of course, to know whether these stumps could, in the period of approximately 250 years, transpired since the cutoff became effective, (1) grow to the rather large size they have, as shown in Figs. 3 and 4, and (2) reach their present state of deterioration. A negative answer to this question would naturally be decisive proof of the "fossil" character of the stumps.

The testimony of the local population is contradictory and does not help much. One person who has lived all his life almost in front of the locality states that as long as he can remember (at least 45 years), the stumps have been there in their present rotted condition. He adds that the water in False River used to be higher and that more stumps became visible as the storm waves washed them out of the
Fig. 3 -- Conical-shape of cypress stumps near outside bank of False River, between Oscar and Mix (at about 3.3 miles from the junction of Highways 93 and C-1473), is an indication that trees grew in body of water having only minor fluctuations in level. Fall, 1944.
Fig. 4 -- Rotted cypress stumps near outside bank of False River, between Oscar and Mix (at about 3.3 miles from the junction of Highways 93 and C-1473). The great angle of base lends the illusion of the trees having been larger than they actually were. Fall, 1944.
"bank." Another person of the locality says that not over 30 years ago he remembers the living trees standing and even used to fish there, as the trees cast a shade favorable for perch and bass.

Some of the cypress stumps are found both in the marginal post-cutoff deposits (batture) as well as in the water, some ten or twenty feet from the edge of the accretion. None was actually found by the writer embedded in the banks of the old Mississippi channel which has been blanketed by slump material. To find them here would, of course, be conclusive evidence in favor of a "fossil" origin.

The conical shape of the base of the stumps indicates, according to Brown, that they grew in a body of water having only very minor fluctuations in level. This could mean that the cypress trees grew in False River Lake itself or in a previous oxbow lake abandoned in that locality when the Mississippi River flowed through the area in some entirely different course. The great angle of the base probably lends the illusion of the trees having been larger than they actually were (they probably narrowed abruptly instead of tapering off gradually). It is possible to compare the stumps with some growing cypress on False River marginal accretions (Fig. 22). Using a conservative rule of thumb principle, each foot of radius at about four and a half feet above the ground corresponds to one century of
growth, it may be seen that the trees corresponding to the stumps, in less than two centuries could have reached the development they possessed when killed off. On the other hand, on the basis of Brown's estimates, time was also needed to attain their present state of rottenness.

It has also been Brown's experience that fossil cypress stumps when dug out decompose rapidly. If they had been exposed more than 200 years ago by the erosion of the Mississippi, while flowing through False River Channel, it is not likely that they would still be there. Even less likely to be preserved are the cypress "knees," which are found in considerable quantity.

It must be further added that at least two stumps show definite signs of having been sawed. All this seems to point to the fact that the cypress are post-cutoff, having grown in the waters of the present-day lake itself. The investigation of the exposed cypress stumps, therefore, yielded no positive result in the identification of this particular "clay-plug."

Somewhat more conclusive evidence was found concerning a suspected "clay-plug" in the vicinity of Rougon (See Plate II). At this site, resistant wood was found at a depth of about 80 feet in a water-well dug in October 1944. Elsewhere in Louisiana, resistant wood at depth invariably turns out to be cypress and, although no specimens were obtained,
it seems safe to conclude that the drillers encountered cypress. The experience of R. J. Russell and other investigators at Louisiana State University indicates that such buried stumps are almost invariably located either in clay plug or backswamp deposits. The inference is rather strong that the cypress demonstrates the presence of the suspected clay plug.

**Growth Arc Topography**

The ridge and swale topography has already been referred to in connection with its value as a record of the evolution of the outstanding feature of the pre-cutoff phase, the abandoned channel. But the ridge and swale topography merits some further remarks, for it represents, in itself, an important feature of the flood plain, noted even in the field records of the early surveyors. A small excerpt from the Survey by Robert Boyd (1858) of the East Boundary of T4S., R 10 E., on the point or peninsula formed by the old channel of False River and the Mississippi north of False River (Waterloo Point, on Plate II), is characteristic:

**4th mile**

<table>
<thead>
<tr>
<th>North</th>
<th>0.50 to Lake</th>
<th>N70 E &amp; S70 W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.00 across it to ridge</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>4.00 to Lake</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>6.20 across it to ridge</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>7.00 to Lake</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>14.60 across it to ridge</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>17.70 to Lake</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>19.50 across it to ridge</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>20.50 to a Lake</td>
<td>do</td>
</tr>
<tr>
<td></td>
<td>23.00 across it</td>
<td>do</td>
</tr>
</tbody>
</table>
28.50 to Lake or Marsh  do
36.50 to ridge with timber do
38.30 to Lake  do

Even in this description, the parallelism of ridges and swales may be noticed, all having been set down as N70 E & S70 W. The overall picture of the ridge and swale topography could not be fully visualized, however, until aerial photographs became available. True, the contour-lines of the topographic map indicate a series of arcuate and, as a rule, sub-parallel strips of higher land; the topographic map is generalized, however, and the ridge and swale pattern is best brought out in aerial photographs, where it appears as a succession of alternately dark and light lines. These tonal intensities indicate differences in vegetation and drainage (fig. 5). Upon examination in the field, these lines appear as low, gentle ridges, alternating with broad swales. Relief between the ridges and the swales varies a good deal, between five and ten feet being common (fig. 6). The width of both ridges and swales is even more variable: in some places, the alternation of ridges and swales, having only a few feet in width, produces a choppy, wave-like effect when crossed at right angles. In other places, ridges are a few hundred yards wide and produce a gently undulating topography (fig. 7).

The swales are commonly occupied by swamps or lakes, being lined with fine overbank deposits, as shown in the dry
Fig. 5 -- View across "grain" of undulating topography on "Island." Camera on crest; car in trough occupied by hydrophytes, drainage being from right to left. Mr. Octave L. Bergeron's property, about 7 miles from New Roads' courthouse. October, 1944.
Fig. 6 — Undulating topography of "Island." Man standing in swale (coup) about 25 feet from its axis (outside of photo, on left), rests hand on tree at point corresponding to crest of ridge (couteau), in background. Ratio of height, from trough to crest, to distance, from crest to crest, was not uncommonly found to be of the order of 1:80 in this vicinity. Mr. Octave L. Bergeron's property, about 7 miles from New Roads' courthouse. October, 1944.
Fig. 7 -- Park-like landscape of ridge and swale topography on "Island." Photo at right angles to drainage. Mr. Octave L. Bergeron's property, about 7 miles from New Roads' courthouse. October, 1944.
bed of Lac des Isles, on the northern part of the "Island" (fig. 8). Petit Mauvais Lac, in the same vicinity, is typical of the long, narrow swale lakes (fig. 9).

Even under original conditions, the ridges had vegetation better adapted to a drier soil environment than the swales. A number of these ridges, especially on the northwestern portion of the "Island," are cultivated. Even more were cultivated in the past. Presently, abandoned cultivation appears as lighter patches on the aerial photographs.

**Natural Levees and Backswamps**

The growth arcs in the vicinity of an active channel tend to be blanketed by overbank deposits. This alluvial "drowning" of pre-existent topography of course becomes more pronounced with proximity to the channel, where the deposits are thickest and the overlying sediments may, in fact, entirely mask any topographic irregularities. Further away, as the overbank deposits taper off, the ridges and swales, although partly smoothed out, may persist in the form of gentle undulations. The buried arcs commonly remain visible on aerial photos, as if the overlying layer of alluvium were transparent. This is due to the influence of the buried ridges and swales on the pedogenic process and on the surface drainage.

The realization that the land close to the channel is highest and slopes gently away from the river impresses
Fig. 8 -- The finger sloughs, typical of ridge and swale topography of the "Island," are lined with fine overbank deposits. Mudcracks in dry bed of Lac des Isles, on Mr. Octave L. Bergeron's property, 7 miles from New Roads' courthouse. October, 1944.
Fig. 9 — Photograph across Petit Mauvais Lac, typical of long narrow swale lakes on "Island." Mr. Octave L. Bergeron's property, about 7 miles from New Roads' courthouse. October, 1944.
itself upon the visitor through a difference in vegetation and land use, rather than by recognition of actual relief. Such ridges of higher land immediately adjacent to the old Mississippi channel at False River, or "natural levees,"\textsuperscript{33} are largely the product of conditions obtaining before the cutoff took place.

The lower land toward which the back-slopes of natural levees gradually lead are swampy and covered with water during many wet seasons. They are called "back swamps."\textsuperscript{34}

There is considerable difference in the width of the natural levee on one and the other bank of False River. In the words of an early Surveyor, referring to False River point or "Island," "all the Lands on this Island are Low in rear & do not afforde more then from 6 to 10 arpons\textsuperscript{35} in debth (sic) fit for Cultivation of Cotton - timber Oak Elm Ash Cottonwood &. the whole of the Common Growth that is found on the Low innundated Lands of the Miss\textsuperscript{i}."\textsuperscript{36}

In this, the "Island" levee constitutes no exception. Thus, in the regulations regarding the grant of vacant land, established Feb. 8, 1770 by Don Alexandro O'Reilly, to every family a tract was to be granted having, in general, six or eight arpents in front of the Mississippi, with a depth of 40.\textsuperscript{37} Only about half of this depth was liable to cultivation, the remainder lying in the cypress swamps.\textsuperscript{38} Seeing that the arable land on the points formed by the river had even less depth, O'Reilly's regulations provided that in
such sites grants might be made up to 12 arpents in front, or the land could be granted to owners of adjacent tracts. 39

**Crevasse Topography**

Another topographic feature which might in the field pass unobserved stands out boldly on aerial photographs and on the topographic map. On Plate I, irregular tongues of higher land may be seen thrusting swampwards from the False River channel and are marked A, B, C, D, and E. A certain analogy with deltas or alluvial fans is evident in the finely braided drainage pattern. This is especially noticeable on the larger tongue marked D. Upon descending into one of the numerous channels, thus obtaining a profile view of the inter-channel terrain, one observes that the latter often appears as a flat surface. The deposits along the south bank of False River are similar in appearance to, though of much larger dimensions than, those which spread out from the site of the Morganza crevasse on the Mississippi bank, north of False River (see inset, Plate I). This type of topography, i.e. greatly vascularized tongues of land thrusting into the backswamp from the banks of active or inactive channels, is called "crevasse topography."

The crevasse topography area south of False River is particularly interesting to the geomorphologist, because it was formed under entirely natural conditions, before artificial levees were introduced in the valley. When crevasses
occur in artificial levees, the flow of water being con-
centrated, the depositional features are modified to some
extent.

Crevasse deposits differ from natural levee deposits
in that the latter are simply the product of overbank
sedimentation, whereas the former are accompanied by
scouring out of channels, by a break-through of the natural
levee.

The two dimensional idea of the river and the flood
plain, obtained by the mere inspection of maps or aerial
photographs, is the one most commonly held by laymen.
Based on it alone, one might inquire as to why the river,
once having broken through the south rim of the present
False River channel, did not maintain this opening and
adopt it as a new channel. Why did the Mississippi not
come to occupy the position of Bayou Poydras (figs. 10 and
11)?

The three dimensional picture obtained by considering
a cross section of the river and the flood plain, in con-
junction with the map or aerial photograph is an explanation
in itself. As pointed out by Lyell more than a century
ago, the bottom of the Mississippi river channel is well
below the level of the flood plain. It is, so to say,
firmly entrenched. Crevasse deposits a certain amount of
scour. Rarely, however, does this affect the alluvium much
below the natural levee deposits. Only under very special
Fig. 10 — Crevasse channel. Bridge across Bayou Poydras alongside highway 30, about four miles south of False River channel. October, 1944.
Fig. 11 -- Crevasse channel. Bayou Poydras, near intersection of Highways 30 and 71, about four and a half miles south of False River channel. Camera pointing upstream. October, 1944.
conditions, not obtaining in the False River case, does crevassing lead to a radical change in the river's course.
REFERENCES


6 Experimentation has successfully isolated the following basic factors of river meandering:
   a. Energy of stream
      (1) Volume of flow
      (2) Velocity of flow
         (a) Valley slope
         (b) Cross-section;
   b. Amount and character of bed load transported by the stream;
   c. Resistance of bed material to erosion;
   d. Degree of lateral oscillation or angular directive which determines the angle of attack of the stream against its banks.

Capt. Joseph F. Friedkin - Typewritten Memorandum to:
President, Mississippi River Commission, Vicksburg, Miss.
(Through the Director, U. S. Waterways Experiment Station),
Subject: Bank Stabilization, 17 January 1944.

56

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Essentially the same list of variables is found in an earlier paper by G. H. Matthes, "Basic aspects of Stream Meanders," *American Geophysical Union Transactions*, 1941, p. 632. This does not exclude the possibility that other factors may be successfully isolated in the laboratory at some future date. "Effective stage difference," already noted by Russell as a result of observation in the field ("Physiography of the Lower Mississippi Delta," *op. cit.*, p. 134-137), ought to furnish interesting material for laboratory research.

An outstanding contribution to the understanding of the phenomenon of river meandering, is the laboratory study conducted at the U. S. Waterways Experiment Station, with the use of small streams flowing in selected erodible materials, as reported by Friedkin, "A Laboratory Study of the Meandering of Alluvial Rivers," *War Department, U.S.W.E.S.*, Vicksburg, 1945.


10 Prepared in the Office of the President, Vicksburg, Miss., Mississippi River Commission, August, 1941.

11 Just above the mouth of the St. Francis River, Ark.
12 Just south of Natchez, Miss.

13 Mr. Gerard H. Matthes, personal communication.

14 This map was obtained by tracing the significant features from the aerial photograph index map, scale approx. 1:62500, of the Agricultural Adjustment Administration, reproduced in the frontispiece. It must be recalled that on the photograph the growth arcs are closely spaced. Only a relatively small number was needed to represent the evolutionary trend of the channel. Nothing was to be gained by attempting to put in all arcs; on the contrary, the map would certainly lose in clearness by such an attempt.


16 The two definitions do not give us necessarily the same length of channel. A loop may have its length reduced after the cutoff, if the new cutoff channel moves across the neck towards the apex of the loop.

17 Fur traders are said to have employed this method of estimating distances in ascending the upper waters of the Mississippi, see Justin Winsor, The Westward Movement: The Colonies and the Republic West of the Alleghanies, 1763-1798, Houghton, Mifflin and Co., 1897, p. 472-473.

19 Friedkin, Typewritten Memorandum, op. cit.


It seems preferable to use an especial expression for this feature, rather than to broaden the expression "meander scar" so as to include "crescentic cut in the up-land bordering a stream cut by lateral planation on the outer part of the meander loop" as suggested by Marius R. Campbell, "Meaning of Meanders in Tidal Streams," Geological Society of America Bulletin, vol. 38, no. 3 (September, 1927), in footnote on p. 537. To the present writer at least the term scar strongly suggests a cut that has been "healed." Thus a meander loop, if subsequently filled, is appropriately referred to as a scar. The cut into the terrace bluffs remains "unhealed": the term meander bite seems adequate.


23 It will be recalled that portions of loops can develop or sweep up-valley.

24 Harold N. Fisk, Geological Investigation of the Alluvial Valley of the Lower Mississippi River, Vicksburg, Miss., Mississippi River Commission, 1944, indicates the former existence of other loops, as long and even longer than the False River loop.

25 Matthes, "Basic Aspects of Stream Meanders," American Geophysical Union, Transactions, 1941, Fig. 2, p. 634.

26 The Central Board of Irrigation, India, Annual Report (Technical), 1939-1940, p. 115.


29 Geographical Essays, op. cit.

30 In the Amazon floodplain, the writer has found the practically imputrescible piranheira (Piranhea trifoliata, Baill.) to be an equally significant geomorphic indicator.

31 Actually, the marginal post cutoff fill, along the banks.

32 For the interpretation of the cypress stumps, the writer is greatly indebted to Dr. Clair A. Brown, Professor of Botany of the Louisiana State University, who kindly consented to inspect the stumps.

33 The word levee has been used in Louisiana since the very beginning of European settlement. It is used for example in 1721 in Tréscription from volume of Louisiana Census Tables. "Récensements 1706-1741," at the Ministère des Colonies, Paris, in Publications of the Louisiana Historical Society, New Orleans, La. Vol. V, 1911, p. 94-95.

34 This expression was used at least as early as the end of the 18th century. Thomas Hutchins, Appendix No. 1 to G. Imlay, A topographical description of the Western Territory of North America, London, J. Debrett, 1793, 2nd ed., p. 415.

35 Arpent, an old French measure of land. In the acceptation of a linear measure, it is roughly equivalent to 192 feet. Arpent is still in common use among the French of Louisiana, William A. Read, Louisiana-French, L.S.U. Press, 1931, p. 3.
36 Charles Morgan's Field Notes No. 1, p. 87: 8 Nov. 1806 "Surveyed a tract of land on the Island of False River for Joseph Jofrion [Sec. 106, T 4 S R 10 E].


38 Claude C. Robin, Voyages dans l'intérieur de la Louisiane, Paris, F. Buisson, 1807, II, p. 239.

39 Cited in Martin, loc. cit.

CHAPTER III
THE CUTOFF

In considering the origin and the date of the cutoff which gave birth to False River Lake, there is, no little disagreement among the chroniclers and historians who mention the incident.

Cause

Human interference: different versions. No scientific treatment of the Pointe Coupee or False River Cutoff having yet been made, the material which may be presented here is found in more or less incidental references. With few exceptions, secondary historical sources explicitly attribute the phenomenon to human interference. These writings may be placed in two general groups.

The writers of the first group note the Sieur d'Iberville's ascent of the Mississippi in 1699 and his encounter of a passage or portage across the neck of a meander loop. Because he ordered the passage cleared, Iberville is credited by these writers with initiating the cutoff and changing the course of the river.

The writers responsible for the second group of versions attribute the cutoff to the work of travelers voyaging down
the river, or commit themselves to little more than merely indicating the responsibility of some human agency.

It must be noted that some few writers—the exceptions mentioned above—set down Iberville's passage through the neck of Pointe Coupée and then point out that the river finally took the same short cut, abstaining, however, from the indication of a causal relationship between the two facts.

François-Xavier Martin's statements may be transcribed as an example of the first and most numerous group:

"... they [Iberville and his group] came to a place where the river made a considerable bend. Iberville, perceiving a large outlet, caused a number of trees that obstructed it to be cut down, and the barges were drawn through. The Mississippi afterwards so widened the outlet, that in time, the former bed of the river being much obstructed by trees, the stream altered its course, and the outlet became its bed. The place was hence called Point Coupée."

The writers of the second group are well represented by Le Page du Pratz. In his "History of Louisiana," he says:

"... the Mississipi ["le fleuve," in the original] ... there ... formed the figure of a circle, open only about an hundred and odd toises [old French measure, one toise equivalent to about two yards] thro' which it made itself a shorter way, and where all its water runs at present. This was not the work of nature alone: two travellers, coming down the Mississipi, were forced to stop short at this place; ... Just by them passed a rivulet, caused by the inundation, which might be a foot deep, by four or five feet broad, more or less. One of the travellers. ..."
followed the course of this rivulet, . . . He had
not gone an hundred toises, before he was very
surprised, on perceiving a great opening, as when
one is just getting out of a thick forest. He
continues to advance, sees a large extent of water,
which he takes for a lake; but turning on his left,
he espies les Petits Ecures, . . . he knew these
were the waters of the river. He runs to acquaint
his companion: . . . they resolve . . . to cut away
the roots, which stood in the passage, and to level
the more elevated places. They attempted at length
to pass their pettyaugre [a large canoe] through,
by pushing it before them. They succeeded beyond
their expectation; the water which came on, aided
them . . . and they saw themselves in a short time
in the Mississipi, ten leagues lower down than they
were an hour before; . . .

"This little labour of our travellers moved the
earth; the roots being cut away in part, proved no
longer an obstacle to the course of the water; the
slope or descent in this small passage was equal to
that in the river for the ten leagues of the compass
it took: in fine, nature, though feebly aided, per­
formed the rest. The first time I went up the river
[1719 (?)], its entire body of water passed through
this part; and though the channel was only made six
years before, the old bed was almost filled with the
ooze, which the river had there deposited; and I
have seen trees growing there of an astonishing size,
that one might wonder how they should come to be so
large in so short a time." 2

This and other versions which attribute the cutoff to
travellers voyaging down the river may have arisen from
the fact that Canadians were employed by the Iberville
expedition to clear the passage.

The words of Father Charlevoix might also be cited as
representative of the second group. He does not indicate
that the travellers were voyaging downstream, but tells
us they were Canadians.
We encamped the 29th [December, 1721] a little below the mouth of the Red River, in a very fine bay.

The 30th, after having gone five leagues, we passed a second point cutoff. The Mississippi, in this place, makes a great winding. Some Canadians, by dint of hollowing a little brook, which was behind the point, brought the waters of the river into it; which spreading themselves impetuously in this new channel, completely cut off the point, and hath saved travellers fourteen leagues of way."

Research has indicated that, whereas the entire second group of versions may be discarded, the Iberville expedition, from which it appears to be derived, is deserving of our attention.

Although it might seem unnecessary to stress the existence of more than one variation of the same fact, one Master's thesis, submitted to Louisiana State University, demonstrates how confusing these different versions may prove. The writer of the thesis in question, finding two different accounts and not recognizing them for two interpretations of one and the same story, decided to subscribe to both. A strange and confused combination resulted. On the very same page we are told:

(1) "Many years ago, before the cut-offs had been made at the Mississippi landings about 1791, False River was the actual bed of the Mississippi River, and that immense body of water . . . here made a detour (cut-off) . . . Through the newly made channel, La Salle [La Salle's explorations: 1678 to 1687; descent of the Mississippi in 1682!] and his men, continued their voyage of discovery.
(2) "Following such conditions, new [or now; carbon copy is unclear] False River, Bienville, who was governor at the time, gave leave to a few pionereers to dig a canal from the upper to the lower ends of the turn in the river. The distance across was exceedingly short; so it required but a brief space of time for the tremendous and scouring waters to divert themselves from the natural bed to the artificial channel."4

Iberville's short cut in 1699. Fortunately we are not not restricted to secondary sources in considering the Iberville expedition of 1699. There are in existence two reliable first-hand accounts of this expedition: the log book of the frigate Cheval Marin5 and Iberville's own impressions. There is, in addition, the narrative of the ship's carpenter Jean Pénicaud, which is commonly placed among the eye-witness accounts of Iberville's first trip, but which must be regarded with considerable caution.

The Journal of the frigate Cheval Marin, kept up by an ensign from that frigate, De Sauvole de la Villantery, may be cited in first place, because of its more official nature:

"Le mercredi 18e [March, 1699]. . . . Sur les trois heures, les Sauvages nous montrèrent une petite rivière, don't l'eau ne couroit point, par laquelle ils nous disoient que nous eussions abrégé nostre chemin de plus d'une journée et demie. M. Iberville s'embarqua dans un petit canot d'escorce, pour voir s'il y avait lieu d'y passer, n'y ayant que quelques arbres qui bouchoient le passage. Il fit mettre tous les Canadiens avec des haches a terre, et les reste à haler avec des cordes les chaloupes. On fit un chemin en aplanissant la terre le plus qu'on peut. Ensuite on présenta les palans, de sorte que nous halasmes nos chaloupes de l'autre costé; il pouvoit y avoir trente pas de terrain et soixante-dix d'eau, qui accourent de plus de six lieues, comme nous le vismes en descendant."6

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The following excerpt is from Iberville's account:

"Il y a sur le bord beaucoup de cabanes couvertes de lataniers et un may sans branches, rougy avec plusieurs testes de poissons et d'ours attachées en sacrifice. Le terrain est parfaitement beau.

"Le 18e [March 1699] mon frère et ces Sauvages m'ont joint, qui n'ont rien tué; mon frère a tué un ours. À deux lieues de la couchée, j'ai trouvée une isle d'une lieue de long; c'est la première que j'aye trouvée sur la rivière. À deux lieues de l'isle, à la droite, j'ai trouvé un pays haut, élevé de cinquante pieds de terre; terre sablonneuse, comme à Estampes, pendant deux lieues; l'autre bord plat comme ailleurs. À six lieues et demye de la couchée, nous avons trouvé un ruisseau large de six pieds, qui vient de la rivière du Mississipy. Les Sauvages m'ont dit que, si je pouvais passer mes chaloupes par là, j'abrégèrois d'une journée de chemin. J'envoyay mon frère en canot voir se cela se pouvoit. M'ayant dit qu'ouy, avec un peu de travail, il y a un espace de cinq cents pas, où j'ai trouvé un amas de bois de trente pieds de haut, que les grandes eaux avaient amassés les uns sur les autres, qui en bouchent la sortie; je fis travailler à faire un chemin de trois cent cinquante pas de long, et fis le portage de tout ce que j'avois dans ma chaloupe, et avec des palans je les fis passer de l'autre costé et les jeter dans la rivière avec beaucoup de peine. Il pleuvoyt et les pays estoit de vase, sur laquelle on ne pouvoit se tenir. Je finis ce travail à neuf heures du soir, avec flambeaux de cannes liées ensemble, et fus coucher de l'autre bord de la rivière, où mon frère, avec les deux canots d'escorce, avoit passé faire les tentes et à souper pour tout le monde."?

Pénicaud merges accurate and innaccurate statements in his narrative. The facts recorded by him were no longer fresh in his mind when set down on paper; if he had notes to draw upon, these must have been very scanty. Mistakes in chronology are, therefore, numerous. "In general, the facts he narrates are true, but very often the sequence is
Not only does Pénicaut get Iberville's three explorations confused, but he even narrates an imaginary fourth voyage. We cannot, for this reason, be certain that Pénicaut actually did accompany Iberville on this first expedition through the Pointe Coupée short-cut. Nevertheless, as the item with which this investigation is concerned can be confronted with the two preceding contemporary sources, it is given below.

"À cinq lieues de ce poteau ["poteau rougi," i.e., Baton Rouge], plus haut à la droite, il y a des ecores ou bords de terre blanche, fort hauts, de trois quarts de lieue de long, au bout desquels on trouve une langue de terre, qui avançant fort avant dans le Mississipy, formoit sept lieues de tour. M. d'Iberville, pour éviter la longueur de ce detour fit porter les chaloupes à travers cette langue, qui n'avoiit qu'une portée de fusil de travers et nous fuzmes à l'instant de l'autre costé dans le Mississipy, où nous remismes nos chaloupes. Depuis quelques temps, la rapidité du fleuve l'a tellement miné, qu'il y fait maintenant passer son cours entier. C'est pourquoi cette langue de terre porte à présent le nom de la Pointe Coupée."

The comparison of the three distinct but convergent accounts quoted above appears to prove that Iberville's expedition actually took a short cut across the neck of the False River bend and that a few trees were cut down to expedite the process. It may be further assumed that the termination of the cutting-off process followed within less than a quarter of a century. It would, however, be a mistake to conclude that, because a time parallelism exists between the two facts, they are necessarily bound by a causal
A priori, we can only say that their relation could be causal or merely coincidental.

Before entering into an examination of the evidence for and against a causal relationship, the reader will be briefly acquainted with the historical material pertaining to the matter of the age of the cutoff. This will avoid the necessity of separating the problems of cause and of age, and permit them to be treated jointly.

**Date**

In history, there is no difficulty in expressing the date when some particular person was born or died. Other events, such as the invention of the press or the French Revolution, for example, although spread over months and even years, are also commemorated on one single and more or less arbitrarily chosen day. In the case of a usually protracted natural process, such as a river cutoff, there obviously arises the question as to what particular stage is to be chosen for historical records.

In determining the stage at which to consider a cutoff established, the following distinction might be useful:

1. There is a period of preparation, during which the river discharges through the loop at all stages and through the short cut only at high stages;
2. The cutoff may be regarded as completed when only flood waters take the old channel, the cutoff channel being in use at all stages.
Obviously, there will always be a gradation between the first and second conditions; \(^{10}\) this basis for discrimination seems, nevertheless, to be the nearest we can get to a logical criterion. To say that a cutoff is completed when no more water flows through the old channel, for example, would be to postulate a condition usually unattained within a relatively short period, say a couple of decades.

The perusal of both lay and scientific literature indicates that such a problem received no attention in the case of Pointe Coupée, as in many other cutoffs. The commonest statement is that the cutoff took place in 1722, no indication being given as to what criterion was followed in determining the completion of the phenomenon. We do not know who was responsible for giving this particular date a place in history.

Other dates have been advanced. "Old Timer" writing in the New Orleans Times Democrat (August 1831), states that the Pointe Coupée cutoff was made in 1721. \(^{11}\) Thomas Hutchins, in a publication which appeared in 1797, says vaguely that the Mississippi passed through False River "about 70 years ago," \(^{12}\) which would place the cutoff in the 1720's. Calculations based on Pittman's statements \(^{13}\) would place the cutoff at about 1715. A literal interpretation of La Harpe's "Journal" \(^{14}\) would indicate that the cutoff became effective at the time of Iberville's expedition, i.e., in 1699.
According to Le Page du Pratz, already quoted, when he for the first time ascended the river in 1719(?), the cutoff had been effective for six years, i.e., since 1713(?).

Notwithstanding the many other dates suggested, 1722 gained such widespread endorsement that it has come to be considered as an established fact. It was used by Levee Engineers at least as far back as 1873, and its adoption and wide diffusion by the Mississippi River Commission in writings and maps has lent it added prestige.

Conclusions

An attempt may now be made to discover whether it is justifiable to attribute the cutting of the Mississippi at Pointe Coupée to Iberville's passage or whether the event would have taken place regardless of this passage. In the course of this examination, some light ought to be shed on the matter of the date of the occurrence.

Human interference unnecessary. The process of cutting-off of meander loops is an every-day occurrence in nature. The formation of ox-bow, horseshoe, or better, cutoff lakes—one of the most visible results of this process—has been recognized for a long time.

Man has, it is true, caused a number of cutoffs to take place artificially and has in other cases accelerated, as well as retarded, the natural process of the river shortening.
The paramount fact which should be emphasized here is that man's interference would not be necessary to cause the Pointe Coupée cutoff. This statement is borne out by many natural cutoffs which occurred within historic times, the following being illustrations: Commerce Cutoff, which occurred in 1874, about forty miles below Memphis; Centennial Lake Cutoff, which occurred in 1876, immediately above the City of Vicksburg; Palmyra, or Davis Island Cutoff, which took place in 1867, a few miles below Vicksburg; and Waterproof Cutoff, which occurred in 1884, opposite L'Argent, Louisiana. 17

Many more examples of natural cutoffs on the lower Mississippi could be mentioned; suffice it to say that the False River is one of more than twenty actually recorded cutoffs, the vast majority of which took place without the help of any human agency. 18 Some cutoffs, in fact, occurred in spite of man's contrary efforts. Such, for example, is the case of Yucatan Cutoff, which, regardless of costly preventive measures, took place in 1929. 19 Equally expensive efforts could not prevent the natural cutoff across Leland Neck, which had threatened to take place for many years and which finally occurred in 1933. 20

To the fact that human interference was entirely unnecessary in the case of the False River Cutoff, might be further added that the achievement of the cutoff as a natural
occurrence was, one could almost say, overdue by the end of the 17th century.

Mark Jefferson is responsible for introducing the idea that the width of the meander belt of a given river bears a definite numerical relation to the width of the same river. Stated in other words, this means that the "distance between lines drawn tangentially to the extreme points of successive fully developed meanders" is proportional to the width of the river. Notwithstanding an amount of justified criticism leveled at Jefferson's concept, it has the merit of calling attention to the existence of a certain relation between the dimensions of the meander loops and the magnitude of the river itself. Without entering into the study of the highly theoretical numerical ratios existing between the width of the Mississippi River and the radii of its meanders, the fact remains that False River loop was abnormally developed compared with other known loops, and a cut-off at this point might have occurred well earlier were there not excellent reasons for the delay.

*Human interference ineffective.* It may be asked next whether the work done by Iberville's group, as recorded by eye-witnesses, was sufficient (even if unnecessary) to be the cause of the cutoff or whether it could materially affect the speed at which the natural process was brought to an end. In other words, was the Pointe Coupée Cutoff originated or
accelerated by artificial means? It seems appropriate to compare the work done by Iberville's group with some of the modern cutoff operations carried out and recorded by the Mississippi River Commission.

The "Journal du Voyage" of the frigate Cheval Marin informs one that the total number of men who took part in this expedition was fifty one, including the commander himself and his brother, priests, pilot, etc. The rank and file, a total of forty men, was made up of Canadians and "flibustiers" who had been taken on board at Santo Domingo.

The Journal of the Cheval Marin tells us that M. d'Iberville put all the Canadians to work, i.e., about thirty men, if we discount the "flibustiers." It is apparent that the only tools this mere handful of men had were axes. At three o'clock in the afternoon the Indian guides pointed out the little stream. The travelers did not set to work at once chopping down trees and clearing roots, but first examined the little stream, as both Iberville's account and the Journal of the frigate Cheval Marin explicitly state.

Finally, Iberville's account tells us that they finished the work at nine o'clock that night, by the light of torches made by binding canes together. After this, he relates how he lay down to sleep on the further side of the peninsula. A total of nine hours had elapsed from the time the little stream was first sighted to the time the job was completed.
In order to effect a cutoff, river engineers employ such modern equipment as hydraulic dredges, dragline machines, cutterhead dredges, etc. A great deal of preliminary work (e.g., closely spaced borings) precedes the actual operation in which this elaborate machinery is employed and which usually lasts a few months. Few people familiar with this whole procedure would be of the opinion that a few hours of work performed by a handful of ill-equipped men could obtain identical results. So as to exemplify the magnitude of the task, the brief description of three artificial cutoffs, chosen at random, are given here.

At Rodney Cutoff, the work "commenced in July 1935 with dredge and a dragline machine, 7,600,000 cubic yards being removed and the cut opened during February 1936."28

The Willow Cutoff is described as follows:

"... from November 19, 1933 to January 28, 1934, seven dragline machines were operated for 322 machine days, excavating a pilot cut along the proposed channel-way for Willow Cutoff. During the period of operations they removed 2,393,000 cubic yards of material. ... Between December 26, 1933 and May 15, 1934, hydraulic dredges removed 5,100,000 cubic yards of material along the proposed channelway. ..."29

Ashbrook Cutoff was made at a very narrow neck—as narrow perhaps as that at Pointe Coupée. The conditions for the cutoff were excellent, and two days after the last narrow plug of earth in the middle of the dredged pilot
channel was blasted out, the steamer Mississippi was sailing through the new channel. Even here, the amount of earth dredged was about 3,350,000 cubic yards.30

The above comparison of Iberville's work, purported to have caused the cutoff at Pointe Coupée, with later efforts to obtain artificial cutoffs may be suitably completed by directing the reader's attention to a fact which occurred in the Civil War. In 1864, General U. S. Grant, who had at his command more men and better equipment than Iberville, attempting to by-pass the city of Vicksburg, ordered a canal dug across the narrow neck of the meander loop, which was covered by the guns of the "Gibraltar of the South." His efforts were without success. Yet, twelve years later, a natural cutoff occurred in a different place, not far from the site of "Grant's Canal," leaving the city of Vicksburg on a lake.31

This goes to prove that the natural evolution of the river's channel is not easily thwarted or accelerated without ample resources of men, equipment and time. It is believed, therefore, that there is no causal relation between Iberville's expedition and False River Cutoff.

The natural cutoff—a long drawn out process. The difficulty in deciding when to consider the natural cutoff process as completed has already been indicated, thus implying that we have to deal with a long-term operation.
The experience of the Mississippi River Commission, acquired since 1932 in observing the development of numerous cutoffs, has indicated that "following a cutoff many years may pass before the cutoff channel fully develops for carrying low water flow" and that, "unless the bend is finally separated from the river by levees, the cutoff would seldom carry the full flow during floods."

The rate of development in Yucatan Cutoff, near Grand Gulf, Mississippi, is an example of the long period required for completion of a natural cutoff. Although hastened by artificial means, without which the full development of the cutoff would have needed several more years, it required eight years for the cutoff to develop completely.

Another, even more striking, example is furnished by Waterproof Cutoff. About 1855, a ditch had been dug across the narrow (less than a mile-wide) neck. Although since that time a portion of the floodwaters had discharged through the ditch during every high water stage, the Chief State Engineer in 1871 declared that "The ditch... does not induce the river to follow its course." The cutoff is said by Elliott to have been complete in May, 1884, nearly thirty years after the channel had been excavated. The word "complete," as used by Elliott, does not appear to coincide with the connotation advanced in the present paper; i.e., it does not indicate that, from 1884 on, the old loop was
completely abandoned by all but the highest flood waters. A few more years may therefore have elapsed before this condition was finally achieved.

**Intermediate stage of process at Iberville's passage.** Combining Iberville's original account with the log of the Cheval Marin, the conclusion is reached that the travelers encountered a six foot wide, currentless (at that season) body of water leading across the narrow False River neck from the Mississippi River above to the Mississippi below. This channel was blocked by a mass of logs thirty feet high which had been piled up during high water stage.  

There can be no doubt that the cutoff channel was in existence in 1699. Furthermore, both Iberville's account and the log of the frigate Cheval Marin agree that the little stream was pointed out by the Indians, who recommended it as a short cut. It may, therefore, be surmised that this stream had been known and used by the natives for some time.

The channel in question had been scoured by excess flood waters discharging across the narrow neck. As in the case of the artificial cutoffs, each successive annual flood was to widen and deepen the channel a little more, the river being able to use it at successively lower stages. Ultimately, the new channel would be used the year round, carrying an increasing percentage of the total low-stage discharge. It is evident that in the early part of 1699,
this condition had not yet been attained. The last overflow had, upon subsiding, left stranded the pile of wood referred to; no current, only a stagnant body of water, marked the new channel when the place was visited by Iberville. It cannot be ascertained, of course, whether the new channel was utilized by the average annual spring floods or whether only exceptionally large floods caused it to be flushed.

A table of the "Mississippi River; Highest Annual Stages," covering the period from 1880 to 1943 inclusive, shows that at Red River Landing, above False River, or at Baton Rouge, below, seventy-three per cent of the highest annual stages occurred after the month of March. If the expedition reached the short-cut in March (which it did, according to the text of the log of the Cheval Marin), the chances would be, therefore, three to one that Iberville's expedition took the short cut during rising waters, but prior to the crest of the annual spring flood.

It is interesting to recall a paragraph from the journal of the Jesuit Father Paul Du Ru. Thir chaplain came to Louisiana when Iberville returned to the colony in 1700. Voyaging up the Mississippi with Iberville on the latter's second ascent of the river, he notes, under the date March 3, 1700, the following episode:
"There is still another little river here. It is a branch of the Mississippi, which makes an island whose circuit is about seven or eight leagues. In order to avoid the long journey around, we cut through the small river and are obliged to carry our canoes over the floating [italics not in original] trunks of trees to get them on the other side of the island. This portage is about sixteen leagues from the Bayougoulas and nine from the Oumas."\(^{40}\)

The comparison of this account with the description of 1699 suggests that there was a freer channel in 1700, there having been no need to hack down trees nor to dig the ground. If what this suggests is true, it could mean either (1) that the river waters were higher in March 1700 than in the same season of the preceding year or (2) that the cutoff channel had been considerably deepened in the meantime.

**Date of beginning: prehistoric.** As the end of the 17th century, coinciding with the Iberville expedition, has been considered as roughly marking the beginning of historic times in the Lower Mississippi Valley, we may say that the process under examination had its origin in prehistoric time. The fact that in the narrative of La Salle's exploration in 1682 no mention is to be found of the cutoff bayou which shortened the way for Iberville does not exclude, by any means, the possibility that even then it was in existence. There are many other facts, described seventeen years later, which escaped observation on that reconnaissance expedition.

**Date of completion: prior to 1722.** There are various kinds of evidence which can be presented with regard to the
date of completion of the cutoff. The first type of evidence consists of chronicles, letters, etc., which say the writer passed Pointe Coupée at a certain date and obtained the information that the phenomenon had occurred a certain number of years before.

A second type, carrying more weight, consists of letters, memoirs and the like, in which the writer claims to have passed Pointe Coupée on a certain date. When written before 1722, these documents are, of course, the strongest possible evidence in favor of the cutoff having been in effect before that date.

Father Charlevoix, in a letter written on January 10, 1722, at New Orleans, tells how he passed Pointe Coupée on December 30, 1721. He tells, as has been already indicated, how Canadians cut the channel, and does not give one the impression that the cutoff had occurred just before his passage. He adds that the new channel had already been sounded and that more than 30 "brasses" of cord had been reeled out without hitting bottom. By this account we must conclude that the cutoff existed in 1721.

In the "Relation du Voyage de Bénard de la Harpe," the following statement is found:

"Le 3 [January, 1719] nous avançasmes de 6 lieues et fusmes cabaner aux Batons Rouges. . . . Le 4 ayant avancé de deux lieues, nous passasmes l'isle d'Iberville, de laquelle à la pointe Coupée. . . on compte 3 lieues."
The cutoff existed in 1719.

Although Le Page du Pratz's history was first published about half a century after the cutoff is supposed to have occurred, and inaccuracies are apt, therefore, to have crept in, it appears that du Pratz's statement, already cited, to the effect that the new channel was made six years before the time he went up the river in 1719(?), i.e., in 1713(?), is worth keeping in mind.

In conclusion, it might be pointed out that there ought to be no objection to the idea that the process, started before 1699, might only have been terminated in the first or second decade of the following century. The examples of Yucatan and Waterproof cutoffs should lend credibleness to this supposition. It is quite possible that the completion of the phenomenon was abruptly brought about by an extraordinary high stage of the Mississippi, after hanging in the balance for ten or fifteen years of only moderate annual floods.

Following the cutoff, the immediate upstream and downstream loops were soon to lose their identity, whereas the False River channel, frozen in its tracks, as it were, has been preserved as a fossil stretch of the Mississippi River. The geomorphic processes which have since been acting on that stretch are the object of the next chapter.
REFERENCES

1 History of Louisiana . . . . New Orleans, J. A. Gresham, 1822, I, 98. Other examples of this kind of statement are to be found in (1) Jean Baptiste Bénard de La Harpe [The real author is the Chevalier de Beaurain, who based himself on the La Harpe's documents], Journal Historique de l'Établissement des Français a la Louisiane, Nouvelle Orleans, A. L. Boimare, Libraire-Éditeur, 1831, p. 11: "... ils [Iberville and his group] trouvèrent un détour de pointe de douze lieues; M. d'Iberville fit couper les arbres ... Depuis ce temps-la le Mississipi y a pris son cours; c'est ce qu'on apelle la pointe coupée." The original French text is transcribed; the English translation found in B. F. French's Historical Collections . . . , Part III, p. 15, erroneously gives "afterwards" for "depuis."

(2) Grace King and John R. Ficklen, A History of Louisiana, New Orleans, University Publishing Company, 1897, 3d. ed. rev., p. 42: "... the chief pointed to a tiny stream running into the river on the left [right]. ... a huge drift pile was cut away, the bottom of the stream was deepened and cleared ... The Mississippi in course of time adopted this cutoff. ..." (3) Alcée Fortier, A History of Louisiana, 4 vols., New York, Goupil & Co., of Paris, Manzi Joyant & Co., successors, 1904, I, p. 39: "... Iberville noticed a small outlet obstructed with trees. These were cleared ... The Mississippi gradually adopted this outlet as its bed ..." (4) Reuben Gold Thwaites, ed., Early Western Travels, 1748-1846, 32 vols., Cleveland, The Arthur H. Clark Company, 1905, XIII(Nuttall's Travels into the Arkansas Territory, 1819), Editor's foot-note, p. 307: "Iberville ... cut down a number of trees which obstructed one of the channels thus changing the course of the river so as eventually to cut off the point." (5) Albert Phelps, Louisiana; a record of expansion, Boston and New York, Houghton, Mifflin and Company, 1905, p. 33-34: "... the Indian guide pointed out a little bayou about six feet wide, ... Bienville ... found the way barred by a huge pile of drift, thirty feet high and five hundred paces thick. The Canadian woodsmen ... cut away through the obstruction ... by which the river itself now flows, adopting Iberville's time-saving suggestion." (6) Charles B. Reed, The first great Canadian, the story of Pierre Le Moyne, Sieur d'Iberville, Chicago, A. C. McClurg & Co., 1910,
p. 169-170: "... they [Iberville and his group] came to a Bayou about six feet wide, which the Chief said would save them about thirty-six miles if they could get through it... the Canadians... cut through a huge log jam and felled trees... the river soon seized upon the new cut-off and made it its own main channel." (7) Louise Butler, "West Felician; A Glimpse of its History," The Louisiana Historical Quarterly, VII, p. 1-39 (January, 1924):
"... Iberville and Bienville... made the first cut through a narrow neck of land where the river afterwards ran..."

2. The History of Louisiana, Translation from French, London, T. Becket and P. A. De Hondt, 1774, p. 95-97. The quotation is found in vol. II, p. 268, of the original French edition. Claude C. Robin, Voyages dans l'interieur de la Louisiane, Paris, F. Buisson, 1807, II, p. 290, subscribes to Le Page du Pratz's version. The same general idea, i.e., travelers going down river, is expressed, among others, by Captain Phillip Pitman, The Present State of the European Settlements on the Mississippi, Cleveland, The A. H. Clark Company, 1906. An exact reprint of the original edition, London, 1770, p. 72: "... two Canadians... descending the river... were stopped... One of these travellers... determined to follow a little brook, which had been made by the inundations of the river; he had gone but a small distance, when he again found himself by the side of the river... [The travellers] agreed to endeavour to get their canoe across, as there was about a foot of water in the brook, which had a little slope towards the lower part of the river; they... cut away the roots... that obstructed its passage, and the waters of the Mississippi entering seconded their endeavours... It is reported that less than six years after the Mississippi passed entirely through this channel..."


4. Elaine C. Lorio, The Place Names of Pointe Coupé Parish, a Thesis Submitted... for the Degree of Master of Arts in the Department of English, Baton Rouge, Louisiana State University, 1932, p. 27. This odd combination of the two versions is found almost word for word, in an old novel, "Zulma," a history of the old South, by Mary Francis Seibert, Natchez, Natchez Printing and Stationery Co., 1897.
Usually referred to simply as the "Marin." Attention to the complete title, as set down in a message from Pontchartrain to Guguay dated August 19, 1699, is called by Elizabeth McCann, "Penicaud and His Chronicles of the Early Louisiana," Mid-America, XXIII, New Series XII, p. 4-291 (October, 1941).

Pierre Margry, ed., Découvertes et établissements de Français dans l'ouest et dans le sud de l'Amérique Septentrionale, 6 vols., Paris, Maisonneuve et cie., 1879-88, IV, p. 263-264. The translation of the Survey of federal archives in Louisiana (1937-38) is not very trustworthy: the amount by which the expedition, according to the Indians, would shorten their route by taking the cut-off, "une journée et demie" (a day and a half), is given as a league and a half (p. 56). The passage is also given in B. F. French, Historical Collections of Louisiana and Florida, Second Series, Historical Memoirs and Narratives, 1572-1702, New York, A. Mason, 1875.


McCann, op. cit., XXIII, p. 292.

Margry, op. cit., V, p. 395. McCann, loc. cit., after confronting the available manuscript copies, concludes that "the relation contained in Margry [at least as far as the events up to 1704 are concerned] is . . . substantially as Penicaud narrated it." It must be noted, however, that this opinion is not shared by N. M. Miller Surrey, who states: "A collation of the manuscript [Penicaud's] with Margry shows many differences." Callendar of the Manuscripts in Paris Archives and Libraries Relating to the History of
the Mississippi Valley to 1803 (Carnegie Institution of
Washington, Department of Historical Research, 1926), I,
Proceedings of the Historical Society of East and West Baton
Rouge (University Bulletin, L.S.U., 1917), I, p. 8-22
indicates that the "Relation" was published by Pénicaud
after his return to France in 1722. McCann, op. cit.,
XXIII, p. 304, gives the impression that the "Relation" was
first published in 1887 by Pierre Margry. The fact seems to
be that the work was first published in an English transla­
tion by French, op. cit., in 1869. Previous to this date
only manuscript copies were available.

10  Father Charlevoix, in a letter from the Natchez,
dated December 25, 1721, tells of having seen a cutoff
between the mouth of the Arkansas River and Natchez in such
a period of transition. This cutoff was made across a
"pretty high point, which advanced into the river on the
West side: the river has cut it off, and made it an island,
but the new channel is not yet passable, but in the time of
floods." Translated from the French in B. F. French, op.
cit., III, p. 130.

11 Cited in Gould's History of River Navigation, p. 337-
338. An answer to "Old Timer" appears in the Florida Gazette,
August 20, 1831; so we may assume that Old Timer's article
appeared a few days before.

12 Gilbert Imlay, A Topographical Description of the
Western Territory of North America... , London, printed
for J. Debrett, 3d. edition, 1797, Appendix No. 1, p. 419.


14 Loc. cit., already quoted.

15 Report of the Commission of Levee Engineers to
January 1, 1873. Legislative Documents of Louisiana,
1873, p. 46.

Elliott, op. cit., I, p. 64-67. The dates indicated refer simply to the "completion" or "occurrence" of the different cutoffs in the conventional sense. No attempt is made by the present writer to analyze the existing information on these cutoffs, with a view to employing the two-phase concept suggested in the present paper.

Elliott, op. cit., I, p. 59.


Ibid., p. 131.


Definition of meander belt proposed by C. C. Inglis, Annual Report (Tech.), Central Board of Irrigation. India, 1939-1940, p. 112.

These records are to be found, for example, in Ferguson, op. cit.


A letter from Iberville to the Ministre [de la Marine] in Pierre Margry, op. cit., IV, p. 90, "J'ai pris ici neuf flibustiers de bonne volonté qui me remplaceront six de mes Canadiens dont un est mort au Cap, deux que j'ai laissés très malades et deux qui sont actuellement à l'agonie."
26 Margry, *loc. cit.*

27 *Loc. cit.*

28 Ferguson, *op. cit.*, p. 41.


34 Elliott, *op. cit.*, I, p. 67.


36 *Loc. cit.*

37 Margry, *loc. cit.*

38 Mississippi River Commission, Vicksburg, Miss., Loose Sheet 34.

39 Margry, *loc. cit.*

40 "Journal of a voyage made with M. d'Iberville from Biloxi bay up the Mississippi together with an account of all that occurred from this time until the departure of the vessel," translated by Ruth Butler, Chicago, Printed for the Caxton Club, 1934, p. 25.
41 French, op. cit., p. 434.

42 Margry, op. cit., VI, p. 245-246.
CHAPTER IV
GEOMORPHIC FEATURES OF THE POST-CUTOFF PHASE

We have seen that the False River cutoff did not take place in one day, nor even in one season. It is reasonable to suppose that for several years the river flowed through the new channel only at flood stage, abandoning the shorter but shallower course every time the waters subsided. When the cutoff channel across the neck had been sufficiently scoured by successive floods, the waters of the Mississippi did not leave it even at low stage. The younger channel being steeper, water flowed faster through it; the older one, at a disadvantage, for the amount of water flowing through was small, began silting up—and very soon the meander loop was isolated from the main channel, except during floods. In contrast with what might be called the preparatory phase, which may have covered a period of many years, this final phase appears to have been rapid.

Once it had been severed from the river, the "dead" loop no longer participated of the characteristic migration of the active channel. It is true that successive surveys may seem to indicate appreciable shifting in the position of the cutoff loop; observe, for instance, Elliott's map of "Progressive Channel Changes, Lower Mississippi River," on
which the channel of False River near New Roads is shown as having swung northward by approximately one river's breadth, since the 1861 survey. Such supposed changes are most certainly attributable to lack of precision in surveying and/or cartography, for, in effect, there can be no more channel migration after the cutoff. Sedimentation is preponderant; quite different, however, from the type of sedimentation experienced during "life," when deposition alternated with erosion, and "trading" permitted sediments to rest along the banks for intervals on their way to the Gulf.

Both observations in nature and laboratory experiments indicate that, following a cutoff—or better, as a late phase of the cutoff process—a great deal of bed-load may be diverted into and rapidly plug one or both ends of the abandoned channel. A tongue of rather coarse sediments may penetrate the open ends of the cutoff loop, according to the, as yet somewhat obscure, laws which govern the diversion of bed load at branching channels. The terminal deposits will subsequently be built up in height and out into the open water of the ox-bow lake—but such ulterior development results from processes of a different nature.

The partial filling of False River channel after the cutoff occurred was achieved essentially by the following processes: (1) temporary reestablishment of sediment-laden
flow through the abandoned channel during floodstage; (2) arrival of fine materials (fine sands, silts and, to some extent, clays), from the Mississippi, in the form of overbank deposits; (3) affluence of soil particles to False River by reversal of drainage in former outlet channels (refluent crevasse bayous); and (4) sinking of organic material.

Before focusing attention on some of the features resulting from typical post-cutoff geomorphic processes, it might be well to point out that the activity of a new channel scoured by the main river has no small influence on the evolution of an oxbow lake and its immediate vicinity. The drainage of the cutoff point offers a convenient example. With the advent of the cutoff, a main-river natural levee begins to form along the new channel across the neck of the abandoned meander. Natural levees seem to grow first in height, then in width; one may conceive, therefore, a pre-existing point stream of the type described by Russell being more and more successfully dammed back as the natural levee developed across the former outlet of the point drainage on the "Island." Gradually, a new outlet evolved, viz., the present drainage channel, the so-called "outlet from Grand Lake," which opens into False River near the southern end of the oxbow lake.

One may point to yet another example of how the evolution of the cutoff lake and surrounding area is influenced
by the behavior of the new river bed. Had the new channel advanced westward towards the old meander, eating into and, therefore, lowering the newly built up natural levee, over-topping of this would have been more frequent and intense, and, consequently, the ox-bow lake would have silted up more rapidly. Although extensive caving does seem to have occurred, particularly in about the middle of the last century in the Point Menoir section, all in all only a relatively small amount of destruction seems to have occurred at False River as a result of westward shifting of the new Mississippi channel.

This does not signify, by any means, that the False River area was, under natural conditions, exempt from invasion of silt-bearing flood waters. It is true that some early tobacco planters, in quest of a favorable site for their crops, which were wont to spoil "le pied dans l'eau," had thought they had found it "in the point coupée (...) a tongue of land high enough to dispense with levees [une langue de terre assés élevée pour n'y avoir pas besoin de levée], but not having more than 8 to 10 arpents of breadth." However, such optimism was unwarranted. Some of the settlers were obliged to flee the area during severe floods; others abandoned it for good. The prairie lands of Avoyelles Parish, for instance, were settled, it is said, "somewhere between 1768 and 1784, by a number of Acadian families who fled from the floods which were spread over..."
Spanish subjects, victims of a flood in the Pointe Coupée district, were even offered a haven in English territory and promised full freedom to return to their homes after the waters subsided.

So, like other riparian landowners along the lower Mississippi, the settlers of Pointe Coupée, on the main river, and of False River, to the back of them, were soon obliged to undertake the construction of dikes and artificial levees. By the beginning of the nineteenth century, the levee system had extended up the river from New Orleans as far as the False River area. "Here," one reads in the seventh edition of The Navigator (1811), "commences the embankment or levee on the right side of the river and continues down to Orleans . . . ." Collot, in 1826, and Flint, in 1832, are among the chroniclers who indicate that, at the time of their writing, it was precisely in the False River area that the waters of the Mississippi began to be restrained by artificial dikes.

True, the lines of levees, although continuous by 1860 from Red River Landing to Fort Jackson (downstream of New Orleans), continued for a long time to be "liable to crevasses every great flood." Overtopping and breaching of the artificial levees occurred frequently and muddy waters quite often rushed into the old channel and spread over the entire False River area. A description of the Spanish colony of the Mississippi in the year 1802 indicates...
that, at the time, False River still communicated with the Mississippi during high flood stage (haute crue).\textsuperscript{13} Brackenridge, describing conditions in the beginning of the 19th Century, also states that, "in high water, Fausse riviè re, is filled from the Mississippi" and that, "after the flood subsides, the water in this place stagnates and the settlement is rendered unhealthy."\textsuperscript{14} One of the major crevasses on record is that of 1851, observed March 28 by the hydrographic party under the direction of G. Castor Smith, operating as part of the Mississippi Delta Survey (Humphreys and Abbott). This crevasse, the party noted, occurred where the levee was about 6 feet in height. "The water, after rushing through a break 700 feet in width, passed into Fausse Riviè re, and, being restrained by the banks, flowed for a time in the old bed . . . the surface [of the water in False River] being 3.2 feet below the river surface." The maximum central velocity of the current observed by the party in False River was 6.5 feet per second.\textsuperscript{15} The failure in 1851 of the levee at Pointe Coupée and of the dike at the mouth of False River is also referred to by Champomier in one of his yearly statements on the sugar crops, for it resulted in the fact that all plantations in the area were more or less flooded.\textsuperscript{16}

Since it is with the transportation and deposition of sediments that we are concerned, it seems pertinent at this point to draw attention to the probable role of density
currents in the post-cutoff evolution of the False River channel. The distribution of fine materials over the abandoned channel bed may be influenced to a considerable extent by such gravity flows, which, moving at a fraction of the velocity observed by Smith's party, are perfectly capable of transporting sediments for distances in excess of the entire length of False River lake. 17

The "Parish of Pointe Coupée rebuilt the levee in the Island of False River," 18 but the close of the war in 1865 found the levees "so broken and decayed that many farmers . . . thought of abandoning the levee systems." 19 Other disastrous floods were to follow and presumably many of them entered and contributed to the filling of the False River channel. In referring to the effects of the flood of 1874, in Pointe Coupée Parish, the State Superintendent of Public Education in his Annual Report indicates that "the school work in this parish was greatly retarded during the spring months, by reason of the overflow." 20 Incidentally, it was as a result of this flood that a board, known as the "Levee Commission," was established. 21

The existence of the Atchafalaya lowland to the west afforded False River some measure of protection from flood waters and sedimentation after the clearing of the Atchafalaya River raft. "The floods," it was stated in 1881, "are kept out of False River and the flow of the waters is forced west of the thriving settlements south of False River, which are
rapidly growing up as exemption from overflow becomes more assured."

Shortly after this was written, however, a crevasse occurred in "Waterloo, or False River Dyke" (March 24, 1884):

"There were two lines of levees here built many years since. That in front was maintained by the town of Waterloo for its own protection, while the state levee ran back to the town and across the upper end or mouth of False River. For the purpose of drainage, the citizens of Waterloo had placed in and through the dyke an earthenware pipe or culvert, without gates or head-walls. When the front levee gave way, and the waters poured in against the dyke it was soon swept away by the enlargement of this insecurely constructed culvert. The crevasse is now over 400 ft. wide, and is said to be from 30 to 70 ft deep. It has caused great damage to Point Coupée parish and to others below it."

In view of the preceding observations, one may conclude that the artificial protection early afforded False River channel with respect to the inflow of sediment-laden waters, was imperfect and oft interrupted, but that, nevertheless, it contributed, in some measure, to the preservation of a large body of open water in the old channel.

**Terminal Battures**

The old cutoff channel has now been filled at both ends, leaving the intermediate stretch open (False River proper). The word used on old plats to designate such fill is "batture." Although originally the term denoted an elevation of the bed of the river under the surface of the water,
it has come to signify the land which by deposition has risen above the surface of the water. Indeed, crops are now grown on what was once the channel of the Mississippi (figs. 12 and 13). Lakeward from the cultivated land, a growth of willows occurs on the batture, which is fringed with hydrophytes in the process of encroaching upon the body of open water (fig. 14).

The present-day length of the upper terminal batture is close to four and a half miles; that of the lower terminal batture, almost seven miles. The total length of terminal batture fill is a little more than eleven miles, as contrasted with ten and a half miles of open water. It is worth recalling that in this section the width of the old river channel has suffered but little post-cutoff narrowing.

In attempting to trace the evolution of the False River battures, not much value can be placed on the evidence unearthed with respect to the first century following the cutoff. References in text or cartographic materials are incidental and obviously reflect subjective impressions, when not mere hearsay. Thus, we have seen (in the second chapter) how Le Page du Pratz, describing his first ascent of the river in 1719 (?), refers with astonishment to the fact that in six years the old bed had become almost filled with ooze and supported a notable stand of trees. The map by the French engineer Broutin, drafted in 1731, shows both
Fig. 12 -- Crops grow on lower terminal batture, where some seventy feet of alluvium has filled former Mississippi river channel. Notice how road descends from outer bank natural levee (foreground), built up when channel was active, to lower level of post cutoff fill; trees in far distance grow on natural levee of inner, or "Island" bank. Savoré's Lane at Lakeland (in front of Catholic Church). June, 1944.
Fig. 13 — Cane field on lower batture, near The Church of The Immaculate Conception, about five miles from present day channel of the Mississippi. October, 1944.
Fig. 14 -- Terminal batture. Hydrophytes encroach upon open water at left, in lower end of False River Lake. October, 1944.
mouths of False River open, although some attempt seems to have been made to represent shoaling of the old channel. The map by Lieut. Ross (fig. 15) taken on an expedition in the latter part of the year 1765, merely shows both ends of False River open.

Le Page du Pratz obviously did not penetrate False River very far, if at all, and the trees he noticed may well have formed a narrow strip along the new channel. The observations of Broutin and Ross, on the other hand, may have been made at high water stage.

Whereas an examination of some recent cutoffs (for instance, Ashbrook, Sarah, Caulk, Jackson and Harding, completed respectively in 1935, 1936, 1937, 1941 and 1942) indicates that, in general, the upper batture is the first to develop, False River seems to offer one of the exceptions to the rule. Old surveys and statements made in connection with disputes involving the alluvial fill offer some evidence to this effect. Yet such testimony must always be considered very critically. The fact that no batture is represented on a plat, for instance, does not necessarily signify its non-existence. Thus, for example, Plat No. 72 in Book Z of the so-called Pintado Papers (fig. 16), drawn probably in the beginning of the nineteenth century, shows the lakeside end of the lower batture very close to its present position; yet Plat No. 91 of the same Book, representing a more easterly portion of the lower
Fig. 15 — Part of the map "course of the Mississippi from Balise to Fort Chartres; taken on an Expedition to the Illinois in the latter end of the year 1765 by Lieut. Ross of the 34th Regiment; Improved from the Surveys of that River made by the French," published in 1775. False River is shown as a narrow sinuous stream; the Pleistocene terrace bluffs which inhibited the growth of the Point Mecior loop are indicated as the "Milk Cliffs."


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Fig. 16 — Old plat which shows extent of lower batture. Copied from Pintado Papers Book Z, Plat No. 72 (with the omission of certain illegible or irrelevant symbols). Although the wording is in Spanish, indications such as "comprado de Sam", Young - 12 y 13 Enero 1803 (bought from Samuel Young, January 12 and 13, 1803), shows that it was completed after the territory was ceded back to France (1800). Bayou du Diable may be identified with Bayou Bois doré of other plats.
section of False River, where the batture would obviously have developed first, shows no batture at all—just the words "Fausse Rivière."

With the necessary discretion, let us therefore consider, first the evidence concerning the upper batture, then the data which refer to the lower batture.

One may start by noting the extent of the upper batture as shown on a plat drawn, it appears, in 1802 (fig. 17). The front of the alluvial fill is shown to have reached about the middle of the front line of the property of the widow Barra (corresponding approximately to Sections 18 of T4S R11E and 96 of T5S R11E).

The deposition of an old resident of Pointe Coupée, testifying in 1844 with respect to the development of the same batture, in front of lands identifiable as lying on the other bank of the old channel (Section 31 of T4S R11E), opposite the widow Barra's property, conflicts to some extent with the above exhibit:

"Before me Charles Poydras one of the Justices of the peace in and for the parish of Pointe Coupée Came and appeared Zenon Langlois of this parish of Point Coupée who being duly sworn'd according to law has deposeth & saith, that he was born in the parish Point Coupée that he is about sixty years of age and has always resided in the parish of Point Coupée that he recollects perfectly well that there was no batture, at the mouth of the upper chenal of false river, and that he recollects that said batture began to form itself about thirty years ago [italics not in original], that for a long period it was only a sand bank, that it increased every years and now extends itself for several miles along the right bank of false river, that part of that
PLAT FILED WITH CLAIM OF HEIRS OF
JEANNE DELATRE, WIDOW OF J.B. BARRA

LAND OFFICE
NEW ORLEANS 23 April 1850
I certify this plot to be a true copy of
the one on record in this office, with the
notice of claim of the Heirs of Jeanne
Delatre, Widow of J. B. Barra, being
A No. 45 of the notices of claims register-
ed under the act of 4th July 1832.
(Signed) CHARLES FITZ, Register

Fig. 17 — Plat filed with the claim of heirs of Jeanne
Delatre, widow of J. B. Barra. According to the plat,
which appears to have been drawn by Vicente Pintado on
September 7, 1802, the upper batture at that time ex-
tended as far as the middle of the lake-front of the
lands of the widow Barra; these may be identified with
Sections 18 of T 4 S R 11 E and 96 of T 5 S R 11 E.
Traced from original in packet "T 4 S R 10 E, S. E. D.,
West River."
batture particularly that part in front of the land of claude fabre, and of therence & francois samson, which lands are part of Mr. Jacques de Latre tract, is cultivable, but the rest is yet too low to be cultivated, the deponent having nothing else to depose has signed these presents

ordry. mark of X Zenon Langlois
Sworn'd to & subscribed to Before
me at Point Coupée this 7th of may 1844
Ch. Poydras
Justice of the peace

Similar testimony was given at the time by Philip Robillard, another old resident of Pointe Coupée, then about seventy nine years of age. According to Robillard, "about twenty five or thirty years past [italics not in original] a batture began to form itself at the mouth of the upper chenal extending itself every year along the right bank of the chenal . . . ." He adduced, further, that "for a long time that batture was covered with water, and that he passed over in boats. . . ." The evidence of Langlois and Robillard would lead one to believe that the upper batture had its inception in the second decade of the nineteenth century, a conclusion which is obviously invalidated by the 1802 plat, where the fill is shown as having extended already about two miles (or almost half its present length) into the oxbow lake.

Reference may be made to yet another document of the same year, 1844, dealing with the upper batture. The following statements, accompanied by a diagram (fig. 18), are contained in a plea, submitted to the Surveyor General of
Fig. 18 -- Rough diagram showing the junction of False River and the Mississippi, made by Thomas Mullet in 1844. Traced from petition to F. D. Newcomb, Surveyor General of Louisiana, October 16, 1844.
Louisiana, by one Thomas Mullet for an equitable division of the lands of the upper batture:

"Previous to the making of the embankment across the upper mouth of Fausse River, to prevent the waters of the Miss. - from finding a channel for the surplus water - through the various outlets. (Bayou's) the boundaries of each Plantation - were established on the main bank's, (marked A & B) of the River - Since the execution of the works by the State across the mouth - an extensive batture has formed - extending for three miles down Fausse River - available for pasturage and cultivation - except in unusual high water - Now the planters living on the bank marked (A) have set up a claim for the entire batture and contend that they have "de facto" & "de jure" a perfect right to all such batture - even unto (sic) the bank marked B."^°

The inhabitants of the (B) side, in order to dispute the validity of such a claim, had engaged the services of Mullet, who based his case on, among other points, the statement that "previous to the State obstruction, the River was an open water course—although not navigable from drift and the obstructions of the lower mouth . . . ." Too much weight should not be placed on Mullet's information, obtained during three days at False River "(in attendance upon a dying friend)." It would be to the interest of his cause to minimize the age of the upper batture, in order to refute the claim of the inhabitants of the outside bank, who insisted upon a "de facto" right to the batture, presumably by virtue of long-standing occupancy of the same.

Based on the above evidence, and on the surveys and resurveys of the townships which cover the area in question,
we may conclude that just over one half of the present extent of the upper batture has been deposited or built up since the beginning of the nineteenth century and that the greater part of this accretion occurred before 1850 (fig. 19).

Let us now turn to the lower batture. A comparison of the present-day outline of this fill with that shown on the plat filed with the claim of heirs of Julien Poydras and signed June 7, 1833 by Pierre Louis L'hermite, "arpenteur" of Pointe Coupée Parish (fig. 20), shows no important difference in the area of this accretion. Then as now, the batture terminated just east of the "Grande décharge," i.e., the bayou which drains the Grand Swamp and which has already been referred to in this chapter. Even if comparison is made with older cadastral representations of the position of the distal end of the batture, such as the Pintado plat already referred to (fig. 16), or the one dated January 14, 1802, which shows the properties of Joseph Aguiar and others (fig. 21), it is evident that the discrepancies are of an order that might, to a large extent, be charged to cartographic imprecisions. On a plat dated January 10, 1807 and referring to the survey of a section on the southern rim of False River, almost in front of which is the present-day Lakeside end of the lower batture, the surveyor Charles Morgan seems to refer to the stream flowing on this batture and known as "The Chenal" when he indicates "F [alse] R [iver]--near the Shenal." The existence of the Chenal at
Fig. 19 -- Development of upper batture in False River. Section shown, extending from Mississippi River to about present site of New Roads, traced from old township maps as resurveyed in the 1840's. A, front of batture, according to plat which appears to have been drawn in 1802 (fig. 17); B, front of batture in 1829, as shown on the original township survey; C, as revised in the 1840's; and D, present-day front of batture.
Fig. 20 — Extent of lower batture as shown on plat filed with the claim of heirs of Julien Poydras, Sect. T 5 S R 11 E, S.E. District, La. Notice front of batture just east of the Grand décharge, draining the Grand Swamp. Sketch was made by Pierre Louis Lhermite June 7, 1833. Tracing from photostat of document filed in State Land Office.
Fig. 21 — Extent of lower batture on plat showing properties of Joseph Aguiar et al. Pintado papers, Book P, Plat no. 62, January 14, 1802. (Some illegible or irrelevant symbols omitted from tracing).
this point obviously presupposes that the batture already reached that far. Further evidence of this kind may be found, for instance, in a traverse dated 1813, when Gilmore, referring to the cutoff lake in front of a section contiguous to the one referred to above, writes that "here the river is grown up with willows."31

In short, within about a century of the cutoff, that is to say at the beginning of the nineteenth century, the lower terminal batture had practically reached its present extent, in other words, the last century and a half have seen small areal growth of this part of the exposed channel fill.

It is obvious, in the light of the preceding remarks that there was considerable difference in the manner and rate of development of the upper and lower battures. It is not unreasonable to believe that the lower terminal batture is, to a considerable extent, the product of bed load diversion and not merely that of deposition from turbid waters. After initial bed-load plugging a certain amount of additional building up has taken place by virtue of deposition of suspended load, while the batture front has made some minor advance into the lake. One should bear in mind that the information gleaned from plats (and similar materials) alone can give no more than a two-dimensional picture, since a batture is only represented when it actually
has risen above the surface of the water. Yet it is easy
to see that the amount of sediment necessary to raise an
underwater deposit to the point where it is of interest to
surveyors may be a very small fraction of the entire
alluvial fill. This concept is borne out, for instance,
when one finds, in the notes of old surveyors remarks such
as "post in water" when referring to points in the present-
day batture area.

And so, if the rapid diversion of bed material which
takes place as part of the initial plugging process is con-
sidered as a preliminary phase, we arrive at the rather
surprising conclusion that actual deposition of suspended
load may have been greater in the upper end of False River,
where the initial amount of bed-load diversion appears to
have been smaller.

The present-day configuration of the depression occupied
by False River, as ascertained by the writer in a very
generalized fashion, without pretense of accuracy (fig. 22),
still reflects the pre-cutoff subfluvial relief, although
subsequent sedimentation, carpeting the lake bottom, must
tend to smooth the pre-cutoff irregularities of the channel
bed. It will be noted that the channel generally deepens
downstream, abruptly shoaling near the downstream batture.
This suggests the idea that most of the final phase of
filling of the original channel has resulted from suspended
load carried across the upstream batture.
Fig. 22 -- Series of cross-sections of False River Channel. Most of the sections were determined by less than five soundings made by hand from small boat, distance from banks being estimated. Fall, 1944.
In considering the processes which are active in filling the old channel, it seems pertinent to point out that, in view of what has been said above concerning density currents, it is perfectly conceivable that a muddy stream, entering the upper end of False River, might contribute to the building forward of the lower batture. In laboratory experiments, the turbid underflow climbs towards the surface as it strikes a dam; it is possible that this would also occur along the front of the lower batture fill.

**Batture Streams and Lakes**

Even after the cutoff, a certain amount of water coursed through the old False River channel. Part of this was carried by small narrow streams which still wind their way on the terminal battures (fig. 23). These batture streams are still in existence, although they are no longer connected with the Mississippi. Upon looking at a map or aerial photograph, it will be seen that both streams (the upper batture stream designated as "False Bayou" and the lower, already referred to and known as "Le Chenal" or "The Chenal") are somewhat of a serpentining nature and impinge successively on one and the other margin of the old channel; they run more or less parallel to the margin of one side for a short while, then veer off to strike the side opposite. Other examples of similar batture streams are Horn Lake Pass, on the lower
Fig. 23 -- Timber pile bridge spans hyacinth-clogged Chenal, serpentining on lower terminal batture fill. Car nearer camera stands on post-cutoff deposit, whereas car in far background has ascended to crest of inner, or "Island," natural levee of old Mississippi channel. Savoré's Lane, at Lakeland. June, 1944.
batture of Horn Lake, at the Tennessee-Mississippi state line; and Bayou Providence, on the upper fill of Lake Providence, Louisiana.

At this point, one may speculate as to whether the presence of the batture streams was not responsible for the manner in which the entire False River loop was represented as a narrow and extremely tortuous stream on some ancient maps, such as that of D'Anville, drafted in 1732 (fig. 24), and of Ross representing conditions in 1765 (fig. 15). If an observer did not follow the batture stream far enough to reach the lake, he might be led to conclude that the median part of the old channel was similar to that of its extremities. The map which accompanies the Journal of Andrew Ellicott (published in 1803) is perhaps one of the first generalized cartographical documents to show the batture stream as distinct from the False River lake (fig. 25).

Before the abandoned section of the river is sealed off, the batture streams may carry quite a heavy burden of silt, part of which builds out the distal end of the batture, by what in effect is a sort of lacustrine delta. Deposition also occurs along the margins of such bayous and builds up a natural levee system of its own. Russell has already called attention to the fact that "one of the most strikingly steep natural levees in the state has been formed by The Chenal on the southern side of Grand Bay," on the lower batture. One might also call attention to False Bayou's
Fig. 24 -- Part of the "Carte de la Louisianne par le Sieur D'Anville dressée en mai 1732, publiée en 1752." The old channel of False River is represented as a narrow, tortuous stream. The Pleistocene terrace bluffs, which impeded the growth of the Point Menoir loop are indicated as "les Ecors blancs." From Justin Winsor, The Mississippi Basin - Struggle in America between England and France 1697-1763.
Fig. 25 -- Map showing False River lake and the Chenal of the lower batture. From The Journal of Andrew Ellicott, published in 1803.
narrow levee, the height of which appears to have rather rapidly approached that of the former river channel inside which it developed, near the upper end of False River (fig. 26).

A number of large trees, notably pecan and sycamore, growing on the banks of The Chenal are an indication that this stream has occupied its present position for a long time. The natural levee of the winding batture stream may isolate certain portions of the fill and give rise to swamps or lakes. The most important lake of this type in the old False River channel is Grand Bay, on the lower batture, close to the Mississippi levee. Occupying a depression isolated by The Chenal levee, it is shown on old plats (fig. 20). In a similar fashion, Mud Lake, straddled by the Tennessee-Mississippi state line, appears to have been isolated from Horn Lake by the natural levee of Horn Lake Pass.

The fact that the transportation of goods by water is performed at less cost than overland awakened in the farmers along False River the desire of using the batture streams to carry their produce to convenient shipping points on the Mississippi river "coast." This resulted in several attempts to interfere with the natural deterioration of these small bayous, in particular The Chenal, on the lower batture.
Fig. 26 — After the cutoff had been completed, but before the upper end of the abandoned channel had been sealed off, False Bayou led silt-laden water from the Mississippi into False River Lake. The height of False Bayou's narrow levee soon approached that of the former channel inside which it developed. The photograph, taken from the crest of the old Mississippi bank on "Island," three miles from eastern end of batture, shows the car in depression between old Mississippi River and False Bayou levees. September, 1944.
Thus, in 1809 the inhabitants of False River were authorized to establish a corporation under the name of "Company of the Channel of Fausse Rivière" [Compagnie du Chenal de la Fausse Rivière], endowed with a right of toll, for the purpose of "removing and carrying away all driftwood and other impediments which obstruct the navigation of the channel."\textsuperscript{35}

An act approved in 1813 concerned the "erection of a bridge over the chenal of Fausse River ( . . . ) to enable wagons and carriages of all kinds to pass, as well as horsemen and footmen at high water."\textsuperscript{36} It was established that the bridge should "not be erected so as to interfere with the navigation of the chenal of Fausse River."\textsuperscript{37}

One wonders if navigation actually had been re-established by this time. However that may be, in 1850 the State Engineer was required "to cause to be removed all obstructions to the navigation of the lower channel of the Fausse river ( . . . ) from the old river up to the dyke across the same near the Mississippi river."\textsuperscript{38}

That this was no easy task, is evident from the ensuing report by the State Engineer, A. D. Wooldridge: "The channel [at False River] had been filled up with drift till in some places there was a continuous raft of miles in extent . . . ." Wooldridge judged that "the hardest work done by the State force since I commenced my duties as State Engineer has been expended on this Channel." "Enough was done," he added,
"to afford the planters a good outlet for their crop." In conclusion, the small waterway "though of no great advantage as a general throughfare is of great utility to this beautiful and interesting portion of the State."^39

**Marginal Battures**

Slumping, creeping and washing down of bank materials along the cutoff channel has softened the slope of the bank of the former Mississippi course (fig. 27). Materials contributed by this process and brought in by reversal of drainage in former outlet channels are laid down along the old banks and form what may be called marginal battures (fig. 28). These fringe False River Lake with a strip of flat alluvium some ten to fifty feet wide. As in the case of the terminal battures, hydrophytes contribute to extend the marginal battures into the open water.

**Deterioration of Crevasse Channels**

The post-cutoff deterioration of the channels of the intermittent (i.e. flood) crevasse bayous which lead across the right bank, or outer ("coast" side), natural levee of False River is probably due to a number of causes. The effects of the cutoff became more and more noticeable as the sealing-off of False River Lake attained greater perfection. As indicated previously, the ensemble of crevasse topography
Fig. 27 -- Slumping and soil creep has flattened the angle of the former concave bank at the Mississippi river, in foreground. View across terminal batture, from Lakeland Post Office towards "Island." June, 1944.
Fig. 28 -- Marginal batture on concave bank of False River channel. About half a mile West of the junction of state highways 93 and 136 (highway 1, in 1955), on southern shore of lake. June, 1944.
features is the result of overtopping accompanied by (1) a certain amount of erosion (generally small and limited, as a rule, to previously established channels) and (2) a rather great amount of deposition. The maintenance of the channels in the crevasse topography area depends on their periodical flushing out by the flood waters. Soil creep and slumping, as well as run-off erosion tends to subdue local relief and occlude the channels. The decrease in flood waters spilling out of False River, as this lake became increasingly isolated from the Mississippi, may therefore be considered the first step toward the obstruction of the channels under consideration. As we have seen, by building dikes and levees man accelerated and perfected this isolation. Other causes associated with human occupancy of the land, may be summarized as follows:

(1) Construction of dikes and roads. A resolution, approved December 20, 1848, authorized the proprietors of the bayous running out of False River "to shut the same, by constructing dykes across in such a way as will answer for the public to pass on the same as a highway," excepting the bayous chosen "to give a navigation out of the said Fausse Rivière into the bayou Grosse Tête." The State Engineer, reporting in 1850 on the conditions of the bayous leading out of the southern bend of False River stated that they had been of no utility as outlets of water of the Mississippi
since the closing of the mouth of False River and, in view of the expense imposed on the planters in keeping up bridges, deemed it proper that the inhabitants should be authorized to close the bayous by dikes. Roads and wagon-roads were built across the channels without the precaution of putting in culverts (fig. 29). It is true the bayous did not carry Mississippi flood-waters from False River any more, but the builders of the roads seem to have ignored the fact that these channels could be made to play a useful part in the local drainage by carrying off surplus rain-water.

(2) Accelerated erosion through cultivation. As pointed out by Williamson, "erosion occurs fast enough to be readily apparent on a cane farm. Rain-water washes the particles of soil from between cane rows into the quarter drains and on into the lateral ditches." One farmer in the Bayou Sirier area, south of False River, told the writer that water could not flow through a crevasse bayou in his land "because of little hills in it." Upon examination, these "hillocks" proved to be nothing less than small (radius of the order of 10-20 feet) cones of dejection built up by little tributary gullies with material derived, by accelerated erosion, from the adjacent cultivated fields. These small fans, though only a few feet above the present channel bottom, are effective obstacles to the free circulation of the relatively slow-moving run-off waters and, together with
Fig. 29 -- Upper extremity of a crevasse bayou, now closed off. View downstream from road around outside rim of False River. October, 1944.
numerous culvertless roads, have helped to segment the original channel into a rosary of small, shallow, weed-choked, slimy and fetid pools. Slumping of banks is another related factor of the present condition of the former crevasse channels.

(3) Water hyacinths. Following the introduction, in about 1890, of Eichornia azurea from South America, the rivers of humid subtropical United States were rapidly invaded and navigation was soon obstructed by the water hyacinth. This plant floats and rapidly spreads across waters of any depth as thick mats which, deceptively, appear solid enough to walk upon. These obstructions block the passage of any type of boat and may be removed only at great expense. They now block most of the minor waterways of southern Louisiana. False River area was no exception, and the sluggish or stagnant waters of its bayous are literally covered with the invader (figs. 30 and 31).

As a result of the clogging of the drainage network in the False River area, large tracts of land are left permanently soggy and are, therefore, useless to farming; furthermore, now and then, there is some loss of crops after exceptional rains.

After having sketched the post-cutoff evolution of False River and contiguous area, one might, in closing, speculate as to how different this evolution might have been,
Fig. 30 -- Water hyacinths dominate upper end of Bayou Sirier (or Sere), a part of the finely braided drainage pattern responsible for the crevasse deposits spread out from the southern bend of the former Mississippi river channel, now False River. Camera pointing downstream. September, 1944.
Fig. 31 — Small (hyacinth-choked) stream on lower batture hugs southern bank of former Mississippi channel and leads into Bayou Sirier (or Sere), one of various crevasse channels. September, 1944.
if cultural resources had been applied in a different direction. Drainage conditions, for instance, would be somewhat different if one of the crevasse bayous had been opened and rendered navigable, as ordered by the State Legislature more than a century ago. But unpredictable changes might have occurred if a suggestion made by the State Engineer in 1850 had been acted upon. He based his suggestions on the consideration that, before the closing of the mouths of False River, the eleven bayous which flow out of the southern bend of the old channel be used to relieve "the river of a great amount of its superabounding water. Nature demands her wonted outlet here and she will have it." So, he speculated, "if the lower or even the upper mouth of False River were re-opened, and one or two of the largest of these bayous improved and levied the demands of nature would be answered and the coast of West Baton Rouge and Iberville delivered from the danger ..."
REFERENCES

1 D. O. Elliott, *The Improvement of the Lower Mississippi River for Flood Control and Navigation*, Vicksburg, Miss., U. S. Waterways Experiment Station, 1932, III, Plate VI (h).

2 The experience, respecting the diversion of coarser bed sediments into the offtake, gained in India, where the exclusion of silt from irrigation canals has long been one of the greatest importance to all the irrigating Provinces, is summarized by Sir Claude Inglis, "The Behaviour and Control of Rivers and Canals," Research Publication No. 13, Central Waterpower Irrigation and Navigation Research Station, Government of India, Poona, Bombay, 1949, chapter 6.

In Europe, the problem was first undertaken to solve a power plant difficulty, when, about a quarter of a century ago, the Middle Isar Company of Munich found that the river diversions it had constructed silted up rapidly. The experimental work then undertaken by H. Thoma, of Munich, was continued at Karlsruhe by Th. Rehbock and Hermann Bulle. In the United States, considerable effort has been applied to the appraisal, refinement and extension of the results of the German investigations. Some examples of the contributions of the western workers are: Hermann Bulle, "Untersuchungen über die Geschiebeableitung bei der Spaltung von Wasserläufen," *Forschungsarbeiten aus dem Gebiete des Ingenieurwesens*, Heft 283 (1926), mit 35 Abbildungen, VD Verlag G. M. B. H. Berlin SW 19, 34 p.; Charles Daniel Curran and Kenneth David Nichols, *An Experiment to determine geschiebe action at a river fork*, June 20, 1933 (A thesis presented to the Faculty of the Graduate School of Cornell University for the Degree of Master of Civil Engineering. Gerard H. Matthes, "Diversion of Sediment at Branching Channels" American Geophysical Union, *Transactions*, 1933, p. 506-509; Herbert D. Vogel, "Movement of Bed Load in a Forked Flume," *Civil Engineering*, Vol. 4 (February 1934), p. 77; Albert Guy Dancy, "Stream Sedimentation in a Divided Channel," 1947, thesis presented to Iowa State College, Ames, Iowa, in partial fulfillment of the requirements for the degree of Master of Science; C. P. Lindner, "Diversions from Alluvial Streams" *Transactions of the American Society of Civil Engineers*, Volume 118 (1953), p. 245-288.
One may wonder if the "petit bayou" shown on fig. 20 as opening into the Mississippi, between the upper and lower mouths of False River, could possibly have some relation to a former point drainage.

H. T. Williams, Report of the State Engineer,
Documents of the Extra Session of the Second Legislature of the State of Louisiana, 1848, Appendix, p. 3.


William H. Harris, Louisiana products, resources and attractions with sketch of the parishes, New Orleans, N. O. Democrat Print., 1881, p. 110.


12 Annual Report of Board of Public Works, December 31, 1869, p. 35.

13 Vue de la Colonie Espagnole du Mississipi en l'année 1802, par un observateur resident sur les lieux, Paris, Berquin-Duvallon, Editeur, 1803, p. 49.

14 Brackenridge, Henry Marie, *Views of Louisiana; together with a Journal of a Voyage up the Missouri River in 1811*, Pittsburgh, Printed and Published by Cramer, Spear, and Eichbaum, Franklin head office, 1814, p. 175.


19 Annual Report of Board of Public Works, December 31, 1869, p. 35.


22 Hon. H. Skipwith, in Harris, Wm. H., Louisiana Products, Resources and Attractions, With a Sketch of the Parishes, New Orleans Democrat Print., 1881.


24 The term was defined many years ago by Judge Martin in the case of Morgan vs. Livingstone: "Batture is, according to Richelet and the French Academy, a marine term and is used to denote a bottom of sand, stone or rock mixed together and rising toward the surface of the water; its etymology is from the verb battre, to beat: because a batture is beaten by the water. In its grammatical sense, as a technical word and in common parlance, it is then an elevation of the bed of a river under the surface of the water, since it is rising toward it. It is, however, sometimes used to denote the same elevation of the bank, when it has risen above the surface of the water, or is as high as the land on the outside of the bank." Quoted in H. H. White, Louisiana land laws relating to building, ..., New Orleans, F. F. Hansell & Bro. Ltd., 1926, p. 97.

25 According to a letter from P. L'hermite, dated Pointe Coupée, Sept. 29, 1835 and addressed to R. W. Boyd (package T 4 S R 11 E, State Land Office), the plat, filed with the claim of the heirs of Jeanne Delatre, widow of J. B. Barra, in the State Land Office (packet T 4 S R 10 E, S. E. D., West River), was drawn by Vicente Pintado on September 7, 1802.


27 Loc. cit.
Thomas Mullet D. S. to F. D. Newcomb Esq., Sur. Genl. La., October 18, 1844. With respect to "the works by the State across the mouth" of False River, one may note a resolution, passed in 1841, "to close by a dam the upper mouth of False River, in the parish of Pointe Coupée" (Acts, 2nd Session, 15th Legislature, State of Louisiana, 1841, p. 186); in the latter part of the following year, "state convicts were employed (...) in making a dam and levee across the mouth of False river" (Acts, 2nd Session, 16th Legislature, State of Louisiana, 1843-1844, p. 82).

Pierre Louis L'hermite was appointed in 1818 surveyor for the parish of Pointe Coupée, according to an affidavit dated May 21, 1845, filed in the package labelled "Protests and Evidence S. E. D. 1842 to 1845 Sur. Gen. Pointe Coupée," at the State Land Office.

Sect. 72, T 5 S R 10 E.


H. Stevens Bell, op. cit., fig. 8 (c).

A. Schoklitsch, Hydraulic Structures: A Text and Handbook, American Society of Mechanical Engineers, 1937, Vol. 1, p. 148, seems to be responsible for the introduction of the term. The appropriation of the term to designate the pattern of the batture streams does not seem to violate the objective which Schoklitsch had in mind. The differentiation intended between meandering and serpentining is based mainly on the relative freedom of the river in choosing its course: "where the valley is limited transversely by rocky slopes, the trace or course of the river will be fixed in this position; where the valley is broader, the rivers tend to serpentining; and in plains where an unobstructed development in every direction is possible meanders frequently form." In the case of the batture streams, we are in the presence of a small stream, which, though flowing in alluvium, is hampered by the channel walls of the old river channel. It cannot meander. Yet it is not immutably fixed. The old
channel scarps give it enough room to move but not enough to meander. The term serpentine might be reserved for such cases where streams run on alluvium between parallel impediments (be it rock valley walls, or old channel scarps), which are too narrow to allow for a normal meander belt adjusted to the stream's magnitude.


36 An Act . . . approved March 15, 1813, in Acts passed at the 2nd Session of the 1st Legislature of the State of Louisiana, p. 112, Sec. 2.

37 Ibid., sec. 6.

38 Resolution approved March 18, 1850, 3rd Legislature of the State of Louisiana, 1850, p. 114.


41 A. D. Wooldridge, *op. cit.*

42 Paul S. Williamson, *Economic Aspects of Sugar Cane Production in Louisiana*, 1941, Louisiana State University, Department of Agricultural Economics, mimeographed circular, No. 26, June, 1942, p. 62.


44 State Engineer Report, 1850.
SELECTED BIBLIOGRAPHY

Archives of the Spanish Government of West Florida . . .


BRACKENRIDGE, Henry Marie, Views of Louisiana; together with a journal of a voyage up the Missouri River, in 1811, Pittsburgh, Printed and published by Cramer, Spear and Eichbaum, Franklin head office, 1814, 304 p.


CURRAN, Charles Daniel and Kenneth David Nicholas, An Experiment to determine geschiebe action at a river fork (Master's thesis, Cornell University), June 20, 1933.


DARBY, William, A geographical description of the State of Louisiana ... Being an accompaniment to the map of Louisiana, Philadelphia, John Melish [J. Bioren, printer], 1816, ix, 270 p., xvii (Appendix).


ELLIOTT, D. O., The Improvement of the Lower Mississippi River for Flood Control and Navigation, 3 vols., Vicksburg, Miss., War Department, Corps of Engineers, U. S. Waterways Experiment Station, 1932.

FERGUSON, H. B., History of the Improvement of the Lower Mississippi River for Flood Control and Navigation, 1932-1939, Vicksburg, Miss., War Department, Corps of Engineers, U. S. Waterways Experiment Station, 1940.


Louisiana; comprising sketches of Parishes, Towns, Events, Institutions, and Persons, Arranged in Cyclopedic Form, Century Historical Assoc., 1914, 3 vols.

FRENCH, B. F., Collections of Louisiana and Florida, including translations of original manuscripts relating to their discovery and settlement, with numerous historical and biographical notes, New Series, New York, J. Sabin & Sons, 1869, 362 p.


FRIEDKIN, J. F. Typewritten Memorandum, Vicksburg, Miss., U. S. Waterways Experiment Station, 1944.

A Laboratory Study of the Meandering of Alluvial Rivers, Vicksburg, Miss., U. S. Waterways Experiment Station, 1945, 40 p., 61 plates.


GILMORE, John, "Traverse of False River and of the Mississippi from the entrance of False River to the Raccourci cut-off," a manuscript in the package Gilmore and Hacket, State Land Office, Baton Rouge, 32 p.


GOULD, Emerson W., Fifty years on the Mississippi; or Gould's history of river navigation, Saint Louis, Nixon-Jones printing co., 1889, xv, 749 p.


INGLIS, C. C., Central Board of Irrigation, India, Annual Reports (Tech.).


LA HARPE, Jean Baptiste Bénard de, Journal Historique de l'Etablissement des Français a la Louisiane (This journal is not really by La Harpe. The real author is the Chevalier de Beaurain, who based himself on La Harpe's documents), Nouvelle Orléans, A. L. Boimare, Libraire Éditeur, 1831.


LOUISIANA, Board of Public Works, Annual Reports.

_______, Legislature of the State, Acts.

_______, State Engineer, Annual Reports.

_______, State Superintendent of Public Education, Annual Reports.


POYDRAS, Julian, Private and Commercial Correspondence of an Indigo and Cotton Planter, 1794 to 1800, Manuscript kept in the 2nd floor vault of Louisiana State Museum in the Presbytere, New Orleans. (Typewritten translation in Louisiana State Museum Library).


__________. Early Western Travels - 1748-1846, Cleveland, Ohio, The Arthur H. Clark Co. 1904.


Vue de la Colonie Espagnole du Mississippi . . . en l'année 1802, par un observateur résident sur les lieux, Paris, Berquin DuvalIon, Editeur, 1803.

War Department, Mississippi River Commission, Review Report on Mississippi River Between Cairo, Illinois and Baton Rouge, La., Vicksburg, 1944 [Document No. 509, House of Representatives, 78th Congress, 2nd Session].


WILLIAMSON, Paul S., Economic Aspects of Sugarcane Production in La. 1941, Louisiana State University Department of Agricultural Economics, Mimeoographed circular, No. 26, June, 1942.
APPENDIX

The Names "False River" and "Pointe Coupée"

Origin of the name False River.

The designation False River, a recent version of the French Fausse Rivière, undoubtedly originated after the cut-off process had been completed and the old meander loop was at least partially sealed off by sedimentation at its upper and lower ends. A large portion of the old channel remained unfilled with alluvium; the arcuate lake which occupies this portion has approximately the same average width as the Mississippi, and its curvature is not unlike that of other sinuositities characteristic of this river. Were it not for a noticeable lack of current, False River even now might be taken for a part of the Mississippi. For a number of years after the cutoff had been completed, flood waters certainly continued following the abandoned channel, and the current they produced should have enhanced the similarity.

1 The Mississippi River Commission still employs both names. Thus, for example the New Roads Quadrangle, 1:62,500, War Department, Corps of Engineers, edition of 1936 we find "False or Fausse River."

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This fact is well brought out by a short excerpt from Flint. Referring to the cutoff, he states: "... when these changes take place the mouth of the ancient course of the river becomes choked; and long lakes are formed 'fausses rivières', which, at the season of high water might be mistaken for the river itself. ..."  

The existence of ox-bow lakes in close proximity to the Mississippi is common, and as such False River is in no way unique. The fact, however, that the medial portion of this body of water, separated from the river at least as early as 1719, remained open to this day, without any appreciable narrowing of the channel, is rather exceptional.  

Some cut-off meanders are entirely filled in and dry; others, as for example Duck Pond Swamp, below Helena, Arkansas, are reduced to curving strips of swampy ground; not a few

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There is obviously no affinity between such ox-bow lakes and the features designated as fausses rivières by Belgrand in his study on the Seine River (La Seine, Études hydrologiques, Paris, 1872, quoted in A. de Lapparent, Traité de Géologie I, Paris: Masson et Cie., 1900, p. 186). This writer referred to the drainage along bluffs at the edge of floodplains; to such streams, geographers in Louisiana have applied the appellation "rim swamp streams" (See, for example, Richard Joel Russell, "Louisiana Stream Patterns," in The Bulletin of the American Association of Petroleum Geologists, XXIII, No. 8, August 1939, p. 1224).

3 For another and (because of its distance from the present Mississippi) more striking example of the preservation of cut-off lakes, see Richard Joel Russell, "Larto Lake, An Old Mississippi River Channel," in Louisiana Conservation Review, III, No. 3, July 1933, pp. 15 ff.
survive only as small, irregular patches of open water; and there are some that, although constituting continuous bodies of water (lakes or bayous), having approximately the same curvature as the older meander, have had their channels withered to a third, a quarter or an even smaller fraction of the original width.

The rapidity with which abandoned channels are effaced may be roughly gauged by an inspection of some recent cut-offs, chosen at random. Observe, for example, on the 15th (1947) edition of Maps of the Mississippi River; Cairo, Illinois, to the Gulf of Mexico, Louisiana, the present condition of Rowdy Bend (cut off in 1935), or Bachelor Bend (cut off in 1933), both in the vicinity of Greenville, Mississippi; Albemarle Bend (cut off in 1934), between Lake Providence, Louisiana, and Vicksburg, Mississippi; Bolivar Bend (cut off in 1937), above Arkansas City, Arkansas; or Paw Paw Bend, severed from the main channel in 1934, above Vicksburg—the obvious channel deterioration indicates that it was through a set of special circumstances that False River was spared from any considerable alluviation, thus Justifying the conservation of its original designation, while other "fausses rivières" were slipping into oblivion.

Origin of the name Pointe Coupée. The name Pointe Coupée which means "cut point", does not possess such a manifest birth certificate as that of False River. It is hard to

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4Vicksburg: Mississippi River Commission, Scale 1:62,500.
decide whether the name Pointe Coupée was given by virtue of the short cut taken by Iberville or as a result of the Mississippi cut-off.

Some writers are of the opinion that Iberville and his men, having found a passage across the neck of a point in the river, called this pointe coupée.

Other writers believe the name to have originated with the cutting through of a point by the Mississippi, as this river took a more direct course. The analogy with other natural river cut-offs which (for a time at least) bore the name Pointe Coupée inclines the present writer to favor this interpretation.

In any case, it is interesting to note that the name Pointe Coupée came to designate a settlement upstream of the point actually crossed by the travellers and severed by the river; the position of the primitive Fort de la pointe Coupée on an uncut point immediately above, but not encircled by, False River may be seen, for instance, on Broutin's map, drafted in 1731.

5 "Carte du Bassin inferieur de la rivière rouge À l'origine de la colonisation," in M. Thomassy, Géologie pratique de la Louisiane (Nouvelle-Orléans, 1860), after p. 226. The fort of the "pointe Coupée" was not established on the point actually cut through, but immediately upstream of same. The settlement spread from this site—especially, upriver, so that on later maps (such as Collot's, for example), it is shown extending to the concave banks of the second bend upvalley.
The transition of descriptive expressions, such as pointe coupée or fausse rivière into proper nouns. Pointe Coupée is now a proper noun and is associated with a definite geographical locality. The same might be said of Raccourci, or Fausse Rivière. Pointe Coupée, Raccourci and Fausse Rivière were originally used as attributes; for this reason they were applied to several localities on the Mississippi River and its tributaries. Thus, for example, the designation pointe coupée occurs twice on Dumont’s map (fig. 32).

In order that future students may be spared some trouble in following up false clews, it is thought advisable to give a few examples of the possible confusion resulting when descriptive expressions are employed as proper nouns to designate more than one place.

The fact that the river tends to oscillate within certain limits, lopping off bends as they grow, produces a number of cut-off points. Such a point was quite naturally referred to as a pointe coupée.

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6 See "Dumont's Map of the Chickasaw and Choctaw Country," in Justin Winsor, The Mississippi Basin: Struggle in America between England and France, 1697-1763 (Boston and New York, 1895), 265. The designation "Pointe coupée" appears not only at the site of present-day Point Coupée Parish, but also upstream, between the Arkansas and Yazoo rivers.
Fig. 32 — Part of Dumont's map of Chickasaw and Choctaw Country (1740). The designation "Pointe Coupée" appears, not only at the site of present-day Pointe Coupée Parish, but also upstream, between the Arkansas and Yazoo Rivers. From Justin Winsor, *The Mississippi Basin - Struggle in America between England and France 1697-1763.*
In our day, the name "pointe coupée" designates a parish in Louisiana. Even before the area received a formal denomination and was given political boundaries, the name was linked with the area along the Mississippi River, north of the present site of New Roads. The unwary reader, upon finding reference to a pointe coupée in some ancient chronicler, may be led to suppose erroneously that the statement refers necessarily, if not to the present parish of Pointe Coupée, at least to the old settlement on the Mississippi, opposite the mouth of Bayou Sara. Such misleading references are numerous.

Father Gravier, of the Society of Jesus, descending the Mississippi in 1700, states in a letter to Father Lamberville: "They count 60 Leagues from the Kappa to the River of the Toumika; And on the 3rd day we passed the pointe coupée [italics not in the original], which is half way." The "River of the Toumika" (Tunica) has been identified as the Yazoo River. This particular pointe coupée was about thirty leagues above the Yazoo River.

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Father Charlevoix, in a letter from Natchez dated December 25, 1721, tells how on the fifth day after passing the first or upper mouth of the Arkansas, i.e. December 8, 1721, he pushed on to the cut point: "je poussai jusqu'\(\text{a la pointe coupée}\)". This example of a cut-off point is also situated above the Yazoo River and is not related to the one with which we are concerned.

Still later in the 18th century, an anonymous French officer set down in his journal the fact that nine days trip above the Yazoo River he passed "what is called 'the small Pointe Coupée'".\(^9\)

Le Page du Pratz also notes a Great Point Coupée. Like the three foregoing examples, this cut point is also located


\(^{10}\)J. F. H. Claiborne, *Mississippi as a Province, Territory and State, with Biographical Notices of Eminent Citizens* (Jackson, Miss.: Power & Barksdale, Publishers and printers, 1890), I, 70. Transcription of journal of officer who arrived from France in 1735, with the troops under M. de Nouaille and who accompanied the expedition to the Chickasaw bluffs, which has been translated from a MS. obtained in Paris by Col. B. F. French.
between the Arkansas and the "Yasoos" at about twenty leagues, it would seem, above the Yazoo River.

The fact that these statements refer to the same general vicinity need not lead one to suspect that they refer to the same cut-off. If, however, this were the case it would be interesting to speculate why the same cut-off was called "small" by the anonymous French officer and "great" by Le Page du Pratz.

That not all cut-offs on the Mississippi were called pointe coupée is an established fact. Inversely, that not all pointes coupées are cut-offs on the Mississippi is equally evident. If an example were necessary, Bayou Pointe Coupée would supply it. This bayou (whose waters flow successively through Devils Creek, Comrade Creek and Cypress Bayou into Calcasieu River, which empties into the lake of the same name) is in Western Louisiana and entirely outside Pointe Coupée Parish.

Similar considerations apply to the designation False River. When today this name is mentioned in Louisiana, one thinks immediately of the arcuate lake in Pointe Coupée Parish. That this was not always the case, is revealed by Audubon, who as late as 1821 tells of a "famous bayou ... called False River" which "discharges its waters not far from

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the mouth of the Yazoo River."¹² This False River is located on the eastern bank of the Mississippi and is far from the False River under consideration.

It seems worth mentioning that there is even a locality called False River, south of Bayou Fordoche and about seven and a half miles away from False River, to which this lake is obviously unrelated.

The French noun portage might be cited as another example in this matter. A bayou in the False River area bears this name. In a land where transportation was carried on mainly by water, it is not surprising to count six different streams called "Bayou Portage" in the State of Louisiana.¹³ The difference between the names Pointe Coupée and False River, on the one hand, and Bayou Portage, on the other, is that where the two former became practically restricted to and synonymous with one definite locality, the latter still officially designates a half dozen different streams.

Variations in orthography: translations. Both translations and corruptions of the original expression, Pointe Coupée, have crept into other languages.

¹² Maria R. Audubon, Audubon and His Journals (New York: Charles Scribner's Sons, 1899), II, 260. The reference is in "The Cougar" (1821).

During the Spanish domination, a simple translation gave the expression **Punta Cortada**, which was the most frequent one in Spanish writings of that period. Alongside this perfectly legitimate translation, we may note a number of corruptions.

It is possible to group the Spanish distortion of the name under consideration into two classes: (a) a corruption of the original French expression; and (b) a corruption of the Spanish translation itself.

**Punte Cupé** or **Punté Cupé**

**Ponte de la Coupe**

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14 Letters from De Mezieres to Unzaga y Amezaga dated February 1, April 30, and June 10, 1770, cited by Herbert E. Bolton, *Athanaze de Mezieres and the Louisiana-Texas Frontier* (Cleveland: The Arthur H. Clark Co., 1914), I, 146, 158, 176.


It must be noted, however, that in the "Journal of a Voyage from New Orleans to Natchez," by Pedro Favrot, the expression **La Pointe Coupée** is found under the date August 6, 1792, on page 144, volume III, of the so-called "Favrot Papers". These are "Transcriptions of manuscript collections of Louisiana," prepared by the Historical Records Survey, Division of Professional and Service Projects, Works Projects Administration (New Orleans: Louisiana State Museum, 1940).
examples of the first class, whereas Punta Corta\textsuperscript{16} and Puerto Cortado\textsuperscript{17} exemplify the second class.

That there was no rigid uniformity in usage is proven by the fact that the same individual indifferently employed more than one form of naming the same place. Thus, for example, Unzaga y Amezaga employs both Punta Cortada\textsuperscript{18} and Puco (sic) Cupe.\textsuperscript{19}

The thirty odd years of Spanish domination were not enough to substitute the designation Pointe Coupée and when, in 1800, the colony was retroceded to France, only to be purchased by the United States in 1803, the original French expression still prevailed.

\textsuperscript{16}Inventory of property of Jacob Femié of Fort Bute, Manchac, dated June 3, 1792, Archives of the Spanish Government of West Florida, Survey of Federal Archives, Translations and Transcriptions, Vol. I, p. 3. Another example is found in Charles Trudeau, Surveyor General, Book A, No. 3 (Part 2), British and Spanish Grants. Notices and Evidences in Written Claims before Cosby and Skipwith, 1819-1820. Greensburg Land Claims. U. S. Land Office Archives, Baton Rouge, La., p. 93 (written July 13, 1798). There is a possibility that we have to deal with an omission due to carelessness of the final da of Cortada. However, "corta" means "short" and might be used: "Punta Corta" meaning "Short Point".

\textsuperscript{17}Mentioned in a legal Action started in 1779 by Leonor Monsanto, native of Pointe Coupee. "Index to the Spanish Judicial Records of Louisiana," in Louisiana Historical Quarterly, XVII (1934), 391-392.

\textsuperscript{18}Luis de Unzaga y Amezaga, in Dispatches of Spanish Governors of Louisiana . . . , Survey of Federal Archives in Louisiana, Book 1, Vol. III, p. 35.

\textsuperscript{19}Ibid., Book 1, Vol. II, p. 57.
Anglo-Saxon writers have commonly dropped the final "e" from Pointe—a simple way of anglicizing this word—and the usual absence of a type to represent the accent aigu has probably concurred in changing the second term of the expression.

Anglo-Americans unacquainted with the French language, upon seeing the word coupée, would quite naturally pronounce it to rhyme with tee or fee. As this sound was again set down on paper, it was quite often spelled coupie; consequently Point Coupie is quite frequently found in English writings.

The hazards through which the name Fausse Rivière has passed are analogous to those described for Pointe Coupée. The Spanish Falsa Ribera or Rio Falso (shown in figs. 16 and 17) did not displace the French Fausse Rivière.

Fausse Rivière was apparently not yet widely used in the early 1730's, for both Broutin's map (1731) and d'Anville's map (1732) already referred to (fig. 24) give Ancien Cours du Fleuve.

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20 Ibid.

The English form False River was employed at least as early as 1765 by Lieutenant Ross with the additional annotation, Ancient Course of the Mississippi (fig. 15).  

Some Anglo-Saxon writers and cartographers have preferred to maintain the French spelling. This is the case of Tanner (1820), and Humphreys and Abbot (1861).  

The local French tradition, nevertheless, has been powerless to stem the change. Infiltrating under such hybrids as "Fausse River", employed recently by Elliott, for example, the adoption of the English form is only a matter of time.  

In conclusion, it must be noted that some of the variations recorded may actually represent mere mistakes overlooked by typists, printers, copyists, or even original

22 Course of the River Mississippi from the Balise to Fort Chartres, taken on an expedition to the Illinois in the latter end of the year 1765 by the Lieut. Ross of the 34th regiment: improved from the surveys of that River by the French . . . (London: Printed for Robert Sayer, 1776).

23 Map of Louisiana and Mississippi, four parts.


writers. Unless the expression appears frequently in different writers, as *Punta Cortada*, one should be wary of concluding that it enjoyed widespread use.

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26 This, for example, quite obviously seems to be the case of *Puch*, mentioned above.
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Primary and Secondary studies: Deutsche Schule and Colégio Pedro II, Rio de Janeiro. University studies: Bacharel and Licenciado, Universidade de Brasil (1940 and 1941).

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Assistant Professor, Universidade de Brasil (1942-1944).

Teaching Assistant, University of California (1943).

Member of the National Committee on Textbooks, Ministry of Education (March 1946 to December, 1947).
Delegate from the University of Brazil at the Second Pan-American Congress of Mining Engineering and Geology (1946).

Delegate from the University of Brazil at the First Brazilian Meeting on Soil Science. Elected Secretary of the Committee on Soil Morphology and Genesis (1947).

Member of Delegation from Ministry of Agriculture at First Round-Table on Soil Conservation held in Sao Paulo, January 1949.

Delegate from Brazilian Government at XVI International Geographical Congress in Lisbon (1949).

Member of Brazilian Cultural Mission to Uruguay, August 1949.

Delegate from Brazilian Government to First Pan-American Consultation on Geography (1949).

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Delegate from the Brazilian Government to the International Seminar on the Teaching of Geography held by the UNESCO at Montreal (1950).

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Member of Directory, Conselho Nacional de Geografia.

Co-editor, Section on Geography (Brazil) Handbook of Latin American Studies.

Escotismo e Educação; Educação Extra Escolar e de Adultos, Rio de Janeiro, 1939, 65 pages.


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