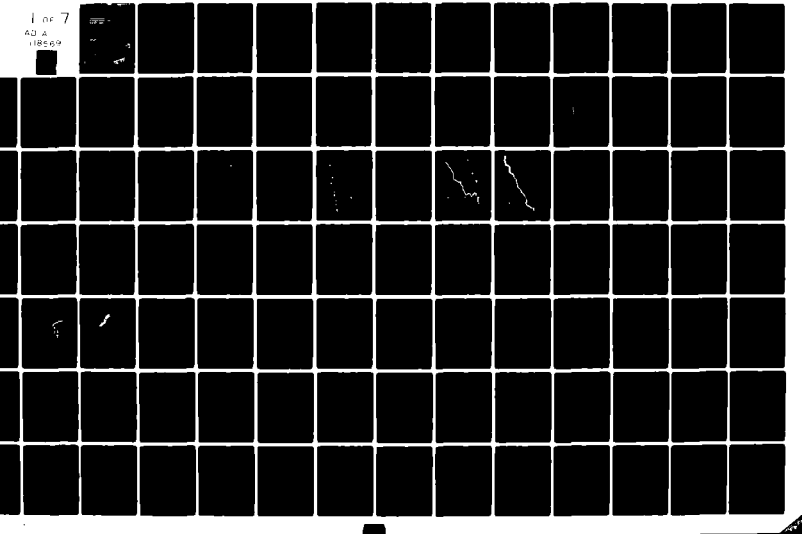
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ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN, SOUTH CENTRAL LOUISIANA

A Cultural Resources Survey of the
Atchafalaya Basin Protection Levees

January 1982
Final Report

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Prepared for
DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. Box 60267
New Orleans, Louisiana 70160

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A cultural resources survey of the East and West Atchafalaya Basin Protection Levees investigated a total of 33 prehistoric and historic sites. Indian sites ranged in age from Archaic to Plaquemine, and historic sites from Contact to twentieth century. Ethnographic research showed the complexity of ethnic identity and the powerful influence of the Atchafalaya swamp in molding a rather unique subculture. A total of 12 cultural resources was recommended as significant, and mitigation recommendations were tendered.

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EXECUTIVE SUMMARY

This report presents the findings and determinations of a cultural resources survey performed along 460m wide corridors centering along sections of the Atchafalaya Floodway levees in south central Louisiana.

Comprehensive background material was compiled on geology and geomorphology, basin ecosystems, culture history, and previous archeological investigations to aid in formulating a study plan. Data voids and barriers to understanding were pinpointed and data collecting and interpretation were designed to fill in these gaps. Out of this program has resulted recommendations on the significance of cultural resources, how they will be impacted by the project, and how adverse project impact can be mitigated.

The Atchafalaya Basin is an extremely complex aggregate of land and water forms produced by more than 10 millennia of river activity in this physiographic lowland. Ecologically, the region joins terrestrial, aquatic, and estuarine forces in an ever-changing ecosystem which was both highly productive and limiting to its residents. Native Americans inhabited the edges of this great swamp as early as 12,000 years ago and seemingly moved into its watery interior and marshy southern extremity in considerable numbers during the first Christian millennium. Previous archeological investigations, although limited in both geographic coverage, intensity, and issues and problems pursued, have provided the cultural historical framework for organizing the prehistoric cultures of the Atchafalaya Basin. Native American tenure in the basin ended with the withdrawal of the Chitimacha Indians to the Charenton reservation in the twentieth century. Non-Indians from a variety of racial and ancestral origins entered the swamp during the eighteenth century and rapidly adapted to its natural environments. A unique complex of extractive pursuits, based on wild food and industrial resources, sprang up, and today gives the region a distinctiveness unmatched anywhere else. One of these immigrant groups, the Acadians, rapidly became a dominant socially molding force, assimilating and "isolating" other

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neighboring enclaves. French-speaking Cajuns form the majority of the basin's residents today, and the Cajun cultural and social model is the primary criterion on which ethnicity and social behaviors are predicated.

Physical remains of places of residence and work of these groups were identified during the field survey. A total of 33 prehistoric and historic sites was located within the search corridors. Based on information yield and potential, 10 of these locations have been judged potentially significant under National Register of Historic Places criteria. These include 16IV4, 16SM51, 16SMY130, 16SMY52, 16SMY104, 16SMY107, 16SMY2, 16SM50, 16AV68, and 16AV69. Three additional sites, 16SM6?, 16SM45, and 16SMY166, could possibly be determined significant if additional data were available. A total of 20 sites was not recommended as potentially significant under the evaluatory plan used herein to operationalize National Register criteria. These sites are 16PC34, 16PC35, Y161BE, Y161BF, 16SM48, 16SMY51, 16SMY53, 16SMY54, 16SMY39, 16SMY108, 16SMY106, 16SMY164, 16SMY165, 16SMY163, 16SM11, 16SL64, 16SL63, 16SL62, 16SL61, and 16SL60.

To avoid potential adverse impact, recommendations for mitigation (including avoidance, protection, and excavation) have been tendered for those sites recommended as potentially eligible for inclusion on the National Register.

PREFACE

On 15 September 1978, the Center for Archaeological Studies at the University of Southwestern Louisiana was requested by the U.S. Army Corps of Engineers, New Orleans District, to submit a proposal for a cultural resources survey of the East and West Atchafalaya Protection Levees. On 29 September 1978, the proposal was submitted to the contracting agency, and thus began an involved series of events which ultimately resulted in the conclusion of Contract DACW29-79-C-0265. Recapitulation of the history of these events includes the following items:

1. Contract negotiations held, 10 April 1979;

2. Contract signed by Col. Thomas A. Sands, 18 June 1979, the signing constituted the official beginning date of the contract (i.e., the "notice to proceed");

3. Research design written and submitted by the contractor and after review by the contracting agency, the Louisiana Division of Archaeology and Historic Preservation, and the Heritage, Recreation, and Conservation Service, the design was approved and authorization to begin fieldwork was granted by the Corps on 20 July 1979;

4. Fieldwork commenced on 23 July 1979 and concluded on 15 September 1980;

5. During the ensuing period (mid-September to year's end), the Corps decided to amend Contract DACW29-79-C-0265 to include a survey of additional levee segments, rendering, in effect, survey coverage of the entirety of the East and West Atchafalaya Protection Levees, including the Levees west of Berwick; this modification was finalized by negotiations on 17 January 1980;

6. Fieldwork was reactivated in these new project corridors on 21 January 1980 and was ended on 18 April 1980;

7. Between April and October 1980, analyses and report-writing was concluded;

8. From October 1980 to December 1981, the draft report underwent review, and various 36CFR800 compliance procedures were implemented; and

9. Between December 1981 and January 1982 the final report was prepared under a modification extending the life of the contract.

Jon L. Gibson served as principal investigator for the project. Steve Lark acted in the capacity of field supervisor. The survey team consisted of Steve Lark, Ray Brassieur, Willie Sand, Judy Ronkartz, Diane Dixey, Paul LaHaye, and Melvin Cousins. In order to adhere to survey organizational plans and project completion time tables (which were separated into stages, phases, and tasks), it was necessary to divide personnel into task groups. All of the individuals worked on the actual field survey for archeological sites. However, toward the latter part of the first phase fieldwork, an ethnographic survey team, headed by Brassieur and staffed by Ronkartz and Dixey, was diverted from archeological investigations to perform the ethnological field research. The second and final phase of archeological fieldwork was conducted by Lark, LaHaye, and Sand.

Several consultants also participated in the project. John P. Lenzer conducted the geological and geomorphic research, participated in the stratigraphic testing at Lost Hill, Persimmon, and Bayou Sorrel, and wrote the chapter on geomorphology. Robert Gramling, University of Southwestern Louisiana associate professor of Sociology, wrote the chapter on culture history since 1700. James A. Fogleman, Assistant Principal at Morrow Elementary School, prepared the site forms and site location maps which separately accompany this report. He, along with his students, washed and catalogued all artifacts which resulted from the survey. C. Ray Brassieur, of the survey team, wrote the chapter on ethnography. James Morehead, Center for Archaeological Studies staff, classified the nontool, stone artifacts from the Savage site.

The report was typed by Jane Bonnette, USL English Department, and Loretta Tauzin, USL Office of Research and Sponsored Programs. Melvin Cousins, Center cartographer, drew the maps. The report was printed by the USL Printing Department, under the guiding hand of George Hoffman. Earl Romero and Dan Tribe ran the presses, Gerald Tribe set type for the cover, and Glenn Laurents put the whole thing together.

Sincere appreciation is extended to Leslie Waguespack and Thomas Ryan, New Orleans District, for their keen interest and continual assistance in the project. Close coordination between agency and contractor was facilitated by these individuals. Constant feedback eliminated potential problems, often before they were manifested. On-site inspections by both men permitted immediate decisions to be made about Corps actions and allowed plans to be reformulated. Ryan's sage advice and help not only kept the project running smoothly, but his intimate familiarity with Louisiana archeology proved a welcomed source of ideas, inspiration, and constructive criticism. Burt Rader and Michael Stout also aided the survey in many material ways. To Col. Thomas A. Sands goes the Center's thanks for approving the University's selection for this project and for commanding an organization through which cultural resources surveys, like the Atchafalaya Protection Levees investigation, can be effectively administered and efficiently conducted.

The University of Southwestern Louisiana administration gave its unhesitating approval for the Center for Archaeological Studies' involvement in the contract. Dr. Ray Authement, President, Dr. Sammie Cosper, Academic Vice President, and Dr. Mary Dichmann, College Dean, were supportive of the project, and permitted the principal investigator summer release time to complete the report. Dr. Wayne Denton, Director of Research and Sponsored Programs, and his administrative assistant, Loretta Tauzin, gave valuable aid and smoothed out the red-tape hurdles which so often complicate contract research at universities.

The USL Office of Business Affairs relieved the large burden of massive paperwork from the principal investigator; Ovey Hargrave, Vice President for Business Affairs, Elwood Broussard, Director of Purchasing and Personnel Services, Wayne Theriot, Auditor, Beverly Motty, travel, Cecile Melancon, billing, and Mona Gros, payroll, tended to most business-related affairs. Wayne Theriot's firm hand assured project financial solvency.

Many thanks are extended to James Fogleman, of Morrow, Louisiana, and his band of students for making site locations and collections

from the St. Landry Parish area available to the principal investigator. The large collection from the Savage site was loaned by Fogleman. Most of what we know about St. Landry archeology is due to his efforts, and for them, we are indeed grateful. Acknowledgement is also made of Mr. Saizon, of Opelousas, for making his hunting camp near Swayze Lake available to us as field headquarters during the latter phase of the survey. To the many landowners who kindly granted permission to traverse their properties goes a collective thank you.

The Atchafalaya survey has been a rewarding experience. Such close touch with the great swamp has given all of us a fresh awareness of the dynamics of its watery nature, its subtle and sudden shifts, its stresses and its bounty, and its splendor and its dark side. In one way or another, we have all been affected. We can also bear witness to the influence of the swamp on its contemporary users, the skier and the pleasure boater, the crawfisherman and the fisherman, the young and the old, the Cajun and the non-Cajun, the archeologist and the cultural resources manager.

We can testify to the productivity of the swamp, especially to those intimately familiar with its seemingly fickle moods and changing countenances. We can by the same token vouch for the frustration experienced by novices and outsiders when attempting to exploit ecosystems they neither understand nor appreciate. Witness, waters which produce fish one day may become nonproductive overnight; they change with the shift of the wind, with the rise and fall of the Atchafalaya River, with the coloration and mixture of the waters, with the odor of the murky stuff, and sometimes for no sensible reason at all. We do not doubt it was the same for the Indian, the European, and the American when first thrust into the singular phenomenon that was the Atchafalaya Basin. The swamp has and has had a powerful influence on all who dared venture into its midst. Without appealing to determinism, it is almost hollow to say that the Atchafalaya swamp has presented adaptive constraints and opportunities to its human denizens. If there has ever been a region that has removed the effects of traditional folkways and livelihoods and melted nationality, ethnicity, and race into a common mold, it has been the Atchafalaya swamp.

Words cannot do justice to the majesty of the basin. The Atchafalaya Basin is a feeling, an experience, often so personal and individual that it escapes description. So it has been always. The swamp dwellers have been pragmatists of the ultimate kind, a unique brand of persons who challenged and were challenged by the swamp. And the physical remains of activities of these persons reflect this uniqueness. Largely impervious to outside stimuli, the swamp and its residents and exploiters have traced their own course of development, mostly independent of surrounding regions. Only the last century has seen man's hand change this natural course, and the swamp and its two principal rivers are showing how fleeting such attempts to harness its natural dynamism have been.

The basin survey will be long remembered by all of us. Five grown men on a log, one fell off, and then there were four. The surprise of Willie's face as he discovered Big Darbonne Bayou has no bottom was worth the dunking. The choupique (bowfin) courtbouillon prepared by master chef LaHaye proved an epicurian delight and worth the hours of hunger pains awaiting it to cook in a one quart boiler. The crackling fire and smell of wood smoke in the Saizon field camp were always quietly anticipated for their relaxing qualities at long field day's end, and Lark discovered not only the value of firewood to humanity but that gathering it is no lark. No sounds of traffic, no telephones, no stuffy air-conditioners, and freshly caught bass for supper helped assuage the hustle and bustle of civilization and gave all of us an invigorating feeling that can only come with living close to nature. It also made understandable the occasional long lapses in field to base communications. Lingering patches of fog on the bayous, cold air pockets which chilled one to the core only to return to sunny warmth around the next turn, the showers which went as suddenly as they came but leaving everyone drenched, were seemingly the swamp's way of constantly reminding us that it does things if and when it pleases. It also vividly demonstrated the need for a variety of field clothing and for water-tight, floatable containers. The swamp also showed that the best laid plans of men and principal investigators have to be adaptable, or they may have to be aborted. For example, the rank structure of the field crew, set by project

organizational design, rapidly transformed into an egalitarian form with situational leaders, or bosses, when faced with conditions of the field. This shift in social organization of the work group seems not to have hampered the achievement of survey objectives but rather to have facilitated them.

All in all, the Atchafalaya survey has been enlightening. The following report hopes to convey some of that enlightenment. We can also now rest assured that the obligations of contracting agency and contractor to the cultural resources along the Atchafalaya Protection Levees have been effectively discharged.

Jon L. Gibson
Principal Investigator
23 August 1980

PREFACE TO FINAL DRAFT

During the interim between draft and final reports, the Corps of Engineers has pursued an active program of compliance with 36CFR800 procedures. Acting on the recommendations contained in this report, a determination of eligibility has been secured for Bayou Shaffer Pumping Plant No. 1 and coordination with the SHPO has produced a determination of no effect. Intensified locational work was required by the Corps at several sites to determine if they lay in or out of the impact corridor.

Thomas Ryan and Michael Stout have implemented the compliance phase of this project in a most expeditious manner, and I commend them.

Jon L. Gibson
Principal Investigator
7 December 1981

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CHAPTER 1

CULTURAL INVESTIGATIONS OF THE ATCHAFALAYA PROTECTION LEVEES: AN INTRODUCTION

PROJECT BACKGROUND

Lying west of the lowermost reaches of the Mississippi River in Louisiana is the largest overflow swamp in North America. The Atchafalaya Basin covers more than 5200km^2, an area about the size of the state of Delaware (Figure 1.1). Its upper portions which are better drained and slightly higher were once covered with dense bottomland forests. Now they stand largely denuded, pushed down and burned, to make way for the everspreading soybean. Its middle regions are watery semi-wilderness, dotted by a maze of bayous and canals. Cypress and tupelo rise out of these black waters, their dark shimmering silhouettes interrupted only by the occasional flouncing of a fish, or by the whine of a fisherman's outboard or roar of a diesel crewboat. In the lower reaches of the swamp, green cypress fingers are sent into a sea of wavering grass and "trembling earth," as the marsh has often been called. Here the swamp competes with the Gulf in a never-ending battle for dominance. Sediment-laden waters that pass through the basin are rapidly building a delta in Atchafalaya Bay. In this perpetual fickle struggle, the swamp is claiming at least a temporary victory.

The recent geological development of the swamp covers nearly 10 millennia. In what may seem an indecisive manner, the ancestral Mississippi River and its tributaries-distributaries shifted back and forth across the area creating the lowland basin by plantation and alluviation. The apparent indecisiveness of the river is an illusion, however, for the river changes and diversions were controlled by a very

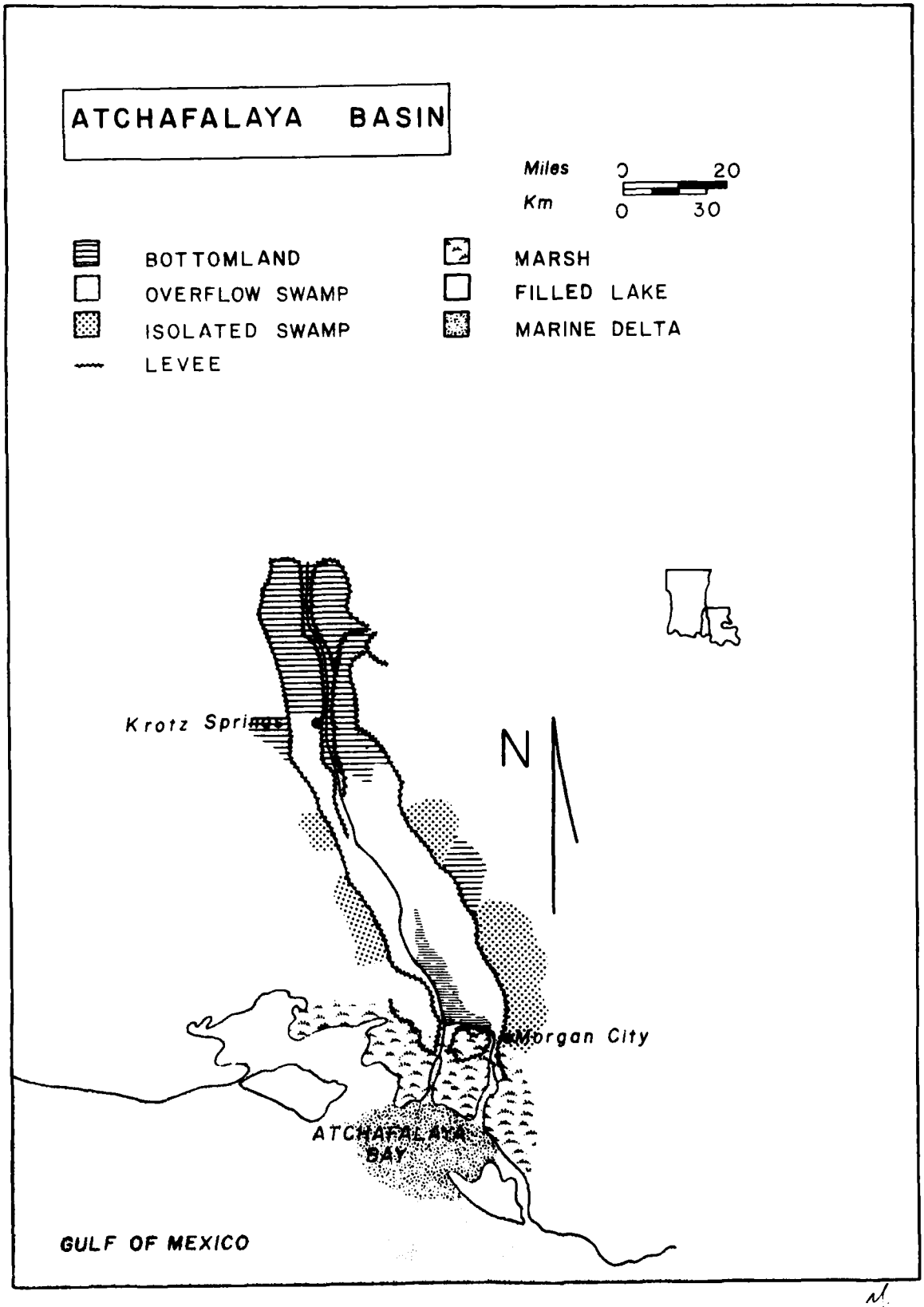


FIGURE 1.1. Atchafalaya Basin Environmental Zones.

precise set of natural hydrological and geomorphic factors. At least four meanderbelts of the pre-modern Mississippi River and several old courses of the Red River have left visible remnants in the Atchafalaya swamp. As a matter of fact, ridges formed by these old river systems serve to impound the swamp and have isolated it as a distinctive physiographic feature. The Lafourche and Mississippi ridges (meanderbelts) form the eastern boundary of the swamp, while the western boundary is provided by the Teche Ridge (Figure 1.2). Its northern limits are marked by the coalesing Teche and Mississippi ridges which are connected by deltaic fan materials of the Red River cone. The southern extent of the swamp coincides with the swamp-marsh interface along the Teche Ridge near the Gulf. However, its main drainage artery, the Atchafalaya River, cuts through a gap in the Teche Ridge and continues its tortous route across the coastal marsh, emptying its muddy waters into Atchafalaya Bay.

Rapidly since 1831, the hand of man has caused drastic alterations in the Atchafalaya Basin. In that year Captain Henry Shreve excavated a navigation channel across what is now Turnbull Island (Latimer and Schweizer 1951:3). This seemingly innocent act marked the beginning of a major diversionary process, a process which today threatens to bring the entire Mississippi flow down the Atchafalaya River. Before the cut off, the mouth of the Red River and the source of the Atchafalaya River lay on opposite ends of a giant Mississippi meander. Because of the location of the head of the Atchafalaya River on the downstream segment of the meander, it received quantities of drift which effectively blocked water exit down its channel. This so-called raft, a floating mat of driftwood which supported some living vegetation, choked the upper channel intermittently over a distance of some 32km (Darby 1816; Stoddard 1812). The cutoffs (Shreve's and Raccourci) and the subsequent removal of the raft between 1840 and 1862 (Latimer and Schweizer 1951; Comeaux 1969), unblocked the Atchafalaya and permitted a greater volume of water to exit through the channel. The effect was immediate and nonreversible. The unclogged Atchafalaya River widened and deepended. It began to accept the full flow of the Red River and more and more of the Mississippi volume. It had entered what Fisk (1952) called an intermediate stage in the diversionary

process. The Atchafalaya River was well on course (literally) to becoming the main outlet of the Lower Mississippi River.

Interim efforts to control the rivers prior to 1928 were to little avail (Latimer and Schweizer 1951; Fisk 1952). However, following the legendary and disasterous flood of 1927, the United States Congress passed the Federal Flood Control Act (1928). As a result of this action, an ambitious series of measures were instituted to harness one of the most dynamic forces in nature -- the giant Mississippi River (Mississippi River Commission 1940; Mississippi River Commission and the U.S. Army Engineer Division, Lower Mississippi Valley 1962). The Atchafalaya River and Basin figured prominently in this grand flood control design. The Atchafalaya Basin was converted into the Atchafalaya Basin Floodway. Surrounded by artificial levees and regulated by flood gates at its head, the basin became a gigantic release valve. Its purpose was to ease pressure on a swollen Mississippi River by diverting slightly more than 50 percent of a so-called "project flood" through its swampy interior. It was designed to accommodate a flow of 1,530,000 cubic feet per second during a "project flood," leaving the remaining volume of 1,500,000 cfs to continue down the Mississippi main line (Mississippi River Commission and U.S. Army Engineer Division, Lower Mississippi Valley 1962:9).

The floodway project, an engineering coup at the time, has proven to be incompatible with two headstrong rivers. The floodway controls slowed, but have not stopped the diversion process. The Atchafalaya River offers a more efficient outlet to the Gulf than the present lower Mississippi route; it is actually shorter by some 270km.

River diversion is not the only problem facing the floodway. A chain of events set in motion by floodway construction itself has ironically compromised its ability to drain flood waters from the Mississippi at design capacity. Buffered from normal Mississippi overflow and inundation, the rich lands and mineral resources in the floodway became more accessible to the farmer and the oil man. Bean farmers cleared vast tracts of forest land in the northern part of the basin. With runoff unimpeded, enormous sediment loads were introduced into the anastomosing bayous draining its interior. Oil and gas companies cut innumerable canals and laid thousands of kilometers of

pipelines. Spoil levees lining these routes interrupted natural drainage patterns. Confined by the floodway protection levees and slowed and held by canal and pipeline levees, localized high waters simply dropped their silt and clay loads within the floodway interior. The result has been tremendous siltation throughout the basin. The floodway, designed to bleed flood water from the Mississippi River, has become a gigantic sediment trap, accreting new land at an ever-accelerating pace.

Backswamps have filled. Bayous have choked up. Once huge lakes, such as Lake Fausse Point, Grand Lake, and Six Mile Lake, have shallowed and become swamps and mud flats. Areas, such as Lake LaRose, have alluviated to the point where an Indian mound, described as being over 3.3m high when visited in 1911-1912 (Moore 1912:16-17), is now completely entombed by recent sediment. In other regions, sedimentation has been even more extensive.

Complicating the situation even further has been the rapid consolidation of protection levee foundations. The weight of the levees themselves has caused compression and sinking. In one section of the eastern levee (levee stations 2265+00 to 2285+00) west of Plaquemine, Louisiana, cumulative settlement of the levee crown has reached 6.1m in just 16 years (Krinitzsky 1970:5).

In summary, the Atchafalaya Basin Floodway is filling up. Its confining levees are sinking. And the undermining of the flood control structure at its head (especially during the 1973 flood) is threatening to allow the Mississippi River to adopt its preferred Atchafalaya route. These are serious problems with enormous potential consequences.

The floodway can no longer optimally function as a release valve for Mississippi flood waters. Thus there looms inevitability of a disasterous flood which would result in enormous loss of valuable property and possibly human lives. If the diversion process cannot be stopped and the Mississippi River adopts the Atchafalaya channel, the Lower Mississippi River would lose its freshwater supply needed by industry along its lower reaches. It could no longer naturally maintain an open channel because of reduced scouring action, and continual, expensive dredging would be necessary to facilitate navigation to the port cities of New Orleans and Baton Rouge (Kniffen 1977:2). Morgan City, at the

lower end of the floodway, already in peril because of floodway filling, would be disasterously affected by a diversion (Kniffen 1977:2). These would be the immediate consequences. The cumulative and long-term effects of a major river diversion on Lower Louisiana in general are more difficult to predict other than acknowledging their impact on virtually every aspect of life and livelihood.

The Corps of Engineers is working diligently to correct these problems. The present cultural resource investigation was necessitated by these remedial engineering plans. To restore optimum operating efficiency as a floodway, the Corps of Engineers plans to raise and enlarge about 360km of existing protection levees; the average increase in levee crown height will be about 1.2m (U.S. Army Corps of Engineers 1978:2). This will meet the height requirements necessary to accommodate the MRC flowline determined on the basis of the 1973 flood (U.S. Army Corps of Engineers 1978:2).

The construction project will involve several land-altering activities. First, vegetation will be cleared from those areas where fill is to be placed as well as those from which it is to be borrowed (U.S. Army Corps of Engineers 1978:2). Fill will be used to raise the levee crowns to appropriate heights and to enlarge the levee and adjacent berms to a size necessary to accommodate the new crown levels (U.S. Army Corps of Engineers 1978:2). Dirt will be taken from borrow pits immediately adjacent to the levees; sometimes from the land side of the levee, sometimes from the floodway side, and sometimes from both sides (U.S. Army Corps of Engineers 1978:2). The levees with their new increment of soil will be compacted and reseeded with grass to prevent erosion.

Since the proposed sources of levee fill are to derive from previously undisturbed land areas along existing levees (e.g., lateral widening of old borrows and completely new and independent pits), a cultural resource investigation was required in order to bring the Corps into compliance with federal environmental and antiquities legislation. This report presents the results of that investigation.

AGENCY WORK REQUIREMENTS

The scope of services made part of contract DACW29-79-C-0265 was designed to meet the requirements of federal environmental and antiquities legislation, particularly the Antiquities Act of 1906 (PL 59-209), the Historic Sites Act of 1935 (PL74-292), the National Historic Preservation Act of 1966 (PL89-665), the National Environmental Policy Act of 1969 (PL91-190), Executive Order for Protection and Enhancement of the Cultural Environment (EO11593, 1971), the Archaeological and Historic Preservation Act of 1974 (PL93-291), and the Arhcaeological Resources Protection Act (PL96-95, 1979).

Specific work requirements included the following items:

1. Perform an evaluatory review of documentary resources sufficient to ascertain their value under the current state of the science, including their usefulness to the present survey research design and to determination of significance. Documents shall include both archaeological and historical works.

2. Provide an on-site investigation of previously identified cultural resources for the purpose of evaluating significance.

3. Conduct a cultural resource survey within the construction impact corridors in order to identify and evaluate significance of cultural resources.

4. Perform field work to identify and describe ethnic groups, distinct lifeways, folk cultures, and historic areas that may be impacted by proposed construction.

5. When appropriate, undertake methods, including subsurface testing, coring, etc., necessary to assess site significance and to evaluate its potentiality for inclusion on the National Register of Historic Places.

6. Evaluate each site, using National Register criteria (36CRF-800.10)--justified and with explanation of individual decision-making criteria--to recommend its eligibility for inclusion on the Register.

7. Prepare a written report on the results of the required work. Said report shall include in an acceptible format the following sections: introduction, historical overview, review and evaluation of previous archaeological investigation, site and site setting

descriptions, research design and strategy and effectiveness, cultural materials inventories and analyses, data interpretation, data integration, folk culture and oral history, conclusions, bibliography, and appendices (if necessary).

8. Catalogue all artifacts, samples and specimens recovered. The cataloguing system should include site and provenience designations.

9. Within 30 days after receiving notice to proceed, submit to the Contracting Officer's Representative a research plan detailing how the contractor intends to conduct the work.

10. Within 10 days after the completion of the field work prepare and submit a brief summary of cultural remains and significance evaluations and a map showing their locations.

COMMENTS ON THE SCOPE OF SERVICES

Basically these requirements serve to implement the legislated mandate of conserving the cultural environment in face of potentially injurious federal construction. There are several key issues involved. First, cultural resources must be identified. Secondly, and of critical importance, the "value" of cultural resources must be established. In this context, "value" means determining whether or not the resources satisfy criteria of significance promoted by the National Register of Historic Places guidelines (36 CFR 60.6). If a resource has been determined to satisfy these criteria, then and only then will recommendations for the avoidance of adverse impact (i.e., mitigation) be entertained by the Agency. If the Agency concurs with the significance decision, it will adopt one of several possible courses of action: a) change project design to avoid adverse impact on significant resources; b) support excavations or other data-collecting methods to retrieve as much information as possible before locations are impacted; and/or c) integrate avoidance and data-collection measures.

The scope of services clearly recognizes these key issues, yet at the same time maintains an essential flexibility. It does not impose any particular research design or strategy on the investigation;

that is left to the discretion of the contractor. Yet assurance that the investigation would be performed in a professionally acceptable manner was secured by prior submission and agency approval of an explicit research design and investigation strategy. The scope of services also adopts a broad view of what constitutes cultural resources. So many federal regulations concerning cultural resources exhibit an inhibiting object, building, or place consciousness (cf. 36 CFR 800.10; 36 CRF 60.6). This attitude practically obligates one to limit cultural resource recognition to those tangible things that can be detected by the various human senses. The present scope takes a much broader view of cultural resources, one more in line with professionally acceptable definitions (cf. King, Hickman, and Berg 1977:8).

By including investigative requirements on items such as ethnic groups, lifeways, folk cultures and historic areas, the present scope of services has appreciated a much fuller meaning of the term, cultural resources. It goes considerably beyond object and place consciousness to include both tangible and intangible aspects and products of that corpus of behavior, definitively human, that we call culture. It therefore recognizes that cultural resources include far more than archaeological sites and historic buildings, that they include cultural institutions and organizations, and the set of perceptions, beliefs, values, and attitudes that underlie their formation and produce both stability and change. Implicit in this attitude is the idea that cultural resources management should concern all identifiable aspects of culture since far more than objects and places are impacted by federally-sponsored projects.

THE PROJECT AREA

The general project area coincides with the edges of the Atchafalaya Basin in south central Louisiana (Figure 1.1). Specifically, the project area was confined to the artificial levees which serve to delimit the Atchafalaya Basin Floodway; these are depicted in Figure 1.2. The survey areas therefore constitute long, linear corridors, stretching from a northern point of origin near Moreauville, Louisiana,

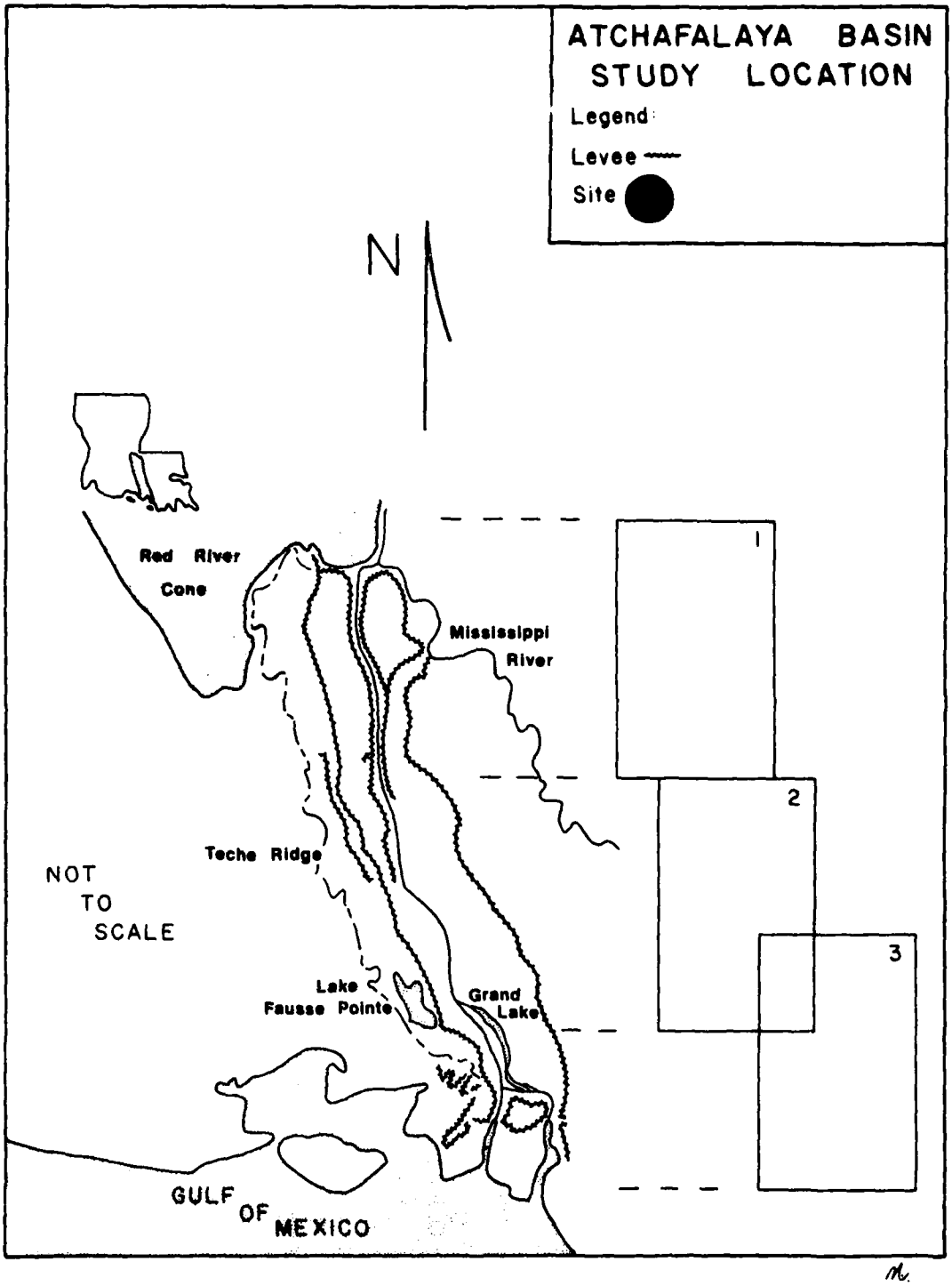


FIGURE 1.2. Atchafalaya Basin Physiographic Features and Locations of Large Scale Maps

to a southern terminus near the junction of the Avoca Island Cutoff and the lower Atchafalaya below Morgan City, Louisiana (Figures 1.3 - 1.5).

From north to south, the straight line distance between points of origination and termination is about 164km, or from north latitude 31° 01' to 29° 32'. However, the linear distance actually covered during the survey amounts to about 295km when all levee segments are added together. At the widest point near the St. Martin-Iberia-Iberville parish border at Bayou Pigeon, the two survey corridors are separated by more than 32km. The protection levees cross portions of seven parishes: Avoyelles, Point Coupee, St. Landry, St. Martin, Iberville, Assumption, and St. Mary.

The survey corridors (i.e., levees) were divided into segments to facilitate fieldwork and to aid in presentation (cf. Chapter 9, this report). Beginning on the east side of the Atchafalaya Basin Floodway proceeding north to south and then crossing to the west side following an opposite direction, these survey corridor segments are more precisely described.

Segment 1. This stretch of survey corridor follows the Morganza Floodway Lower Guide Levee from a northern point of origin at Morganza, Louisiana, on the Mississippi River near Iowa Point and the Morganza control structure, to U.S. Highway 190 at Lottie, Louisiana (Figure 1.3). It extends from levee station 0+00 to levee station 855+90.5, or about 26km.

Segment 2. This section begins at Lottie with the junction of the Morganza and Atchafalaya levees and follows the East Atchafalaya Basin Protection levee southward to the Bayou Boeuf Lock near Morgan City in St. Mary Parish, Louisiana (Figure 1.3 - 1.5). It includes the Morgan City Floodwall, as well as the section of levee joining the floodwall with the lock structure. The latter segment of levee follows the left descending side of Berwick Bay and Bayou Boeuf. It runs from levee station 885+90.5 to levee station 2400+46.9 then continuously along the Morgan City Floodwall from levee station 66+74 to 0+00. From the latter station it continues unbrokenly to levee station 102+00 at Bayou Boeuf and follows the right descending bank of Bayou Boeuf to Bayou Shaffer, where it turns southward along the latter stream

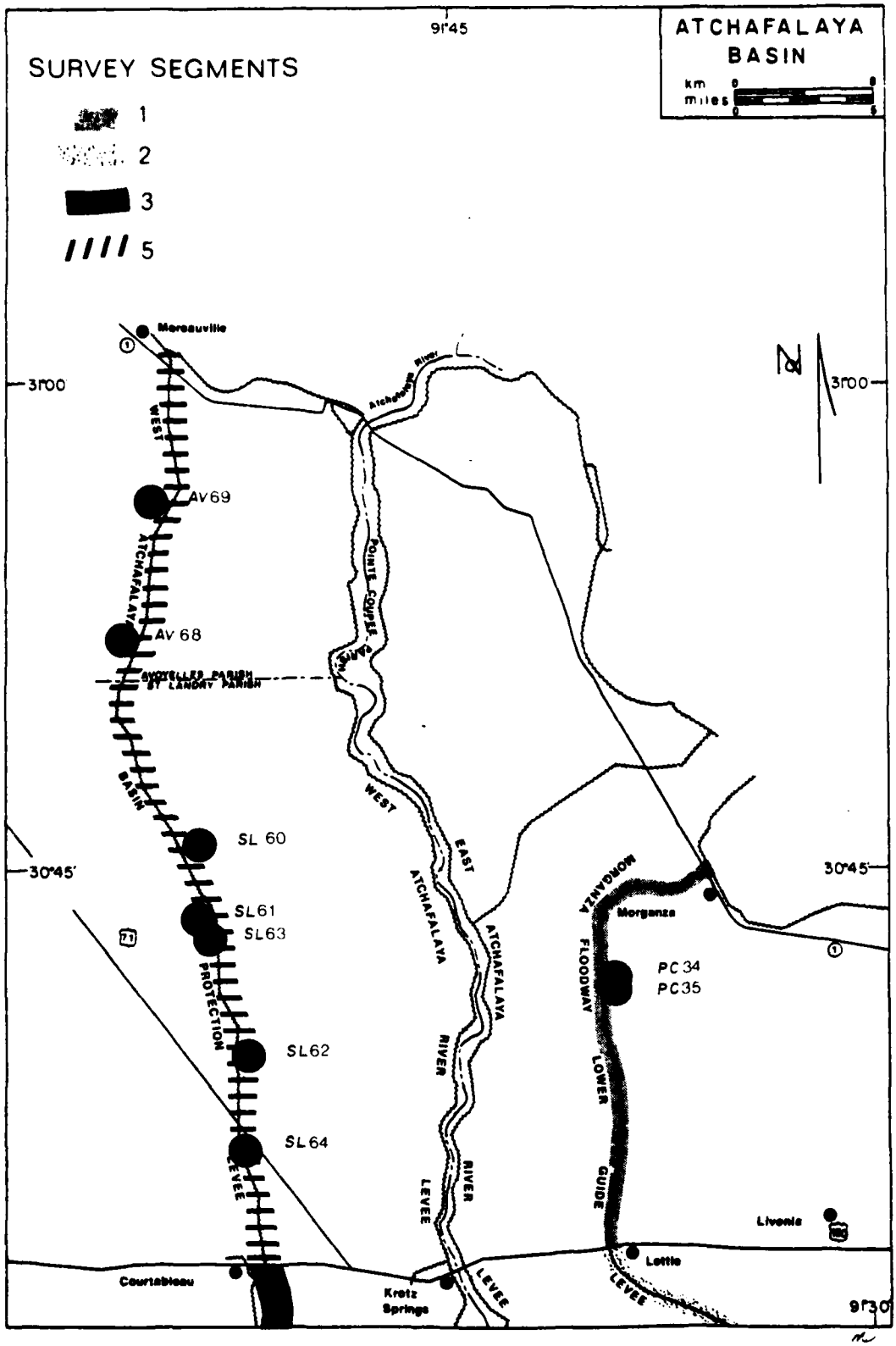


Figure 1.3. Upper Atchafalaya Basin Showing Survey Segments

(left descending side) to its southernmost end about 1.5km east of the junction of Avoca Island Cutoff and the Lower Atchafalaya River. This southernmost part of the survey corridor on the eastern side of the Atchafalaya Basin stretches from levee station 0+00 to levee station 680+00. This entire section of survey corridor covers about 72km.

Segment 3. The western survey corridor begins in the south near the junction of the Gulf Intracoastal Waterway and the Lower Atchafalaya River and continues northward along the West Atchafalaya Basin Protection Levee to an arbitrary stopping point at U.S. Highway 190 at Courtableau, Louisiana, in St. Landry Parish (Figures 1.3 - 1.5). It stretches continuously from levee station 0+00 (at its southernmost point of origin) to levee station 652+07.5 at the northern end of the Berwick Floodwall. It then continues from the end of the floodwall along the West Atchafalaya Basin Protection Levee at levee station 6551+28.4 to levee station 1804+72. The total distance of this segment is about 165km. However, a section of this segment (levee station 4620 to 4480) was eliminated from survey coverage because of previous levee construction (i.e., construction not related to this specific project), shortening the distance actually surveyed to about 161km.

Segment 4. This section of survey corridor lies off the West Atchafalaya Basin Protection levee and is collectively identified by the U.S. Army Corps of Engineers as "Levees West of Berwick" (Figure 1.5). A number of disjoined levee segments were subjected to survey; these are specified below.

1. Charenton Drainage Canal from levee station 304+30.5 south to levee station 350+00;

2. Levee along west fork of Franklin Canal from its junction with the Charenton Drainage Canal at levee station 29+56 eastward to the Yokley pumping station at levee station 234+64.3;

3. Levee paralleling Franklin Canal from levee station 81+09, opposite Yokley pumping station, southward to levee station 93+75 at the drainage structure;

4. From the drainage structure, the corridor follows the levee eastward from levee station 0+00 to the Hanson Canal at levee station 215+85;

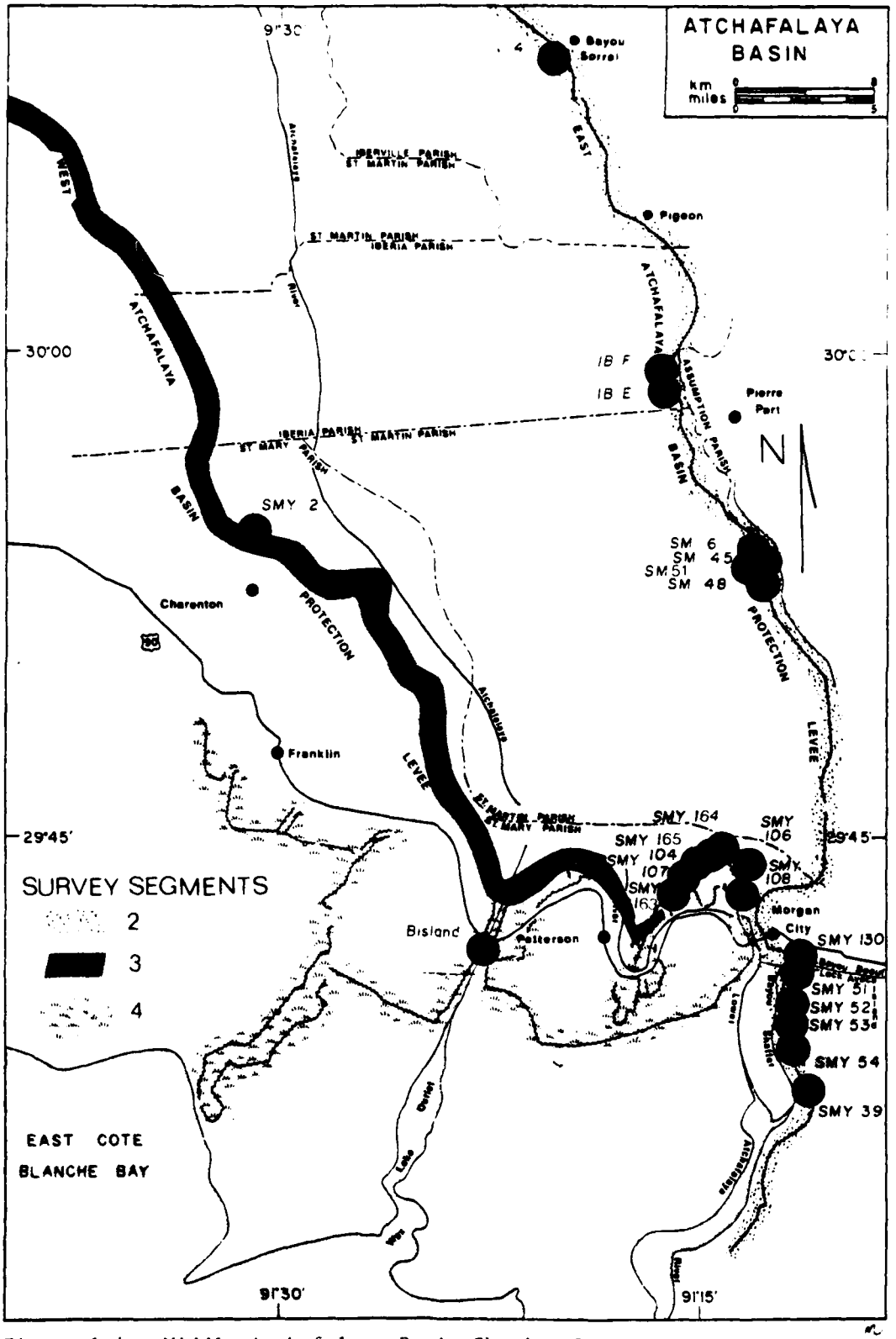


Figure 1.4. Middle Atchafalaya Basin Showing Survey Segments.

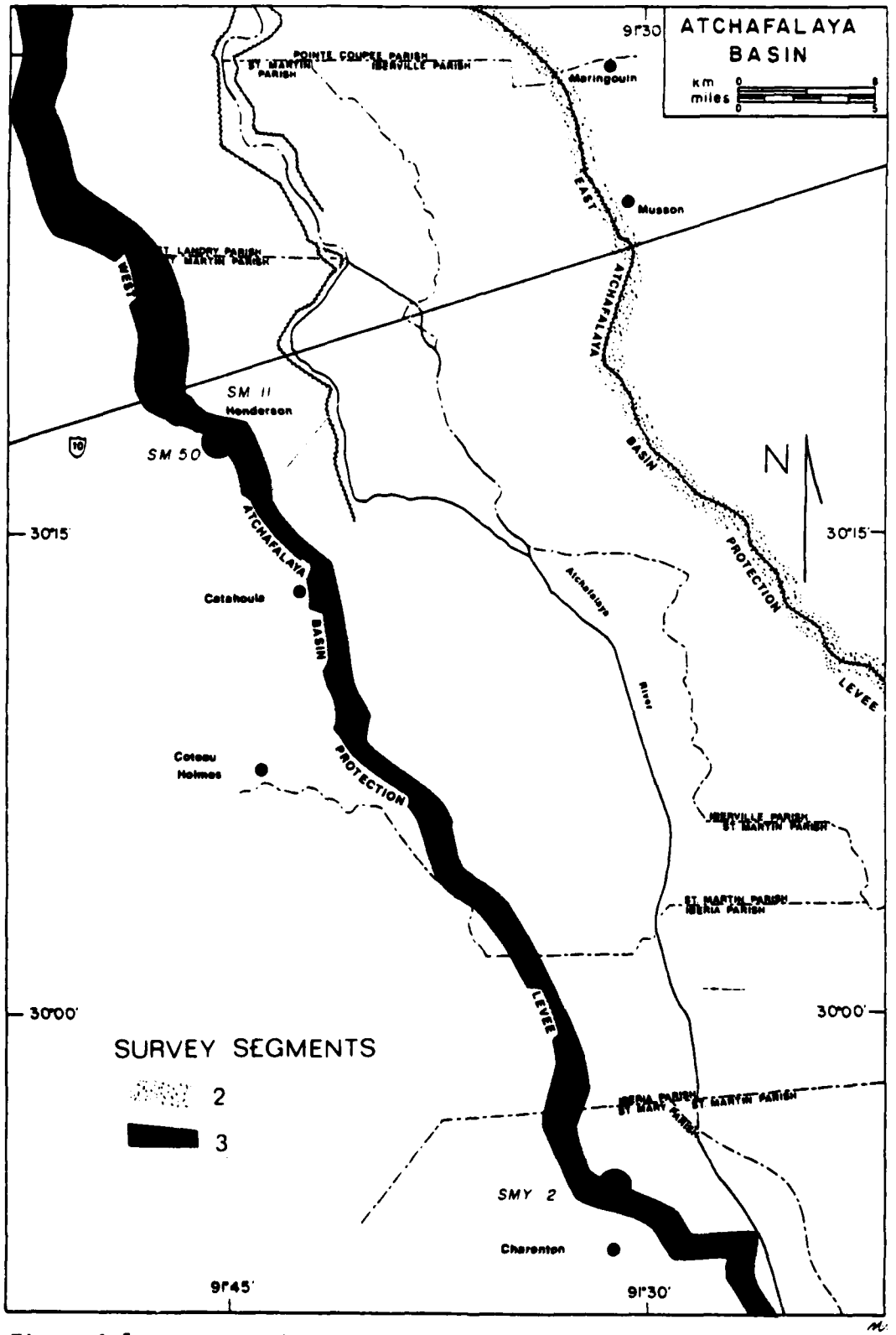


Figure 1.5. Lower Atchafalaya Basin Showing Survey Segments

5. On the east side of Hanson Canal, the corridor follows the levee from levee station 60+07.9 to levee station 215+85, or to its termination at the mouth of Yellow Bayou Canal near Verdunville;

6. The levee along Yellow Bayou Canal was surveyed from levee station 82+75.2 southward to levee station 239+71;

7. The Bayou Sale levees were surveyed continuously from Gratt Cemetery at levee station 384+27.9 (on the northwest extremity) through levee station 0+00 southward to levee station 463+76.6, and then along the eastern levee from levee station 459+46.18 in the south to levee station 0+00, located at the junction with the Gulf Intracoastal Waterway;

8. The levee paralleling the north bank of the Gulf Intracoastal Waterway was searched from North Bend eastward to its connection with the west Wax Lake Outlet levee, or from levee station 268+26 to levee station 0+00;

9. The west Wax Lake Outlet levee was surveyed from this point (levee station 320+05) northward to its merger with the West Atchafalaya Basin Protection Levee, to the levee station 143+04. (The west Wax Lake Outlet levee joins the protection levee at station 5730+10);

10. The east Wax Lake Outlet levee was covered from levee station 160+83, where it connects with the West Atchafalaya Basin Protection Levee (at levee station 5731+10), southward to levee station 268+84.6.

The total distance involved in the discontinuous levee sections grouped under survey segment 4 is about 71km. Since no cultural resources were discovered in this segment, it will not be dealt with further in this report.

Segment 5. This portion of survey corridor begins arbitrarily U.S. Highway 190 at Courtableau, Louisiana (levee station 1804+72) and follows the West Atchafalaya Basin Protection levee northward to its termination against the Bayou Des Glaises Levee, near Moreauville, Louisiana (levee station 0+00). It covers approximately 55km (Figure 1.3).

Within these linear survey corridors are existing levees and old borrow pits, most of which form canals along the levee flanks. These features were specifically excluded from coverage during contract negotiations. It was determined undesirable and cost-prohibitive to

dig, auger, or core into existing levees in hopes of finding cultural resources which might have been buried during prior levee construction. In addition, it was considered futile to survey levee berms because previous levee foundation preparation, involving massive earth-moving and land-sculpturing, could have destroyed or irreparably damaged any cultural resources which might have lain in the right-of-way. Such a priori logic was actually confirmed by fieldwork (cf. Y161B-E and Y161B-F, Chapter 9, this report). Elimination of previously excavated borrow pits is also quite understandable. These old holes would have destroyed the integrity of anything cultural that lay in their paths. Any cultural remains would have been dug up and incorporated into the levee fill. The virtual entirety of levee borrows are now water-filled and form major drainage features paralleling the levees. Thus traditional means of survey would have been entirely ineffectual in attempting to discover sites or artifacts which might have been buried below water and below the limits of previous disturbance. The deployment of remote sensing equipment along these borrow canals was deemed useless because anything that might have remained intact at such subsurfaced depths would have certainly been nonferrous and practically incapable of being detected.

With existing levees, levee berms, and borrows eliminated from survey coverage, what remained to be physically covered during fieldwork was a fringe of undisturbed ground generally lying on the outside of the paralleling borrows. This fringe will constitute the new fill dirt for the proposed levee raising construction. At the time fieldwork for this study was conducted, Corps engineering designs had not progressed to the point where new borrow areas had been selected and acquired or delimited and flagged in the field. Preliminary designs indicated that most of the borrowing would simply involve dredging from within existing borrows, along with some possible lateral widening (i.e., the paralleling fringe alluded to above). Based on project maps furnished by the Corps, which show the preliminary borrowing plans, it can be estimated that some 80-85 percent of fill excavation will simply entail dredging and widening of existing borrow pits (canals); the remaining percentage is slated to be new fill excavation sites.

Because of the pressing desire of the Corps, particularly the staff of the cultural resources management section (specifically Leslie Waguespack and Thomas Ryan), to conclude the cultural resources investigation(s) well in advance of actual construction in order to insure resource conservation and eliminate construction conflict, the width of the survey corridor was arbitrarily set at 1500 feet (or about 460km), centering on the present levee crests. Internal coordination (cultural resource management and engineering design and real estate) insured that this width would be sufficient to embrace all potential borrow areas, whether new or extensions of old ones, and whether the borrowing was to be done from inside or outside of the floodway itself. Thus the survey corridor was defined as a linear strip measuring 230m on either side of a line running down the middle of the various levees described above. However, this arbitrarily set width merely establishes outside limits on the survey corridor. It will be recalled that existing levees, berms, and borrows within this corridor extent were eliminated from survey coverage,leaving only a small proportion of this 460m wide corridor to constitute actual survey area.

Actually the project area, as defined above, pertains only to the alignment subjected to physical, on-the-ground search for archaeological sites, prehistoric and historic. Those aspects of the present investigation given to natural ecology, geomorphology and geology, Euro-American history, and ethnology were not so confined. These additional investigative topics were broadened to include as much area as necessary to render the levee corridors more understandable. The "surveys" of biotic ecology, geology, geomorphology, and Euro-American culture history mainly constitute literature research, augmented by limited fieldwork. These researches were not predicated on intensive field surveys of the magnitude invested in the archaeological program.

Only the ethnographic research, of these additional topics, is underpinned by extensive fieldwork. While the levee corridors were used as general guides in selecting target communities, many of the sources of ethnographic information were located outside the corridor limits specified above. Seventeen communities in the Atchafalaya Basin were investigated by the ethnographic team; these included: Henderson, Catahoula, Coteau Holmes, Bayou Benoit, Charenton, and

Amelia on the west side of the Bain and Krotz Springs, Livonia, Maringouin, Pierre Part, Bayou Sorrel, Belle River, Bayou Pigeon, Sherburne, Musson, and Bloody Bayou on the east side of the Basin. In addition, ethnographic information was also acquired along the levees as local peoples were encountered during the archaeological survey.

In conclusion, the study area varies in size and generality from regions as broad and embracing as the Lower Mississippi Valley to zones as narrow and limited as borrow pit fringes paralleling various levees in the Atchafalaya Basin. Generally those "background" and perspective-establishing researches included as much area as necessary to render the results of the field-orientated researches (i.e., archaeology and ethnology) more understandable. The archaeological survey was narrow, clearly defined, and limited to the levee corridors described previously. The ethnographic survey was also confined to certain communities lying along or adjacent to the levee corridors.

CHAPTER 2

GEOMORPHOLOGY AND GEOMORPHIC HISTORY OF THE ATCHAFALAYA BASIN

INTRODUCTION

Interdisciplinary studies of the Atchafalaya Basin by geologists and archeologists are few in number, and this geological report does not contribute to that total. When Gibson (1979a) reviewed the status of archeological work in the basin, he documented the paucity of useful stratigraphic, geomorphic, and radiometric dating information for sites in the region. He also, justly, criticized the reliance which workers have placed on insufficiently supported archeological, geological and radiometric dates.

As a result, the purpose of this geological report is to provide an interpretation of the geomorphic evolution of the basin, based on geological data alone, as background to the archeological report. Reconstruction of the geologic history of the basin necessarily includes information about the large dynamic system to which it belongs, i.e., the Lower Mississippi River Alluvial Valley. From the geologic perspective, the prehistoric basin was a rapidly-changing, natural sub-region of the alluvial valley.

Atchafalaya Basin Studies

With the opening of the Louisiana territory, developmental, scientific, and engineering interest prompted many early, mainly descriptive works. The annotated bibliographies of Howe and Moresi (1931, 1933) indicate the abundance and nature of those studies which covered the Atchafalaya Basin.

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In the long list of major and minor studies by the U. S. Army Corps of Engineers, several were of particular value to this report. Humphreys and Abbot (1861) on the hydrologic character of the lower valley and Fisk (1944; 1947) on its geologic nature form the framework on which more specific information is placed.

Geology and sedimentology of the basin itself were treated by Fisk (1952) and Krinitzsky and Smith (1969). A map of the basin by Abbot (1863) is a last look at the physiography before major modifications began. Peripheral areas were described by Saucier (1967, the Boeuf-Tensas basin; and 1969, the present Mississippi River meander belt) and Smith and Russ (1976, the Lower Red River Alluvial Valley and northern margin of the Atchafalaya Basin). These works have included interpretations of the data from a great number of borings in the lower Mississippi Valley.

The State of Louisiana has sponsored and performed many studies of parts of the basin and its peripheries. Botanical surveys (Featherman 1871), topographic surveys (Lockett 1871), and general geological surveys (Clendenon 1897) were succeeded by the series of parish geological reports of the Louisiana Geological Survey. Although it does not cover the Atchafalaya Basin, the report by Russell et al. (1936) on the Mississippi River delta is basic to an understanding of physiographic changes caused by the Lower Mississippi River. Fisk (1940) did more than describe the geology and geomorphology of Avoyelles and Rapides parishes on the northern margin of the basin. He also interpreted the relations of the Red and Atchafalaya Rivers from the observed landforms and sediment distributions and laid groundwork for his later integration of the geologic history of the Lower Mississippi Valley.

Descriptions of basin landforms and changes in Iberia Parish (Howe and Moresi 1931), Lafayette and St. Martin Parishes (Howe and Moresi1933), and Iberville and Ascension Parishes (Howe et al. 1938) contain valuable information. Reports on Evangeline and St. Landry Parishes (Varvaro 1957) and southwestern Louisiana (Jones et al. 1954) are much less oriented toward geomorphic history and are less useful.

Interpretations of the geomorphic evolution of the Lower Mississippi region have developed from the work done by Fisk (1944).

Fisk and McFarlan (1955) summarized the succession of Late Quaternary deltas. Saucier (1963) reported on a subsurface investigation of the Lake Pontchartrain basin and interpreted the geomorphic evolution. Frazier (1967) using more than 100 radiocarbon dates on buried peats, established an absolute chronology for 16 subdelta lobes for the past 6000 years. A revision of Fisk's regional synthesis, based on more information, including archeological radiocarbon dates, was made by Saucier (1971, 1974).

Despite the increasing human effect on the geomorphic history of the Mississippi and Atchafalaya rivers, useful studies of their sedimentologic processes have continued. Kolb (1963) and Kesel et al. (1974) treated aspects of lateral erosion by the Mississippi River. Coleman (1952) described diagenetic processes in recent sediments in the basin. Formation of a new delta lobe, in Atchafalaya Bay, was reported by Shlemon (1975).

Regional Geology and Geologic History

The central Gulf Coastal Plain is a relatively gently-sloping surface between the highlands formed by the southwestern Appalachian Mountains and the Ouachita Mountains and the present coastline. This surface extends offshore as the continental shelf. The rocks below this plain record 70 million years of general southward withdrawal of the sea, as the ancestral Mississippi and other rivers of the continental interior prograded deltaic and coastal plain deposits over a subsiding older surface. Irregular oscillations of sea level frequently interrupted the general withdrawal, causing marine sediments to be interstratified with the terrestrial and deltaic material. The strata have been slightly tilted and warped over fault zones, domes, and arches which have developed deeper in the crust. They have undergone varying degrees of diagenesis from simple compaction to cementation by silica. Salt diapirs from older, underlying marine deposits have locally pushed up through the younger layers, bending and breaking them.

Sedimentary rocks of Tertiary age (approximately 65 million to 1.5 million years old) and Quaternary age (the last 1.5 million years)

in the southern Gulf Coastal Plain have never been more than 300m above sea level. The surface is generally highly dissected and exhibits two major geomorphic aspects. Most of the surface is rolling hills, divided and subdivided by low order streams. Inset in this terrain are the flat-floored alluvial valleys of the Mississippi River and its major tributaries.

The Lower Mississippi River Alluvial Valley is the widest of these, beginning north of Cairo, Illinois, with the juncture of the Upper Mississippi and Ohio rivers and reaching a maximum width of 200km near the latitude of Little Rock, Arkansas. At the northern end of the Atchafalaya Basin (the northern limit of the recent deltaic plain according to Fisk 1944:6), the valley is approximately 65km wide. At its lower end, the Mississippi River Alluvial Valley curves slightly to the southeast, and beyond its end (a line between Franklin, Louisiana and Baton Rouge), the 80km-wide floodplain spreads out over the coalesced lobes of the deltaic mass.

Geologists divide the Quaternary Period into the Pleistocene Epoch (approximately 1.8 million years ago to 11,000 years ago) and the Holocene Epoch (the last 11,000 years). Early in the Quaternary (and possibly beginning in the Pliocene Epoch of the late Tertiary Period), a series of climatic oscillations began. During the major cold periods of the series, glaciers grew and spread over large areas of the northern continents. During warm periods the climates were similar to (but sometimes slightly warmer than) those recorded in human history. Geologically minor climatic changes have had major effects on human populations in the southwestern United States and Greenland.

Continental glaciers grew at the expense of the oceans. During each cycle of waxing and waning glaciation, sea level fell, then rose, and, in general, the coastal plain rivers correspondingly entrenched, then refilled their valleys. Because of at least intermittent, southward-migrating warping of the southern North American continental crust, remnants of older floodplains in inland portions of the alluvial valleys are typically higher than remnants of later ones. The present floodplain is usually the lowest level in the series. Terraces which represent older floodplains form the east and west borders of the present Mississippi River Alluvial Valley floodplain in the area which contains the Atchafalaya Basin.

During the latest glacial maximum (termed the late Wisconsinan stage of the Pleistocene Epoch; approximately 25,000 to 11,000 years ago), sea level dropped to at least 100m below its present level by approximately 18,000 years ago. As the glaciers melted back, sea level rose initially rapidly, then more slowly. Sometime between 5000 and 3500 years ago (estimates vary, cf. Figure 2.1), it reached its present level.

In and around the Atchafalaya basin, the sediments appear to date from the recovery period which followed the late Wisconsinan maximum. The subsurface studies based on borings have found that deposits of the lower alluvial valley comprise an upper layer of silty, clayey, and fine-sandy meanderbelt and backswamp deposits formed by the present rivers, and a substratum of sandy and gravelly material. Substratum sands and gravels were deposited by ancestral, braided and incipient meandering phases of the rivers. In the lower Mississippi Valley, the topstratum is more than 30m thick. Substratum deposits fill valleys carved during the period of sea level fall, and thicknesses in deeper buried valleys can reach 75m.

THE ATCHAFALAYA BASIN

Gross Morphology and Basin Boundaries

The Atchafalaya basin is a roughly lens-shaped, shallow depression in the Mississippi River floodplain. It is approximately 175km long (north-northwest to southeast) and 55km wide (at approximately the latitude of Baton Rouge). The basin is bounded entirely by natural levees of the active and several relict Mississippi River meanderbelts (Figure 1.1; Fisk 1952). On the northeast side, natural levee crests of the present Mississippi River lie at elevations up to 10m higher than adjacent low portions of the basin. The southeastern boundary, Bayou Lafourche, is a main channel of one of the relict deltaic distributary systems (Howe et al. 1938:16) of the Mississippi River (the Lafourche delta, Fisk 1944, 1952; Frazier 1967). Its natural levees reach elevations up to 5.0m above the basin bottom. The western side of the basin is bordered by the relict Teche-Mississippi meander

belt (Fisk 1944), a continuous double band of high ground which contains the wide meanders of the channel which Bayou Teche, grossly underfit, occupies. Crests of the natural levees of this meander belt are generally 5.0 to 6.0m higher than the basin bottom as far south as Centerville.

The northern boundary, across a 25km-wide space between the Teche-Mississippi and modern Mississippi River meander belts, is a relict Red River meander belt, now principally occupied by Bayou des Glaises. The Red River built this meander belt on and in portions of a) the Teche-Mississippi meander belt, b) another relict Mississippi River meander belt (approximately equivalent to the Walnut Bayou course of Fisk 1944: Table 3; *stage 4 of Saucier 1974:Figure 1*), *and c)* Old River, the channel of a cut off meander of the present Mississippi River meander belt, into which the Red River now empties (Fisk 1943:46-67). Natural levees of the first two sections rise 2.0 to 4.0m above the adjacent basin floor; these levees are the lowest part of the basin boundary except for the Bayou Black levees on the southern boundary.

Teche-Mississippi natural levees (including those of both Bayou Teche and the Lower Atchafalaya River) form part of the southern boundary of the basin. Southeast of Centerville, their elevation is gradually reduced to approximately 1.5m above adjacent basin swampland. The other portion of this boundary is the lower, narrow, natural levee pair bordering the channel occupied by Bayou Black, Bayou L'Ourse, and Bayou Boeuf, a distributary of the Lafourche delta (Frazier 1967:309).

Fisk (1940:37) reports that the slope of the modern Mississippi River, between the mouth of the Red River and the delta tip, is an average of 0.15 foot per mile (approximately 3.0cm per kilometer). Bayou Teche increases from a gradient of 0.16 foot per mile north of the basin, to 0.2 foot per mile (approximately 3.8cm/km) along its southern margin. Inside the basin, the Atchafalaya River in the mid-nineteenth century, over the first half of its course, had a gradient of 0.64 feet per mile (approximately 12cm/km) (Humphreys and Abbot 1861:472). The down-valley gradient increase of Bayou Teche, and the 30-year record of sea level rise at Eugene Island, on the outer rim of Atchafalaya Bay (Shlemon 1975:211) indicate that subsidence (a combination of tectonic downwarping and sediment compaction) is differentially affecting the Atchafalaya Basin.

Drainage

A concise summary of Atchafalaya Basin drainage was made by Fisk (1940:29):

> The lowland lying between levees built up along the western valley margin by the Bayou Teche Mississippi River course and by subsequent Mississippi courses along the eastern margin of the alluvial plain forms the main path for present-day flood release. This lowland, the Atchafalaya Basin, is being actively downwarped as a delta-flank depression (Russell 1936:9) and is therefore a structural as well as a depositional basin. As such it affords direct release of Mississippi and Red River flood waters and is occupied by the main distributary of the Mississippi River, the Atchafalaya River. Its straight course to the sea, its comparatively deep channel, and its narrow natural levees have made the Atchafalaya River the main anomaly in the lower part of the alluvial plain.

In early historic times (prior to 1831; cf. Fisk 1952), Atchafalaya Basin drainage was significantly different from its present condition. Natural levees and the relict channel in the Teche-Mississippi meander belt intercepted most flow from the western uplands and the lowermost Red River Alluvial Valley floodplain. The relict Red River natural levees along the channel occupied by Bayou des Glaises performed the same function at the north end of the basin. Beginning at a major crevasse (an exit channel for floodwaters, usually ephemeral) in a Mississippi River natural levee near Simmsport, the Atchafalaya River occupied the easternmost portion of the old Des Glaises-Red channel, then turned south down the basin. The Red River entered the same Mississippi River meander, 5.0km north of the Atchafalaya crevasse.

Stoddard (1812:178-179) gave an accurate description of this phase of the Atchafalaya River.:

> This outlet, on leaving the Mississippi about three miles below the Red River, is nearly two hundred yards wide; in low water it is about eighteen feet, and in high water about thirty-three feet in depth. Thirty miles from the Mississippi it is obstructed by a raft of wood, bound together by a heterogeneous mixture of ligneous and other matter. In the course of twenty miles the navigation is choaked by ten or twelve similar rafts; and it is calculated that the aggregate obstruction occasioned by them is not less than nine miles. Some of them form good bridges; and are passable at all seasons. Many of them are covered with willow trees, and a considerable proportion of them are ten inches diameter. These rafts rise and fall with the water, and are therefore justly termed floating bridges.

> Below these rafts the Chafalia affords a beautiful sheet of water, at least as far down as Cow island, from seventy five, to one hundred and fifty yards wide, and from twenty five to thirty feet deep in the dry seasons. At Cow island the stream is divided; one part spreads into a large lake; the other part continues its course, and seems to maintain its usual breadth and depth. The current of the Chafalia is gentle till it is joined by the Plaquemines about one hundred and fifty miles from the outlet on the Mississippi, where its velocity is considerably increased. It communicates with lake Natchez by means of several bayous, the largest of which is bayou Long. This bayou is connected with lake Flat, Grand river, and Grand lake, by means of several bayous, most of which are navigable in the season of high water. Grand lake is about forty miles long, and from three to ten miles wide, into whiich the Chafalia is emptied by a channel of about two hundred and fifty yards wide; and a depth of nearly forty feet.

At that time, the east side of the basin contained a number of channels which originated as crevasses through Mississippi River natural levees and continued through portions of the basin eventually to the Atchafalaya River. Bayou Latenache, Bayou Fordoche, and Bayou Plaquemine are the major members of this class. Bayous Grosse Tete and Maringouin and upper and lower Grand Rivers received water from these and other overflow channels. Bayou Lafourche in an old Mississippi River course would also overflow into the basin during Mississippi River floods.

In the lower half of the basin, the Atchafalaya River and Grand River broke up into a complex of dividing, subdividing, and rejoining distributaries. These emptied into the lakes of the basin; the largest of these ephemeral lakes (see below) were Lake Fausse Pointe, Grand Lake (including Six-Mile Lake and Lake Palourde), and Lake Verret. In the narrower sections of the bayous, depths reached 13 to 17m below sea level; in the broader channel stretches and the lakes, depths were usually less than 3.0m below sea level. The surface waters of the basin collected in the lakes and drained into Atchafalaya Bay through the relatively short, deep, Lower Atchafalaya River (including the Berwick Bay segment).

The Atchafalaya River is deep enough to connect with the substratum sands and gravels of the Atchafalaya reservoir (cf. Jones et al. 1954:237). However, the substratum is continuous in the buried, dendritic channels of the ancestral Mississippi River and its tributaries, and its connections are much wider than the basin. Jones et al.

(1954:239) suggest that, probably until the past century, principal ground water flow occurred from the Chicot reservoir (the Pleistocene graveliferous deposits on which the uplands of southwest Louisiana are formed) into the substratum below the Atchafalaya Basin and by effluent seepage into the Atchafalaya River.

Basin Landforms

Natural levees outline the major drainage ways of the basin. These originate at crevasses in the natural levees of the meander belts which bound the basin. At the crevasses, the crests merge into those of the meanders but are much narrower. The natural levees along the Atchafalaya River stand some 4.0 to 5.0m above adjacent swampland, as far south as Alabama Bayou, approximately 65km below the Old River-Atchafalaya junction. They generally have widths of less than 0.5km. The older major system (Bayou Fordoche-Bayou Maringouin-Bayou Grosse Tete) exhibits lower and narrower levees, except in a 7.0km-long section south of U.S. 190, where bayous Maringouin and Grosse Tete are close enough to have a coalesced levee belt nearly 3.0km wide.

The Atchafalaya River natural levees divide the northern half of the basin into two parts with separate drainage nets. Other streams with enough consistent flow to allow development of low natural levees further subdivide the basin. For example, the 8.0km-wide sub-basin bounded by the modern Mississippi River natural levee and the Bayou Fordoche-eastern Bayou Grosse Tete levee system has a broad, relatively flat bottom with elevations below 75m MGLW (above Mean Gulf Low Water). The adjacent sub-basin to the west, between the Bayou Fordoche natural levee and that of the Atchafalaya River, has floor elevations some 3.0m higher.

Major and minor channels are alike in their susceptibility to subdivision. In the upper third of the basin, a number of subsidiary streams rise at crevasses in the Atchafalaya River and the Bayou Fordoche-Maringouin-Grosse Tete system and drain various sub-basins. In the lower two thirds, the number of stream channels increases markedly, as distributaries and crevasse channels of the larger streams divide and rejoin.

As noted above, the lower basin contains a number of large shallow lakes. The pattern of the multiple distributaries and historic records of lake-filling show that those lakes are remnants of formerly much-more extensive lakes. Russell (1938:34) suggested that the topographic evidence indicated that a broad lake occupied the lower two-thirds of the basin.

Sediment and soils distributions (summarized by Russ 1975) show that the Red River has, several times, entered the relict Teche-Mississippi meander belt. In the case of Bayou des Glaises in the upper part of the Atchafalaya Basin, the Red River meandered northeast in a reach in which the Mississippi River had flowed southwest. A possible pre-Teche-Mississippi phase of the Red River is represented by a number of backswamp streams which exhibit curves the size of Red River meander loops (Russ 1975:161, Plate 1). Evidence for continuation of this Red River course dies out several kilometers into the Atchafalaya Basin.

Three other relict Red River courses allow us to relate the origin of the Atchafalaya River to events in the Red River Alluvial Valley. Both Bayou Courtableau and Bayou Petite Prairie cross portions of the Teche-Mississippi meander belt and enter the Atchafalaya River. Evidently they post-date formation of a major axial stream in the Atchafalaya Basin. In contrast, the natural levees along Bayou Rouge, which also cross the Teche-Mississippi meander belt, are cut by the Atchafalaya River (Russ 1975:164). The course continued east of the present Atchafalaya into and down Bayou Fordoche and its extensions.

Geologic Processes and Products in the Basin

Floods

The principal direct force driving both the initial formation and the natural changes in the Atchafalaya basin has been overbank flooding by the Mississippi River. Subordinate influences have included regional downwarping, the late Quaternary rise and stabilization of sea level, and overbank flooding by the Red River; these will be briefly discussed below (Geomorphic Evolution). Flood deposition has caused

the development of the basin boundaries and the internal geomorphic features of the basin. Russell (1936:19) notes that Mississippi River floods were observed by the Hernando DeSoto expedition in 1543 and the French explorer LaSalle in 1684 and that they delayed the founding of New Orleans in 1717 and 1718.

Flooding usually occurred between early March and late May. In that portion of the Mississippi River Alluvial Valley in which the Atchafalaya Basin lies, only a 72km section of the natural levees of the relict Teche-Mississippi meander belt were not subject to overflow by flood waters (cf. Howe and Moresi 1931:Figure 2). Flooding of the southern portion of the basin from the Gulf of Mexico is also possible. The winds ahead of a hurricane can pile up Gulf waters and overtop the low natural levees of the Bayou Black relict distributary.

Crevassing

These usually ephemeral overflow channels of the Mississippi and Red Rivers carry flood waters down the slopes of the natural levees to the backswamps. Ordinarily, natural levee crests in an area frequently changed slightly in elevation in response to lateral erosion by migratory meanders, and low areas where crevasses could originate often developed. Rising flood waters sought out these low areas and could scour channels across the crests and down the slopes.

Many crevasses (Russell 1938:20-22, 29) in the Mississippi natural levees around the Atchafalaya Basin have been observed. Under natural conditions crevasse channel maximum depths were normally well above the low-water level of the river. Russell (1938:22) reports that an ordinary crevasse channel left after a flood across a Mississippi River natural levee was rather straight, between 6.0 and 30m wide and from nearly 1.0 to 3.0m deep. Only when the angle between the main channel flow and the crevasse direction is small can the overflow have enough energy to scour a major crevasse. Meander migration usually prohibited persistence of the geomorphic conditions for the number of floods required for deep scour, and general overflow of levee crests caused deposition in low areas. Crevasses have also been formed in the natural levees of nonmeandering distributaries of the Mississippi

River (such as the many crevasses into the Atchafalaya Basin along the natural levees of Bayou Lafourche and the Atchafalaya River) as well as those of even smaller streams in the basin.

The Atchafalaya River developed from one crevasse in the present Old River cut-off meander, in prehistoric times. It found a short, relatively high gradient route to the near-sea level southern portion of the basin and developed a stable course with natural levees and with some incipient meanders in its upper portion. The Bayou Fordoche-Bayou Grosse Tete-Bayou Maringouin course also developed at least in part by integration of major crevasse flows (and perhaps also of Red River overflow; see section on Basin Geomorphology).

Natural Levee Construction

Natural levees along the Atchafalaya Basin drainage channels are built up in the same way as those of the Mississippi and Red rivers. When flood waters overtop the banks over extensive areas, the relatively shallow, turbulent sheet loses power to transport the coarser material in its load. This sediment (silt and some fine sand for the Mississippi and Red rivers) is spread across the crest. The finer material is eventually draped across the backswamp and the crest, as flood waters subside. The Atchafalaya River and Bayou Grosse Tete built natural levees gradually southward as their distributaries deposited more sediment in the lakes of the southern portion of the basin (Russell 1938:34-35).

Lake Origin and Filling

Origin of the lakes in the lower basin was apparently due to a combination of subsidence and compaction and near closure of the southern marsh by natural levees of the Teche and LaFourche distributaries. The anastomosing drainage patterns, sediment distribution, and observed changes in the deltas constructed by distributaries all indicate that the pre-Atchafalaya River lower basin contained one or more broad lakes. An historic example of delta construction is found in Lake Fausse Pointe, the northern remnant of the once more extensive Grand Lake. This lake lost nearly 20 percent of its area to a growing

delta between 1911 and approximately 1944 (Howe and Moresi 1931; Fisk 1952). Channel patterns on this delta are similar to others throughout this portion of the basin.

The rate of delta-building increased markedly after the log jams of the Atchafalaya River raft were finally cleared in 1831 (Russell 1938:33-34). Opening of the channel allowed Mississippi River overflow to reach the Gulf by an advantageous route that was deep enough to carry flow throughout the year. As a result, the Mississippi River would have diverted into the basin and formed a new meander belt (Fisk 1952). Even though the flow has been artifically stabilized at 30 percent of Mississippi River discharge at Old River, filling of the lakes and artificial construction of the Wax Lake outlet across the Teche-Mississippi meander belt in 1942 has caused formation of a new delta lobe in the Atchafalaya Bay (Shlemon 1975:212-213).

GEOMORPHIC EVOLUTION OF THE ATCHAFALAYA BASIN

Interpretations

Boundaries of meander belts and delta lobes are relatively easy to define on the Mississippi floodplain. Relative ages of cross-cutting channels and overlapping strata are easy to determine. In the reconstructions of geomorphic evolution which include the Atchafalaya Basin region, there have been broad areas of agreement about boundaries and relative ages. These have been generally supported by radiometric dates. However, there are differences which only more radiometric dates can ultimately resolve.

Fisk

H. N. Fisk collated and interpreted the abundant information available by the early 1940s and proposed (Fisk 1944:33-36, Table 3) that six delta complexes can be detected in the deltaic plain south of Baton Rouge. He included (from oldest to youngest): a) Bayou LaRose Delta; b) Maringouin Delta; c) Cocodrie Delta; d) Teche Delta; e) Lafourche Delta; and f) the Plaquemine-St. Bernard Delta (subdivided

into six subdeltas, including the present Balize subdelta). Delta construction has occurred since stabilization of sea level, less than 6000 years ago.

The Bayou LaRose Delta was named for Bayou LaRose, a distributary of the Atchafalaya River. The nearly-buried Bayou LaRose-Mississippi meander belt was near the course of the present Atchafalaya River (Fisk 1944:36), and the delta was assumed to be below the backswamp and lake clays of the southern part of the basin. Bayou Maringouin gave its name to another buried delta, which partially overlapped the Bayou LaRose delta in the southeastern portion of the basin. Bayou Maringouin and other basin streams were interpreted as following the courses of distributaries on this delta (Fisk 1944:Plate 2). The third early delta for which Fisk found evidence in the basin was the Cocodrie Delta. The trunk channel was approximately represented by Bayou Grosse Tete and the Grand River, and the head of the delta was cut and covered by the later Lafourche-Mississippi course. In this reconstruction, the western margin of the Mississippi River Alluvial Valley contained successive meander belts of the Red, Arkansas, and Teche-Mississippi rivers, and the northern portion became a lowland accumulating backswamp deposits, after abandonment of the Cocodrie Delta trunk.

Kolb and Van Lopik

As absolute dates from radiocarbon analysis became available, it was possible to integrate these with more abundant relative dates based on archeological work (McIntire 1954). The result was C. R. Kolb and J. R. Van Lopik's (1958) reconstruction of deltaic succession. Although they also concluded that the rise of sea level had ended by 5000 years ago with the shoreline at the latitude of Baton Rouge, they found no evidences of relict deltas north of the latitude of Donaldsonville (Kolb and Van Lopik: Figure 1).

The oldest delta, the Sale-Cypremort (abandoned by 4400 years ago), headed farther south and spread much farther southwest than Fisk's Maringouin Delta, to include the sandy shoals offshore from Atchafalaya Bay. The trunk stream was represented by portions of the present Bayou Fordoche-Bayou Maringouin-Bayou Grosse Tete course. The head of the Maringouin lay below Grand Lake. Also in the present Atchafalaya Basin

was the trunk channel of the Cocodrie Delta, defined approximately as that of Fisk.

In this reconstruction the northern and west-central portions of the basin had been backswamp areas for at least the past 5000 years. The Teche-Mississippi and Lafourche-Mississippi courses and deltas were in approximate agreement with Fisk's reconstruction, as were the outlines of the eastern deltas. However, Kolb and Van Lopik found that the St. Bernard Delta was older rather than younger than the Lafourche Delta. Consequently, they defined separate St. Bernard, Plaquemine, and Balize deltas. Approximate ages of the various deltas (including construction accompanying Mississippi River diversion and significant flow until abandonment) were given as (Kolb and Van Lopik 1958:Table 1): a) Sale-Cypremort, from greater than 5300 to 4400 years ago; b) Cocodrie, from 4500 to 3600 years ago; c) Teche, from 3900 to 2700 years ago; d) St. Bernard, from 2800 to 1700 years ago; e) Lafourche, from 1900 to 700 years ago; f) Plaquemine, from 1200 to 500 years ago; and g) Balize, from 500 years ago the present. This proved a satisfactory framework for archeological studies (cf. Gagliano 1963) and more detailed geological interpretations (cf. Morgan 1974) (Figure 2.1).

Frazier and Saucier

Two works by David E. Frazier (1967, 1974) and studies by Roger Saucier (1971, 1974) are the bases for the reconstruction of Atchafalaya Basin evolution presented below. Saucier (1974) undertook to dispell some of the unquestioning reliance by many archeologists on Fisk's highly detailed reconstruction (Fisk 1944). Fisk 's maps showed the relative ages of landforms in the Lower Mississippi River Alluvial Valley. He assigned ages (Fisk 1944:37, 69, Table 3) according to the best estimates available prior to the availability of radiometric dating techniques and according to information from 185 years of historic observation. The synthesis by Saucier (1974: Plate 1) was at once much less detailed and much better founded.

Saucier was able to use in his reconstruction the increasingly abundant basic work (much of it his own) on the subsurface deposits

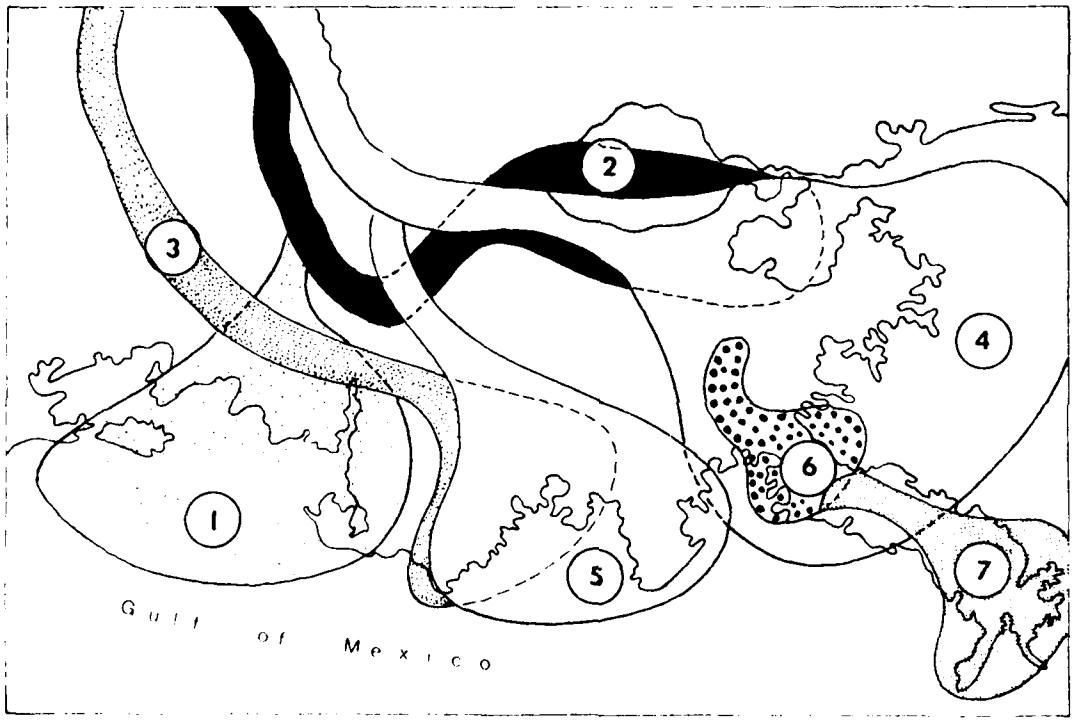


FIGURE 2.1. Succession of Deltas according to Kolb and Van Lopik (1958). Sale-Cypremort, 1; Cocodrie, 2; Teche, 3; St. Bernard, 4; Lafourche, 5; Plaquemine, 6; Balize, 7.

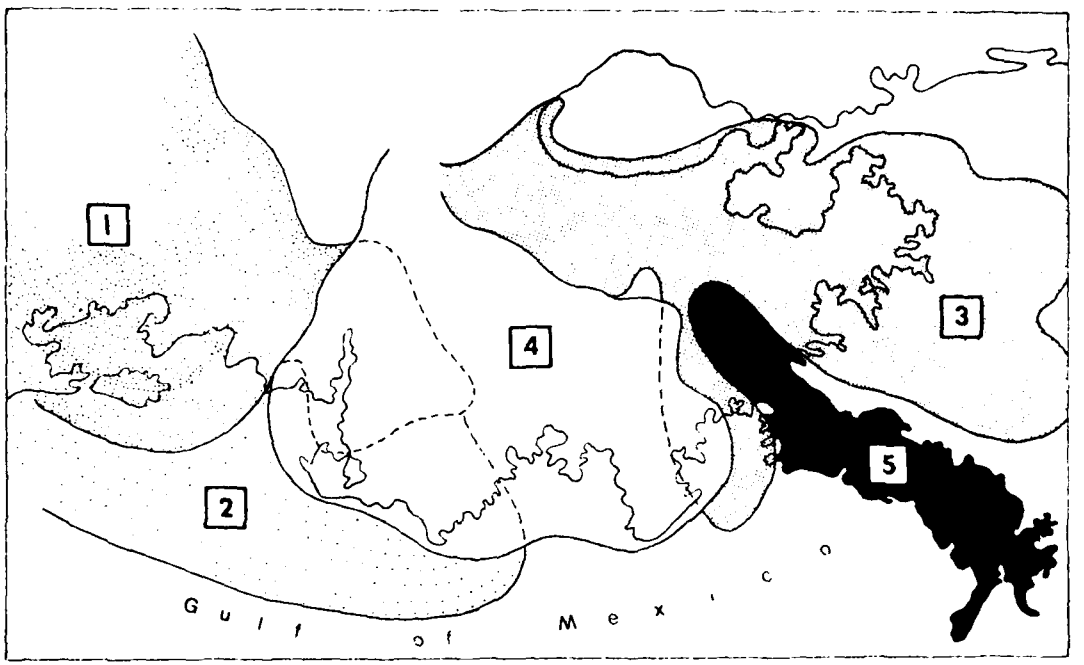


FIGURE 2.4. Sequential Development of Major Delta Complexes according to Frazier (1967). Teche, 1; Maringouin, 2; St. Bernard, 3; Lafourche, 4; Plaquemine-Modern, 5.

of the alluvial valley and both radiometric and archeological dates. An important part, both for absolute dates and delta succession, was based on Frazier's investigation of the Mississippi deltaic plain. Using data from cores taken in more than 1000 borings and radiometric dates obtained from 100 delta-plain peats, Frazier delineated a buried delta termed the Maringouin, and 16 separate lobes comprising the Teche, St. Bernard, Lafourche, and Plaquemine-Modern deltas (Figure 2.2).

Frazier's Teche delta combines Kolb and Van Lopik's Sale-Cypremort and Teche deltas. Delta plain peat dates define the aggradation of three distinct lobes between 5800 and 2900 years ago. The trunk stream was in the western side of the alluvial valley and constructed the relict Teche-Mississippi meander belt. On the eastern side of the alluvial valley, the St. Bernard-Mississippi trunk stream constructed several sublobes near the location of the present bend of Bayou Lafourche and extended lobes east (now marked by the Chandeleur Islands) and south (largely buried). This definition combined Kolb and Van Lopik's Cocodrie and St. Bernard deltas. Frazier's chronology places construction of the initial lobes of this delta around 4700 years ago; then a hiatus probably occurred until 4100 years ago. One major distributary was still active as recently as 600 years ago. Lafourche deltas defined by Frazier and by Kolb and Van Lopik approximately agree in extent. Important to the Atchafalaya Basin was progradation of the Bayou Black lobe 1800 to 1100 years ago, from an earlier Bayou Lafourche lobe of the St. Bernard delta.

Summary of Basin Evolution

Maringouin Delta Phase

The earliest meandering stream deposits detected in the Atchafalaya Basin are buried. They are those of the trunk stream of the Maringouin delta of Frazier (1967:296, Figure 6). They cover substratum, braided-stream, sandy and gravelly material. The axis of the deltaic system was a few kilometers east of the present Atchafalaya River, and the natural levee crests are buried by more than 13 meters of later sediment. Radiometric dates on two delta-plain peats indicate that the delta was probably

formed during one or two pauses in sea level rise between 6000 and 8000 years ago (Frazier 1967:296; Frazier 1974:Figure 18). Saucier (1974:20) proposed that the meander belt which led to the delta was on the western side of the alluvial valley. Drainage patterns in portions of the basin which adjoin the relict Teche-Mississippi meander belt (i.e., the Teche ridge) might follow the broad axes of buried portions of this meander belt. When sea level rise resumed, wave action winnowed and spread sand across surfaces of the abandoned delta (Frazier 1967:Figure 6), probably in a manner similar to the decay of the Lafourche delta (Morgan 1974:14-15). Oyster reefs developed in the coastal bays (Frazier 1967:297).

Teche Delta Phase

As the rise of sea level slowed, the western meander belt was able to prograde deltaic deposits over the submerged, lightly buried and wave-modified Maringouin delta, further burying it. Distal levee, backswamp, lake, and bay sediments accumulated east of the meander belt. The northern portion of the present Atchafalaya basin and adjacent floodplain probably contained backswamp deposits and the courses of upland tributaries of the Teche-Mississippi. During part of this time, a buried channel below the Lower Grand River in the southern basin functioned as a distributary of the Teche-Mississippi.

While the lobes of the Teche delta were being constructed, a partial diversion some 80km northwest of the present location of Baton Rouge occurred approximately 5600 years ago (Frazier 1967:292). A distributary built a long lobe into the shallow, eastern bay. Development of the new meander belt and delta lobe established an interlevee lowland down the center of the alluvial valley, which became the Atchafalaya Basin. Crevasses certainly occurred into the lowland from both meander belts, but none can be definitely defined from the eastern one during this phase. Abandonment of the Teche-Mississippi meander belt by approximately 3900 B.P. (in uncorrected radiocarbon years before the present) left the eastern, older Teche lobes subsiding slowly, gradually being covered by bay sediments and oyster reefs (Frazier 1967:297). The basin at this time (approximately 3900 years ago) probably contained broad, shallow

lakes and relict crevasse channels in the northern section, and a shallow bay with oyster accumulations in the southern.

St. Bernard-Lafourche Delta Phase

As noted above, an eastern diversion of the Mississippi River created a new meander belt. From this grew the eastern lobes of the St. Bernard delta and the natural levees of a short distributary, Bayou Lafourche. From the earliest established part of Bayou Lafourche, a distributary (now marked by Bayou Terrebonne) built a lobe southeast across the eastern end of the bay in the lower Atchafalaya Basin by approximately 2100 years ago (Frazier 1967:Figure 12). This was the initial lobe of the Lafourche delta.

At some time after abandonment of the Teche-Mississippi meander belt, the Red River found two susceptible relict crevasses and crossed it into the northern part of the basin. As described above, its course pre-dates development of the Atchafalaya River, and it entered the Bayou Fordoche-Bayou Maringouin-Bayou Grosse Tete distributary of the eastern Mississippi River meander belt (Russ 1975:164). Russ dates this course (principally on inference, rather than on hard dates) to early in the period from 4700 to 2500 years ago (Russ 197 :Plate 19). It seems more logical to attribute it to the period from 3900 years (final abandonment of the Teche-Mississippi course) to 2500 years ago. This 2500-year date is Russ' estimate of the time of diversion of the Red River through Evergreen Gap to the north. The meander belt which it constructed in the older, Mississippi River meander belts after this diversion, forms the present northern boundary of the Atchafalaya Basin.

Closure of the southern end of the basin continued between approximately 1800 and 1100 years ago, as Bayou Black and its minor distributaries built a lobe to the west. Sediments from crevasses and distributary mouths in the basin must have rapidly reduced the extent of the bay (and of the internal lakes after closure). With abandonment of the Bayou Black distributary, regional subsidence again controlled landforms in the lower basin, and the lakes enlarged (see discussion by Russell 1936:116-121). Filling of the lakes from the north continued.

At some time prior to the arrival of European observers but after the Evergreen Gap diversion, the Atchafalaya River developed a favorable

crevasse in a Mississippi River meander near Old River. Its natural levees apparently prograded rapidly southward, and there was sufficient flow to curve and maintain a single channel, until it reached the center of the basin. Since its beginning, the river has apparently been the principal western distributary of the Mississippi River. A Bayou Plaquemine-Lower Grand River distributary was sealed off before European settlement (Russell 1938:19). The crevasse channels leading to the Bayou Fordoche-Bayou Maringouin-Bayou Grosse Tete complex on the eastern side of the valley were only intermittently important in overflow discharge and delta construction.

The only useful radiocarbon dates from this period of the basin's history are those from the Grand Bayou Mound (16IV6) in southern Iberville Parish. The geomorphic and stratigraphic contexts are relatively well-defined (Kniffen 1938:202; Springer 1973, 1976). The mound is on the natural levee of the minor Bruly St. Martin crevasse through the Bayou Lafourche natural levee, in the obtuse angle at the juncture of the present Mississippi meander belt and the Lafourche Ridge. The natural levee was probably occupied while the crevasse was active (Springer 1973, 1974, 1976) and acceptable radiocarbon dates for the stratified midden range from 1380 $\pm$ 185 B.P. to 1240 $\pm$ 65 B.P. (Springer 1976:140-141).

Late Prehistoric - Early Historic Changes

Geomorphic events in the basin for the past 2000 years or so, are particularly ill-defined until historic records began. The Atchafalaya River was initiated, developed, and then was jammed by log "rafts". The earliest records (Stoddard 1812; see also others in Fisk 1952) show that both the Atchafalaya and the Red Rivers were obstructed by log rafts. In the case of the Red River, the rafts began and ended well up in its own alluvial valley (Fisk 1938; Abington 1971). Those of the Atchafalaya River began below its juncture with the Old River meander. Red River rafts were slowly disintegrating downstream and accumulating upstream, resulting in a net upstream migration; it is not known whether the Atchafalaya raft series was also accumulating at the upstream end.

What is known is that the behavior of the Atchafalaya changed markedly after the artificial cut-off of the Old River meander in 1831, and the clearing of the rafts between 1840 and 1861 (Russell 1938:30). The effect of the first modification was the assumption by the Atchafalaya River of much of the Red River discharge. Upper and Lower Old River channels rapidly filled with sediment, although Lower Old River remained a connection between the three rivers. When the rafts were cleared, Mississippi River waters were increasingly diverted down the shorter, higher gradient Atchafalaya route to the Gulf of Mexico. Data collected by Elliott (1932:52) show that Atchafalaya River maximum discharge increased five or six-fold during the period between 1851 and 1927. By 1940, the effects of raft removal and dredging for a navigation channel in the river made diversion of the Mississippi River seem inevitable (Schlemon 1975:212). The question of inevitability is not yet settled.

CHAPTER 3

THE ATCHAFALAYA ECOSYSTEM FROM A CULTURAL VIEWPOINT

INTRODUCTION

The Atchafalaya Basin is a vast lowland confined by meanderbelt ridges of present and former Mississippi River courses in south central Louisiana (Figure 1.2). In its present configuration, the basin is a recent geological phenomenon, having been formed within the last 1800-1100 years (cf. Lenzer, Chapter 3). However, the region has been an ecological swamp for much longer,perhaps for 6000 to 10,000 years or longer, as the meandering Mississippi River wandered back and forth across its face (cf. Lenzer, Chapter 3). Lenzer (Chapter 3) has discussed some of the various geomorphic interpretations bearing on the origin and changing countenances of the swamp. Saucier (1974) and Gagliano and colleagues (Gagliano, Weinstein, and Burden 1975; Gagliano et al. 1978; Wiseman, Weinstein, and McCloskey 1979) have attempted to construct paleogeographic maps of the Lower Mississippi Valley including the Atchafalaya Basin, based on information accumulating since Fisk's (1944, 1952) original efforts. Despite these pioneering works, no one locality in the basin nor the entirety of the basin at any given instance of geological time can be said to have been studied in the detail necessary to reveal locality-specific microevolution or paleogeographic landscapes. Coupled with a paucity of radiocarbon dates, particularly those dealing with human input into swamp tropic webs, this means that nothing even remotely resembling a picture of ecological changes that have swept through the basin can be constructed with the accuracy necessary to discuss cultural interaction.

Basinal ecosystems involving man are quite unique in the Gulf region, or anywhere else for that matter. Gibson (Chapter 4) discusses some of general effects of swamp adaptive patterns on current archeological perceptions, especially as they have contributed to the specialness of prehistoric cultures in the region. Brassieur (Chapter 6) has effectively shown how the swamp has molded various historic and contemporary racial, ethnic, and other cultural groups into a generally homogeneous pattern, to which the term, Atchafalaya culture, might be loosely applied. There is no doubt that the Atchafalaya Basin has throughout its Holocene development offered special but changing sets of opportunities and constraints to human groups within its confines, and they have responded within the technological means available to them in various ways to its natural ecosystems. Cultural responses though variable have been quite different from those outside the region and despite the variability, there are some threads of continuity and commonality that bind basin occupants of all times and of all origins together.

The purpose of this short discussion is to expose some of the natural ecosystems of the basin that have, regardless of paleogeographic synchroniety, provided opportunities-constraints to adaptive processes and the natural systems within which the human drama has been played out in the great swamp. In essence, this is not an effort to describe the natural environments of the Atchafalaya Basin but rather to identify some of the ecosystemic elements and processes that have been important to culture groups utilizing the Atchafalaya Basin.

GENERAL CONSIDERATIONS

Human groups have certain well known needs that must be satiated to insure survival; water, food, and industrial raw materials loom large among these. How these basic resources are procured or produced forms the foundation for human adaptation, or culture. Procurement-production strategies seem in large part to be predicated on the minimax principle; that is to say, humans acquire their necessary resources in a fashion which tends to minimize labor investment and maximize return, or output (Earle 1980; Christenson 1980), at acceptable levels,

or standards of living. The natural environment, or actually the delicately internetworked ecosystems that render habitat and niche dynamism, provides the human animal with its needs. Humans become part of local tropic webs (cf. Dasmann 1978; Odum 1971), a component of the higher hierarchical structure but an integral, active agent nevertheless. Humans capitalize on the chemical raw materials as well as lower order levels (tropic levels) of the food chain (cf. Dasmann 1978:18-19). To say this another way, humans draw on certain fixed components of habitats (e.g., rocks, soils, etc.) and biota to provide for their existence. The desire here is to specify some of these elements and processes that have conditioned cultural adaptation within the Atchafalaya region, not on a given time level or by a particular culture group but as general models that can be used when site- or catchment-specific localities are identified.

The overall ecology of the Atchafalaya region during the Holocene Epoch has been a constantly shifting panorama of freshwater, estuarine, and terrestrial ecosystems. The dominance of any one of the three ecosystems at any given period of time has been a product of the interrelations of physiographic development and the "combatant" struggles of the Mississippi River and the Gulf of Mexico (cf. Lenzer, Chapter 2). In Odum's (1971:295) terminology, basinal freshwater habitats can be classified as lentic (standing water, e.g., ponds, lakes, swamps, etc.) and lotic (running water, e.g., bayous, rivers, etc.). Estuarine habitats in the lowermost Atchafalaya region are limited, in terms of Odum's (1971:352) classification, to river deltas (with all their associated components). Terrestrial ecosystems fall into Odum's (1971:386-388) temperate deciduous forest and broad-leaved evergreen subtropical forest biomes. The extent of these ecosystems, their proportional mix if you will, has varied enormously during the last 10,000 years as the geological and geomorphological processes and products (cf. Lenzer, Chapter 2) have changed. Nevertheless, each of these ecosystems, regardless of time, place, and percentage mix, presents a common set of economic potentialities and siting opportunities to various folks. This, of course, is not to say that people will take advantage of these potentialities in the same ways or amounts (economic strategy mixes) or even that they will be perceived

economic potentialities. Some of the different approaches (strategy mixes) used by basin inhabitants to gain a living in the swamp edges and interior are discussed by Gibson (Chapters 4, 9), Gramling (Chapter 5), and Brassieur (Chapter 6). Yet to people who derived the lion's share of subsistence from and who lived in or utilized the basin for the greater portion of an annual cycle, the swamp ecosystems furnish an important (i.e., essential) way to comprehend cultural adaptive systems.

ASPECTS OF ATCHAFALAYA ECOSYSTEMS

Ecological Units

The kinds and mixture of plant and animal species lend a particularized character to ecosystems which permits them to be classified. In the case of the Atchafalaya region during the Holocene Epoch, these fluctuating ecosystems have involved freshwater, terrestrial, and estuarine webs (cf. Odum 1971). It should be emphasized that even though we can speak of *these systems as freshwater, terrestrial, or* estuarine, we are largely only recognizing species dominance or conspicuousness by such a classification. The entirety of these ecosystems is based on an exceeding complex web of chemical and biological interrelationships that form intricate food chains and hence tropic levels (Odum 1971; Dasmann 1978). A particular biome, for example, may be called the broad-leaved evergreen subtropic forest, but one must not forget that gradient, hydrological, climatic, pedological, and a multitude of other ecological factors are basic to the growth of live oak trees.

Inventories of biota relevant to the Atchafalaya Basin have been compiled (Engineer Agency for Resources Inventories 1973). Characterization of Lower Atchafalaya plants and animals using an habitat approach has led to the isolation of biotic communities (Brazda 1978). A form-process approach has been used by Gagliano and van Beek (1975) to define systems they call environmental complexes, environmental units, and subenvironmental units. The habitat approach resulted in delineation of five major communities and three divisions in one

(Brazda 1978:81-116): aquatic (estuarine), backswamp, wet hardwood interarea, marsh (freshwater, brackish, and salt), and natural levee. These communities all lie in the swamp-marsh ecotone at the extreme southern end of the Atchafalaya Basin below Morgan City.

The systems approach resulted in the definition of four major environmental complexes (Gagliano and van Beek 1975:Table 5-1): channel, natural levee, flood basin, and marine delta; a division closely approximating the habitats recognized by Brazda (1978). Within these complexes, several natural ecological units were identified (Gagliano and van Beek 1975:Table 5-1): a) channel was divided into truck, distributary, and lacustrine delta; b) natural levee, into ridge, point bar and accretion ridge, and crevasse; c) flood basin, into cross basin stream, drainage stream, channel lake, trapped depression, natural levee, round lake, pond, abandoned lacustrine delta, and into, swamp, bottomland, and marsh; and d) marine delta, into channels, bars, delta front, prodelta, bay bottom, and reefs. Gagliano and van Beek (1975:Table 5-1) further subdivided some of the environmental units into subunits.

The importance of these biotic classifications of the Atchafalaya Basin, whether one used the habitat-community approach or the form-process approach, is that they approximate more or less the functioning ecosystem structure by delimiting mappable, on-the-ground food webs. Both the nature and the physical distribution of these ecosystems played large parts in conditioning human procurement strategies and determining where they were implemented. Other variables, discussed below, prevailed in conditioning where the human animal fit in the hierarchical tropic level arrangement of these systems. Needless to say, it was the composition and distribution of ecosystems that provided the food and industrial raw material resources to basin populations, and it was the physical ground and water surfaces on and in which these ecosystems were played out that directed the patterns of human activities including choices of habitation and work sites.

Ecosystem Diversity and Capacity for Change

Ecosystem complexity is a relative condition. Even the simpliest ecosystem is exceedingly complex. However, ecosystems in warm, humid regions are generally the most intricate in nature (Dasmann 19[illegible] 19), those of the Atchafalaya region should be listed among them. Species diversity is a product of a multiplicity of factors which are beyond the scope of discussion here. Nonetheless an idea of the magnitude of the ecological complexity of the Atchafalaya region can be gotten from the number of species inhabiting the region. The Atchafalaya area harbors the following number of species: plants, 518; mammals, 78; birds, 389; reptiles, 111; amphibians, 55; freshwater fish, 159; saltwater fish, 75; and crustaceans, 85 (Engineer Agency for Resources Inventories 1973:53-85). This is a staggering total of 1470 species, and it does not even include the mollusks for which there is little available data. Of the latter, oysters and rangia clams should be mentioned since they were a major focus of human exploitative activities.

Ecologists hold that the greater the diversity, the more likely the ecosystem is to maintain stability (cf. Dasmann 1978:20). This does not, of course, mean that locality-specific ecosystems do not vary. The dynamism of the Atchafalaya Basin during the Holocene Epoch (cf. Lenzer, Chapter 2) certainly resulted in drastic modifications of individual spots in its interior and along its peripheries. However, these specific geographic-geomorphic alterations did not change the overall ecological complexion of the region. For at least 10,000 years, the Atchafalaya region has been a great lowland basin where freshwater, terrestrial, and estuarine ecosystems were joined.

The implication of basinal stability, which fluctuated internally but within certain well-prescribed parameters, for cultural adaptation is immediately evident. Within limits imposed by technology and population numbers, procurement strategies developed by Atchafalaya natives, aboriginal and nonaboriginal, would have had to change very little to extract the necessary resources for cultural sustenance. In other words, forms of adaptation to the Atchafalaya ecosystem may have been quite stable and fluctuated very little during the entire span of human existence in the region. The arrangement of procurement activities

(and related settlement patterns) certainly shifted with changing geographic patterns of ecosystem waxing and waning, but there is no inherent reason to attribute any level of determinism to this natural flux. In fact, if there is one major generalization to be made concerning the archeological, ethnological, and historical investigations reported here, it is the constant, basically similar approach to making a living in the Atchafalaya Basin that was followed by virtually every prehistoric and historical population enclave in the region. This apparent long-term adaptive continuity has been responsible for the particular perceptions on the cultural uniqueness and "out-of-phase" developments in the basin as opposed to surrounding regions.

Ecosystems, such as those integrated within the Atchafalaya Basin, also have a high capacity for resilience, the ability to resist or recover from disturbance (Dasmann 1978:20). Although the relationships between ecosystem diversity and resilience are not direct and simple but rather are exceedingly complex, the dramatic recovery capability of humid temperate forests to reestablish themselves after landscape upsets is another integral factor in understanding human adaptive patterns and their stability. Fire- or flood-swept conditions certainly affected the Atchafalaya ecosystem and those folks dependent upon it. The rapid revegetation of these affected areas via well-established biotic successional patterns peculiar to the basin (O'Neil, deSteiguer, and North 1975), while possibly not returning the specific locality to its pristine, prealtered state, would have been a constant and predictible process, one with which endemic populations could have contended with in a constant, long-lived manner.

Equilibrium

Another feature of ecosystems of considerable relevance to humans and to the longevity of adaptive patterns is its state of equilibrium. Ecologists often refer to this condition as homeostasis (Odum 1971: 33-36) or balance or steady state (Dasmann 1978:20-21). Ecosystems are never isolated; there is constant mutual interaction among ecosystems. In addition, ecosystems are fueled by external factors, sunlight being the most direct and important imput (cf. Odum 1971;

Dasmann 1978:21). Astronomical (moon) and meteorological (wind) tides are other important sources of external input into ecosystems (cf. Gagliano and van Beek 1975:41) as is climate itself and the related factors of rivers, streams, rainfall, and wind. All of these variables affect ecosystems and together with the physical, chemical, and biotic constituents, food webs, and tropic levels of ecosystems themselves, they produce the conditional state of the ecosystem.

All natural life systems steadily develop toward a condition of dynamic stability (Dasmann 1978:21) in which an optimal steady state of input and output is achieved. Gaining this balanced condition may result in biotic fluctuations, but once achieved, ecosystems fluctuate only within much narrower tolerances. The meaning of ecosystem development and attainment of homeostasis for human adaptive patterns is quite apparent. During developmental stages, ecosystems are likely to offer to humans a variable, changing complex of subsistence resources and fluctuating patterns of accessibility. Procurement strategies during such times are likely to be quite diffuse; exploitative activities, dispersed; and settlement systems, pioneering and experimental. Gibson (Chapter 4) has used this model to characterize the earliest patterns (Tchefuncte through Troyville) of human adaptation to the great Atchafalaya swampland. However, once a balanced condition was attained, adaptive patterns should have taken on a similar condition of homeostasis. Cultural changes, following ecosystemic steady states, would tend to fluctuate within smaller ranges and toward directions dictated by technological developments and population increases (cf. Earle 1980; Christenson 1980).

Biotic Succession

The means by which ecosystems aspire toward homeostasis is known as biotic succession (Odum 1971:251-275). Conceptually, succession deals with the sequence of community development from pioneer to climax states. The first colonizing biotic community of bare or disturbed ground represents a pioneer state. As this community begins to change the energy flow patterns, other biota will invade the locality, and

this process will continue through several seral stages until a climax, or mature, condition is reached.

Gagliano and van Beek (1975:55-63) have identified successional patterns in selected areas in the basin, based on sequential aerial photos covering a forty-plus year period. O'Neil, deSteiguer, and North (1975) have discussed general vegetational trends throughout the region from time lapse aerial photography including Landsat-1 black-and-white and color infrared imagery. Of course, these studies deal just with the last few decades and measure only those pattern shifts created by man's conversion of a natural overflow basin into a channeled, leveed floodway. Nonetheless, the seral stages of community development revealed should be the same as the succession under pristine conditions, where disturbances were produced by purely natural agencies, e.g., fire, floods, storms, salt-water invasions, etc.

Considerably simplifying this complex picture reveals two major climax communities in the swamp section of the Atchafalaya Basin, a cypress-tupelo community in areas subject to water coverage of extended duration and an oak community on higher land (ridges and hummocks) (O'Neil, deSteiguer, and North 1975:44). The normal succession to cypress-tupelo climax is interrupted when silt is pumped into these low areas and raises the elevations. Under pre-modern conditions, floods and crevassing would have been principal means of introducing these fine clastics into the lakes and flooded swamps. The result is the invasion of a willow-cottonwood community into areas of sparce crown cover (e.g., bars, battures, crevasses, lake margins, lacustrine subaerial deltas, etc.) and in areas of denser crown cover, the introduction of more competitive hardwoods, e.g., red maple, bitter pecan, green ash, etc.) (O'Neil, deSteiguer, and North 1975:44). The successional picture on levees and other areas of high ground is not as well known but generally involves a pattern toward dominance by shade-tolerant species (cf. Dasmann 1978:21). Similarly, seral stages in the marsh have not been worked out in detail. Normal successional patterns in the marsh are highly complicated by the continual reversals in terrestrial and marine influences; the growth of terrestrial communities as deltas prograde is terminated and reversed when subsidence and regression occur and exceed the former in net influence.

Biotic succession has important meaning to peoples, who are dependant at least in part on natural systems for earning a living. Successional patterns also have relevance to the manner in which students of culture should look at human adaptive patterns. Certain successional stages in the development of Atchafalaya communities offer (because of factors to be discussed below) fewer and more limited opportunities to human exploiters. For example, the colonization of open canopy areas by a willow-cottonwood community results in poor habitats-niches for humans because available food and industrial resources are practically nonexistent. When these species are crowded out by shade-tolerant hardwoods and when these seral stages advance toward successional climaxes, the locality offers more and more resources and thus becomes potentially more economically useful.

Because of successional factors, Kniffen's (1938:203) working assumption that peoples lived on the banks of large, active, freshwater streams has many built-in complications to elucidating settlement patterns and settlement succession itself. While admittedly humans need not live at the exact spots where food and other resources are located, it is quite safe to assume (cf. Earle 1980; Christenson 1980) that human settlement was so arranged as to take advantage of economic opportunities with the least amount of effort. Succession plays a large role in providing these economic opportunities. Thus, it is not the large, active stream that furnishes the sole raison-d'etre for habitation sites but the successional stages of biotic communities that lie within easy reach of the location.

Productivity and Yield

Productivity is, as Dasmann(1978:22) acknowledges, very important to those who wish to use what an ecosystem produces. Productivity is defined in terms of biomass, or the total mass of living biotic constituents in an ecosystem. Productivity is the rate by which new biomass is added to the system; it has both gross and net values (Odum 1971; Dasmann 1978:22). There are several general factors in productivity of relevance to human predators. Mature ecosystems, in climax or steady state condition, have zero net productivity values because

the loss of old individuals balances out the gain in new forms (Dasmann 1978:22). By the same token, ecosystems in rapid succession have high rates of net productivity.

Productivity in terms of total gross or net values is not precisely of material consequence to humans, who are more dependent on yield, or that portion of ecosystem productivity amenable to use as food or industrial materials (cf. Odum 1971; Dasmann 1978:22). For example, the total net production of live oak trees (biomass increase) is important only in the sense that more acorns are produced (i.e., yields rise). People do not eat the wood or leaves, yet these additional constituents are included in measures of total productivity.

The general consequences of productivity and yield on extractive (and producing) populations are several. Providing that essential resources (food and others) are available in a given locality or reachable from a single spot, simple extractive economics (procurement strategies) would seem to be more efficient (in terms of labor input to resource output) in post-pioneer, pre-climax seral stages, when net productivity (and consequently yield potential) is increasing. Human extraction of biota during these stages is less likely to cause upsets in energy flow patterns and result in overexploitation of ecosystems with detrimental effects on economic efficiency. The capacity for rejuvenation, or renewability, is greater during these intermediate successional stages. By the same token, sustained exploitation or production in climax situations may ultimately lead to declining yields, lessening productivity, and economic inefficiency as immediate resources are used up and procurement efforts have to be extended farther and farther afield to secure necessary sustenance. The usual effects of declining yields are population migration or changes in subsistence (Earle 1980; Christenson 1980).

Limiting Factors and Carrying Capacity

These interrelated factors are also important variables in productivity and yield. Dasmann (1978:22) defines a limiting factor as ". . . a material or form of energy required by an organism which is available in minimum quantities relative to the needs of that organism".

The ultimate limiting factor in aquatic or semi-aquatic environments, such as the Atchafalaya Basin, is the amount of light (cf. Dasmann 1978: 22). Thus turbidity and shade are important controlling variables. Other limiting factors include "pollutants", any material or energy form harmful to organisms. Natural "pollutants" in the basin consist of silt, oxygen-depriving gases formed by decay of underwater vegetation (i.e., the so-called "septics" well-known to fishermen), and salt. Gibson (1978a), for example, has built an argument against maize horticulture in flood-prone and tidal influenced sections of the Lower Atchafalaya region based on the limiting effects of salt.

Such limiting factors place developmental constraints on ecosystem succession and productivity and, as a consequence, set limits on what and how much humans can extract or produce within certain technological states.

Carrying capacity is another useful concept in evaluating ecosystems, especially in terms of appraising human procurement systems. Carrying capacity involves the number (density) of animals supportible by a given habitat. It may be expressed (cf. Dasmann 1978:22-23; Odum 1971) as subsistence density (the total number of animals that can be maintained) or optimum density (the number of animals that can be supported and maintain health and vigor). Yield can be measured in terms of optimum density; when ecosystem populations are held at optimum density through natural (and human) predation and territorial behavior, yield is sustained and high. When optimum densities are reduced by overpredation, overexploitation, or habit changes, yield will drop, perhaps below the point of renewability. When subsistence densities are approached because of lack of natural predation or underexploitation, vigor and health will be affected and natality will be impaired. The result will be declining yields, and the ecosystem will have less potential value to hunters.

Thus there is a delicate balance between carrying capacity and human exploitation. Balanced equilibrium will promote sustained yield. Overexploitation and, to a lesser degree, underexploitation, will lead to reduced yields and economic inefficiency. In the latter situation, exploiters will normally move to areas of optimum carrying capacities or will intensify exploitation of animal resources within the ecosystem which are in optimal states. If the second option is selected, the long term effects are likely to result in overexploitation and inefficiency.

Rejuvenation

The capacity of ecosystems to maintain themselves by replacing attritional losses by increases in natality is another important factor from a cultural use viewpoint. Providing that habitat conditions remain suitable, renewability of biota is a normal process. As long as the agents that prey on the ecosystem species (whether natural or human) are part of the ecosystem itself, renewability, or rejuvenation, will act to maintain sustained yields (cf. Dasmann 1978:23-24).

The growth of human populations and continual advances in technology not only led to direct removal of plants and animals but redirected energy flow patterns throughout and across ecosystems. Nutrients extracted (i.e., the human tropic level) were not returned in like quantities to the areas where the extraction took place. Camps, villages, and then, in some cases, towns took natural products from ecosystems and left the ecosystem-refurbishing residues in selected and limited spots. Of course, new, "artificial" ecosystems sprang up around settlements, and humans were quick to capitalize on these new, renewable sources of food and materials yields. An ultimate result of this redirected energy flow pattern was the advent of intensified food collection systems based on disturbed habitats and eventually the appearance of food production, i.e., horticulture.

This general developmental picture holds for the Atchafalaya Basin, but limiting factors, so pronounced in basinal ecosystems, not only retarded the rate of cultural development, it actually stabilized at levels well below those of surrounding inland regions. Limiting factors, floods, sediments, and salinity, for example, put severe constraints on gardening and considerably narrowed the kinds of places where it could be practiced (i.e., to flood-free ridges above the zones of high salinity). Natural yield capacities not only varied from area to area across geographic landscapes but changed through natural succession at given locales. The result was a shifting, changing procurement strategy across the landscape at any given instant in time and in any occupied or utilized locality through time. Yet such strategies within technological levels varied

within certain well-defined limits, parameters established by the inherent capacities of basinal ecosystems to maintain themselves.

CONCLUSIONS

The great lowland that is the Atchafalaya Basin is a dynamic, self-regulating ecosystem. It has been so during all phases of its Holocene development. Its very dynamism has offered bountiful resources to human exploiters. Sustained yields of foods and materials have been assured by high renewability capacities associated with lotic systems, and the Mississippi River system, of which the Atchafalaya Basin is a part, is one of the most efficiently fueled lotic ecosystems in the world. Yet its watery nature and the changeable faces of basinal landscapes, which have varied according to the dominating influences of terrestrial, aquatic, and estuarine forces, have placed limiting factors on extractive folks. Human development has transpired within its confines via many distinctive procurement strategies, but cultural development in general has been encapsulated within definable limits set by basinal self-regulatory mechanisms. The preceding discussion has set forth some of these mechanisms.

The outcome of the interplay between the great Atchafalaya ecosystem and the dwellers of the region has been a uniqueness, a uniqueness that has made cultural development here explicable only in its own terms. Models from other regions simply will not apply. This interplay has had another outcome as well. Swamp exploiters have maintained a strong essential continuity in economic strategies for millennia. The ways of livelihood have not greatly changed since the time of the original swamp pioneers. The Atchafalaya ecosystem has been an important shaper of cultural adaptive forms, technology not withstanding.

CHAPTER 4

VIEWS ON PREHISTORY AND ETHNOHISTORY IN THE ATCHAFALAYA BASIN

INTRODUCTION

The large number of previous archeological investigations within and near the Atchafalaya Basin give the impression that the prehistory of the great swamp is well known. This is an illusion, an illusion created by three principal factors: a) the synchronic precepts that guided data collection; b) the singular dependence on potsherds as the basis for reconstructing cultural historical units; and c) the failure to take into proper account the uniqueness of swamp ecological processes and elicited adaptive responses. To present an historical narration of prehistory in the Atchafalaya Basin would require imposition of culture sequences from regions outside the basin. It would necessitate the adoption of several assumptions about culture processes, assumptions whose validity for archeological reconstructions may be seriously questioned. For example, with regard to pottery types, does the existence of Marksville Stamped, var. Manny sherds at Atchafalaya sites mean that those sites were occupied at the same time as Manny-yielding sites in the Yazoo Basin of western Mississippi? Does the presence of Troyville pottery types mean that the cultural, social, and political contexts of the populations who produced them were the same across all regions of the Lower Mississippi Valley? Can we impose the so-called burial mound-temple mound dichotomy recognized in many parts of the Southeastern United States onto late Atchafalaya Basin prehistory when it is known historically that Chitimacha Indians were building conical burial mounds well into the European contact period?

No, neither generally nor specifically will culture histories developed for regions external to the Atchafalaya swamp work for the region. Such histories could be mechanically narrated, but they would have little, perhaps no, relevance to culture change and evolution within the Atchafalaya Basin proper. To say this in specific terms, the well-known "Red River Mouth" chronological sequence, developed by Ford and associates and refined by Phillips and colleagues, is simply not applicable to the Atchafalaya swamp in all its particulars, and, to further complicate matters, the state of archeological knowledge of the swamp itself is presently inadequate to develop a more realistic, local culture history.

SETTLEMENT

When Indians first moved into the Atchafalaya Basin is a matter of considerable conjecture. As a matter of fact, the topic cannot even be considered until one specifies which paleogeographic stage of basinal development is being discussed.

No residues from Paleo-Indian activities are known within the present-day Atchafalaya Basin. Yet does this imply their absence or merely that the land surfaces which might have borne these evidences have been eliminated or buried by river channel shifts since Paleo-Indian times? Characteristic Paleo-Indian artifacts, mainly projectile points, have been found on Godeau Hill and Evergreen Island on the western edge of the modern Atchafalaya Basin. They seem to be associated with a relict, resculptured, Mississippi River meanderbelt (i.e., the Lafayette-Mississippi meanderbelt), which has been entirely obliterated from the contemporary surface of the Atchafalaya Basin.

A similar conclusion can be reached with regard to Archaic components. Although Archaic sites have been identified in the upper part of the basin, they all seem to lie along older, elevated, landforms which have remained relatively untouched by subsequent degradation or aggradation within the swamp itself. One such component is Savage (16AV68, cf. Chapter 9, this report). Superficially, Savage appears to be connected with the Bayou Jack segment of the Teche-Mississippi course which Saucier (1974:Figure 3) believes to have been active about 6000-4000 B.P. However, sediments and soils at the location (Table 9.22,

Figure 9.29) hint of a far more complicated geomorphic picture, one which may have involved an ancestral meanderbelt of the Arkansas River. Archaic sites are densely scattered along the exposed natural levees of Big Darbonne Bayou, implying that the bayou was a significant water course during an earlier phase of its existence. Gagliano et al. (1978) suggests that Big Darbonne Bayou may have been a major crevasse system of the Teche-Mississippi system.

South of U.S. Highway 190, no Archaic sites have been identified from within the basin proper, although they do parallel the swamp margins atop the Mississippi alluvial valley walls themselves. In other words, they overlook the swamp but seemingly do not extend out into it. This may seem somewhat unusual because the Teche Ridge, the elevated meanderbelt of the Teche-Mississippi River system, which apparently supports Archaic components in the upper reaches of the Atchafalaya Basin, is well preserved to the vicinity of modern-day Berwick and Morgan City.

Until the present work was conducted, it was believed that Tchefuncte settlements were also missing in the Atchafalaya Basin. Now we know that they do exist. They appear in high densities along the western edge of the basin flanking the Bayou Jack, Bayou Rouge, and Petite Prairie meanderbelts. From Bayou Courtableau (U.S. Highway 190) south to Berwick, near the southern end of the swamp, they seem to be more scattered but are present nonetheless. This survey, in fact, confirmed Tchefuncte components on the eastern flank of the Teche Ridge at Bayou Perronet (16SM50), Charenton Beach (16SM2), and Bayou Gerimond. The Lake LaRose Mounds (Moore 1913), in the middle of the swamp about 12km southeast of Bayou Perronet, may also have a Tchefuncte component. On the eastern perimeter of the basin, Tchefuncte occupation may be present at Bayou Sorrel Mounds (16IV4) and the Schwing Place (Moore 1913:15-16). Both of these sites, however, appear to be positioned atop stable, elevated, remnant landforms, presumably formed by early Mississippi River alluviation, perhaps the Maringouin-Mississippi River.

If this picture is not entirely a product of natural geomorphic modifications of settlement patterns in the swamp over the last several millennia, then several conclusions can be derived.

1. Settlements of Tchefuncte and earlier periods appear to be associated with major river meanderbelts, particularly natural levee crests. Although unproven, these sites were probably founded after these meanderbelts had been abandoned by the large rivers and were adopted by local drainage arteries. This probability would coincide with the rising economic potentiality due to biotic succession and with the lessening danger of floods.

2. Archaic and Tchefuncte settlements seem to be confined to segments of those meanderbelt systems which lie near the edges of the lowland basin, or, in other words, along the margins of the Mississippi River floodplain (modern and post-Pleistocene). Evidence is lacking for an exclusive settlement orientation to purely swampland environments. That is to say where Tchefuncte and older sites occur in the basin, they are near the upland margins.

3. Another tentative conclusion concerning these older sites may be derived. Along the western valley margins, Tchefuncte and earlier sites seem to be geographically confined to those swamp edge localities where sites of the same age also occur upon the flanking terrace escarpments. In simple terms, a community clustering principle seems to have guided settlement. If we could be assured of the contemporaniety of lowland and upland components within these apparent geographic clusters, it would be tempting to view the settlement distribution as an adaptive response to isolated economic catchment zones that extended across the Mississippi Valley escarpment and involved both upland and lowland environments.

4. Historically, there seems to have been on the western edges of the Atchafalaya swamp another factor which contributed to settlement distribution--density, dispersion, and pattern. Everywhere Tchefuncte sites occur, Archaic sites are also present. The presence of Archaic components seems to have been a prerequisite for Tchefuncte villages. The probable meaning of this observation may be quite simple. Isolated locales bearing components of these time periods may only serve to circumscribe population aggregates. In other words, once a locality was opened to settlement (by Archaic folks), it continued to be occupied. The greater number of Tchefuncte components (vis-a-vis Archaic components) implies growing populations and their wider dispersion throughout

these isolated localities suggests a radiating expansion, or outward spread, away from the fewer Archaic sites.

This expansive trend during Tchefuncte times does not seem to have been even or concentric; rather it appears to have been linear--up and down the escarpment edges and along conjoined meanderbelt ridges. And some of these later sites (Tchefuncte) were positioned on landforms lying out in the swamp at some distance from the higher elevations provided by the meanderbelt ridges and the upland escarpments.

Thus along the western edge of the Atchafalaya Basin, where data are more numerous and settlement patterns are better appreciated, established population nuclei appear to have grown in size and undergone territorial expansion which carried some of the budding population aggregates out into the active swamp. This spread into the edges of the swamp set the stage for an ensuing major orientation to swamp environments.

Perhaps notable by its omission has been any mention of Poverty Point settlement. By normal archeological criteria, Poverty Point components are difficult to identify in many localities in south central Louisiana. This is probably a function of distance (300-400km) from the Poverty Point localities on the Macon Ridge in extreme northeastern Louisiana and western Mississippi where typological details for culture unit attribution were originally extracted. Population enclaves in south central Louisiana, which were contemporary with the Poverty Point developments upvalley, were simply doing things in their own time-honored, traditional manner which had proved adaptively successful to them and their ancestors. By stretching typological criteria (cf. Webb 1968: Table 2) and emphasizing the presence of exotic trade materials, it is, however, possible to ascribe some Atchafalaya edge components to the Poverty Point culture period. The Stelly mound group on Bayou Petite Prairie, near the Bayou Jack-Bayou Rouge meander complex (Teche-Mississippi meanderbelt), seems to be a local center of activities during Poverty Point times. Further down the valley escarpment in the vicinity of Lafayette, Louisiana, there is another cluster of sites, which temporally and, to an attenuated degree, culturally equate to the Poverty Point culture period. These Poverty Point components fit squarely into the settlement correlations and

proposed historical development reconstructions advanced above.

Sometime around the advent of the Christian era, there "came" to certain localities in the Lower Mississippi Valley an archeologically ill-defined cultural complex, called Marksville. This "coming" is not meant to imply a cultural importation, foreign population migration, or anything of the sort, although such interpretations have been suggested. The artifactual assemblage used to connote Marksville occupation definitely has its roots in the older Tchefuncte manufactures. The so-called Marksville culture period is in all likelihood simply an elaboration in the nonsecular, socio-religious, aspects of various local culture groups and thus, in one sense, is not really a culture unit of the same order as, say, the Tchefuncte culture period. To say this another way, the religiosity that was Marksville was practiced by some groups which were domestically Tchefuncte and by other groups whose domestic character has yet to be archeologically named, except by reference to the vague term, Baytown. This view of Marksville certainly helps to explain the apparent absence of sites throughout broad expanses of the Lower Mississippi Valley during the initial centuries of the Christian era. Rather than perceive the lack of Marksville diagnostics as evidence of depopulation, vacant territories, external migration, or the like, their absence or paucity may simply be viewed as nonparticipation or attenuated participation by local populations in the activities that gave that particular Marksvillian flavor to the material cultural complexes of the day. Whether such local nonparticipation should be viewed as a rejection of Marksville "religion," a lack of a social and/or political structure capable of assimilating the Marksvillian system and transforming it into archeologically detectable action, a lack of interaction with the commercial (i.e., trade) network through which passed to exotic raw materials and probably socio-technic articles which helped to reify the system, or as a function of other conceivable barriers to the flow of ideas from group to group is unknown.

This discussion of the possible meaning of Marksville has been given ample space in order to point out that the almost total absence of Marksville diagnostics from sites on the edges of the Atchafalaya Basin (the only exception being a single Marksville Cross-Hatched rim from Bayou Perronet) should not be regarded as an abandonment of the

region during the early Christian centuries. Previous surveys in the Atchafalaya Basin have had no better luck than the present one in demonstrating Marksville occupation. (As an aside, the term Marksville is being used here in a very restricted sense to refer only to what Phillips [1970] has labeled Early Marksville; it is not intended to embrace the entirety of the span during which Marksville-inspired ceramics were made.) The lack of clarity produced by adherence to a culture period typological breakdown and a type artifact approach is responsible for our total lack of understanding of settlement distribution during this period of time.

People, no doubt, continued to live on the swamp edges and probably spread further into the basin interior during the initial centuries of the first Christian millennium. Admittedly this possibility is based on hindsight, knowing that by subsequent Issaquena and Troyville times, populations had descended in a full-scale manner into the midst of the swamp. The inability to derive a picture of basinal settlement during the span when some population groups were involved in identifiable Marksvillian activities is, in this investigator's opinion, a fault of archeological conceptualizations and is not due to real constraints on population growth, expansion, or historical depopulation factors.

As intimated above, the first really detectible widespread movement down into the middle of the Atchafalaya swamp, as well as into its marshy coastal extremity, seems to have happened during the middle centuries of the initial Christian millennium. It is believed that this expansion completely relieved local groups of any ties, economic and otherwise, with the upland margins of the basin. Without really losing sight of the possibility of bias created by continual river channel shifts in the basin, this expansion seems to have been accomplished via a real, rather complete, adaptive orientation to swamp environments. Settlement of lake and backswamp perimeters, small freshwater bayous and coastal tidal channels lacking significantly elevated bankline ridges (i.e., natural levees), and Gulf beach ridges seems to have been in full swing during this interim. The higher levees along major rivers and large bayous, both active and abandoned, continued to be occupied. As a matter of note, in spite of the fact

that the Atchafalaya Basin during this period was functioning as a full-fledged relief valve for floodwaters and backwaters from the Mississippi River, which was flowing on the eastern margin of the swamp, settlement expansion does not seem to have been hampered. However, to peoples intimately familiar with the great swamp, as these native pioneers must have been, there is hardly any place in the basin interior from which high ground is not readily accessible within relatively convenient walking or boating distances. While these fingers and hummocks of high ground may seem inconsequential to uplanders, they are highly visible during high waters, and in a region where differences in elevation of only a few centimeters quite often means the difference between being flooded and remaining dry, they assumed considerable importance in shaping settlement patterns.

As in the case of the Marksville complex discussed previously, there are methodological problems in ascribing classifactory labels to these full-fledged wetland pioneers of the Atchafalaya swamp and coastal marshes. Superficially, it is not difficult to call them Issaquena, Troyville, or Baytown folks, but these names connote material cultural complexes which, in many specifics, are simply not present in the Atchafalaya Basin and conjoined coastal zones. Since many of the artifactual and stylistic diagnostics of these more precisely dated and better described cultural complexes do not occur in the basin and are apparently replaced by indigeneous manufactures, we are left with a totally inadequate temporal framework for viewing settlement changes during this span. As a matter of fact, we cannot, at present, even put chronological parameters on the span being discussed. The result of this imprecise chronology and lack of classifactory control is that the first widespread settlement orientation to the whole of the Atchafalaya Basin is not well understood and is rendered quite difficult to discuss because of the lack of a suitable frame of reference.

If settlement of the Atchafalaya swamp was accomplished by a frontier-pioneering process, such as described above, and if the frontier had largely disappeared with the "Baytown-Issaquena-Troyville" dispersement, as believed, then ensuing settlement in the basin was simply a matter of "filling in" the previously unoccupied zones and reusing old village areas. The "filling in" settlement process of

Coles Creek and Plaquemine times seems to have taken two primary forms, forms that are not necessarily mutually exclusive.

In the upper, better drained reaches and to a degree in the middle, lake-dominated section of the basin, late prehistoric settlement expansion appears to have involved village fission. Some Coles Creek and Plaquemine villages grew to relatively large sizes. Peche Rouge Nord, a Plaquemine site, about 1.5km east of Red Aggie (16SL60), is one such substantial village, covering about 15,000m^2. Charenton Beach (16SMY2) is another, extending over more than 18,000m^2. Bayou Sorrel mounds (16IV4), with a ceremonial precinct--mounds and "plaza"--has a residential area of undetermined but probably large size. At varying distances surrounding such large villages are apparently contemporary settlement units which rarely exceed one-third the size of these larger villages. It is suspected that these small settlements are hamlets, founded by families who simply budded off from these large villages and pursued a relatively autonomous existence on small sections of arable land or at rich natural resources locations. While the parent-daughter community fission model is certainly not the only process that can account for locality settlement dispersion, there does appear, on the basis of admittedly limited information, an affinity in terms of distance of hamlets with villages.

In the southern extremities of the swamp and in the coastal marshes where settlements of all sizes are dominated by rangia middens, another settlement process may have been in operation; a process which might be called an annual seasonal fission-fusion model. Larger sites, usually located on prime, elevated spots near the fresh-brackish water interface, may have been semi-permanent base camps--villages supporting families nucleated for only a portion of the year. Coincident with seasonal ecological shifts and other factors, the residential community fragmented into familial or familiar constituents and moved to the locations of their seasonally specific labors, returning at season's conclusion to the common base. Repeated year after year, this settlement system could have resulted in a plethora of small sites, e.g., activity stations, temporary camps, and perhaps even small base units, during the span of community fission, and in continually accreting and expanding semi-permanent villages during the period of family reunion.

Such a "filling-in" of swamp localities was in full swing when Europeans appeared on the scene. The Atchafalaya Basin remained for a time off-limits to the terra firma-bound whites, and the few excursions into swamp were confined to its higher borders. As a matter of fact, it was only after the native residents, the Chitimacha Indians, incurred the wrath of the French, following the assassination of the missionary St. Cosme in 1706, that vengeful French marauders, under St. Denis, dared to venture into its dark, gloomy confines and then only along the Fork of the Chitimacha (i.e., Bayou Lafourche)(Iberville in Brasseaux 1979). However, one suspects that this incident was only an excuse to cover up the real reason for the declaration of war on the Chitimacha; a more likely motivation being the desire to acquire Indian slaves.

The entrada of first the French, then the Spanish, and finally the Americans furnishes several important considerations for this treatment of native settlement: a) first, it provided written documentation, though scant, of occupant groups and accorded tribal names to them; b) it seems to have resulted in an upset of intertribal relations forcing tribal amalgamations, or extinctions, tribal shifts and migrations, and perhaps a general westward retreat across the basin, away from the white-controlled Mississippi River; and c) it introduced nonindigenous natives, deplaced from their original homes along the Mississippi River, into the lower and upper reaches of the basin. In face of these European-induced influences, swamp settlement patterns underwent change, ranging from almost negligible in some areas to quite extensive in others.

An initial effect was the apparently nearly complete withdrawal of Indians from Bayou Lafourche, the so-called Fork of the Chitimacha, the eastern natural boundary of the Atchafalaya Basin. Early records (cf. Swanton 1911) tell us that stretches along Bayou Lafourche were occupied by the Chitimacha, the Washa, and the Chawasha. The latter two tribes, allies of the French and enemies of the Chitimacha (Swanton 1911:297-301), seem to have merged, or at least become confused, and probably moved to the Mississippi River near New Orleans. After De Kerlerec's mention of them in 1758 (Swanton 1911:301), they disappear from recorded history. The Lafourche also seems to have been vacated

by the Chitimacha but their fate is unknown. It is possible that they joined or became the Chitimacha group encountered sometime later around Bayou Plaquemine, upstream from the Bayou Lafourche-Mississippi River confluence.

In 1882, Gatschet published the names of 15 Chitimacha villages, supposedly occupied around 1700; locations provided by an old Negro informant living on Grand Lake. Swanton (1911) acquired several more village locations from Benjamin Paul, last hereditary chief of the western Chitimacha in 1908-1909. Perusal of other documentary sources (cf. Gibson 1978c) brings the total of known Chitimacha villages to about 30. Gibson (1978c, 1980a) has tentatively correlated five of the villages with known archeological sites or with locations of land tracts precisely delimited in conveyance records. The correlation between Ama' tpan na' mu and Charenton Beach (16SMY2) has been previously discussed (Chapter 9). However, since the thrust of this section is not ethnohistoric village confirmation but a more general consideration of native settlement systems, these correlations will not be repeated here.

As previously intimated, the Lafourche Chitimacha may have moved northward to Bayou Plaquemine, or they may have simply moved across the Atchafalaya Basin and joined the western branch of the Chitimacha living on the lakes (particularly one called Lake of the Chitimachas--now Grand Lake) and along Bayou Teche. One of the interesting asides concerning Chitimachan ethnohistory is supposed division or, at least, geographic separation between the eastern and western Chitimacha. What this means, if a real partition existed, in terms of social and political forms is not known. It could be no more than the conclusion of a historical migration to the west, but sites such as Charenton Beach (16SMY2) have an occupational span, seemingly uninterrupted, which carried beyond the historical contact period into prehistory. The same can be argued for other sites along the general extent of the basin margin from near St. Martinville to Berwick. While we cannot certainly confirm that the prehistoric residents of these villages were Chitimacha Indians, the probability looms large. That the two groups of Chitimachan settlements were interconnected and probably had some sort of mutual communication is shown by a string of villages

lying along Lake Mongolois (formerly Mingalauk), Bayou du Plomb, and Bayou Chene. This east-west water route through the middle of the basin joined the Grand Lake villages directly with those on Bayou Plaquemine, Bayou Jacques, and Bayou Grosse Tete. Another suggestion of rather intimate familiarity between the two geographic enclaves comes in the person of Charles, a Chitimacha resident of Tsa'xtsincup na'nu, the Bayou Plaquemine village. In 1819, Charles guided the timber survey party of James Cathcart from Bayou Plaquemine through the basin to the western lakes area and back through the swamp apparently through the bayous du Plomb and Chene route (Prichard, Kniffen, and Brown 1945).

Another circumstance of consequence to historic native settlement patterns in the Atchafalaya Basin concerns the apparent disappearance of at least two swamp tribes after the time of initial European contact. LaHarpe (in Conrad 1971) mentions a tribe, called Onquilouza, allied with the Washa and Chawasha, during his efforts to bring these tribes under French dominion in 1699. The Onquilouza are never mentioned again. The same literary fate befell another Atchafalaya tribe, variously referred to as Yagueneschito, Magenesito, Yagenechito, and Yaguenechitons (LaHarpe in Conrad 1971; Iberville in Brasseaux 1979). Like the Onquilouza, they were simply never mentioned after the Iberville and LaHarpe narratives were written. Swanton (1911:337) guesses that Yagueneschito might be a reference to the Attakapa, and, if this is correct, the subsequent history of this group would have nothing further to do with the Atchafalaya Basin.

The beginning European colonization activities along the Mississippi River had other direct effects on native settlement in and near the Atchafalaya Basin. Nonindigenous tribes sought refuge in the poorly settled swamp and swamp margins. The Tunica (later amalgamated with the Biloxi) culminated a series of migrations from an original hearth in western Mississippi opposite the mouth of the Arkansas River by taking up residence at Coulee de Grues near Marksville, Louisiana, sometime during the latter part of the eighteenth century (Brain 1977). This location, which actually falls in or very near the old homeland of the liquor-destroyed Avoyels tribe, lies on the northern perimeter of the basin and is actually outside of it.

The Lafourche delta country in Terrebonne Parish, on the southeastern edge of the Atchafalaya swamp, witnessed an influx of another Mississippi River tribe, the Houma. Throughout much of the European contact period, the Houma resided on the east bank of the Mississippi River in the Pointe Coupee vicinity. Following a series of epidemics and apparent foul experiences at the hands of the colonists, they migrated, Swanton (1911:291) says drifted, into the unoccupied swamps and marshes of Terrebonne Parish, where they live today. In route, they assimilated decimated remnants of the Bayogoula and Acolapissa tribes, forming an ethnic amalgum. When they moved, or drifted, to this location is uncertain but by the first half of the nineteenth century their presence in the Terrebonne area was noted (cf. Swanton 1911: 291). The relocation of the Houma has interesting implications for settlement studies. While at their original Mississippi location, the Houma were confirmed horticulturalists, resided in relatively large, sedentary villages, and seem to have had strong political and religious systems and a probably rigid social heirarchy. After less than two centuries of occupation in the swamps and marshes, this group was transformed into hunters, trappers, and fishermen. Horticulture was largely forsaken. Settlement shifted from nucleated villages to extended linear communities along bayou banks. Seasonal exploitative, or extractive, activities were adopted with all the evident consequences for year-round settlement instability. Tribal unity dissolved with the increasing autonomity of nuclear family units. The sense of tribalism faded, and today the Houma and their adopted brethern identify largely with being Indian rather than with being Houma (Stanton 1979).

All in all, the ethnohistoric records of the Atchafalaya natives and migrants have little relevance to the development of more precise pictures of non-European settlement. Ubiquitous pirogue travel, the importance of the interlinked, anastamosing maze of bayous and tidal channels as arteries of transportation and communication, and the unique overflow lowland ecosystems with which native economies were intricately interwoven furnish important frameworks for reconstruction of settlement patterns. But the paucity of specific details prevents more exacting explication. That can only come with heightened archeological attention to settlement patterns.

SUBSISTENCE AND ECONOMY

For the pre-Tchefuncte span of prehistory, there are absolutely no data on Atchafalaya subsistence bases or economic structures. Since we also have limited information on paleogeographic and paleoecological conditions existent during the early stages of geomorphic evolution and biotic succession of the great swamp, reconstructions of time- and locality-specific subsistence bases and economic patterns could not even be dignified as speculations; they would be nothing more than imaginative guesses.

Actually for the entire prehistoric interval before that nebulous culture period, called Baytown or Troyville, subsistence data are sparse to say the least. There is nothing on Marksville, but the difficulties with that classifactory concoction may be purely methodological rather than real. The weight of Tchefuncte subsistence information falls on one site in the basin, Bayou Perronet (16SM50). The Savage site (16SL68), which has an extensive Tchefuncte component, as well as other Tchefuncte sites in the Bayou Jack vicinity (outside the survey corridor), have produced some ecofacts (primarily faunal remains), but use of these data is complicated because materials either represent surface collections from multiple component sites or the remains have not been specifically identified. Bayou Perronet, as a short-term village or camp occupied totally within the Tchefuncte period, gives not only the best but the only information; however, its particular paleogeographic location cautions against extending its suspected subsistence information beyond the immediate locality. When one recalls that the totality of ecofacts from Bayou Perronet includes only 17 bone fragments from specific faunal groups, i.e., deer, rabbit, fish, and turtles, and 15 unidentified pieces of bones, the reluctance of this investigator to draw anything conclusive about site-specific subsistence can perhaps be better appreciated. Needless to say, building an hypothetical subsistence model for the whole of the Atchafalaya swamp during the entirety of the Tchefuncte period lies far beyond the security of supporting data.

It is only during the Baytown, or Troyville, time period that hard subsistence data become more numerous, and then the improvement in the information corpus is simply a relative matter. This hard-to-pin-down

(using traditional ceramic criteria) cultural interval is believed to have witnessed the initial wholesale penetration into the entire basin in its modern guise.

Bruly St. Martin, one of the more inland stream bank sites, produced only evidences of wild foods, as, in fact, have all Atchafalaya sites of the period. Springer's (1973:Tables 11-15) analyses show fish (i.e., suckers, gar, bass, bowfin, freshwater drum, pike [?], and perch[?]) were of primary dietary importance, followed by mammals (in descending order of preference, deer, bear, muskrat, raccoon, bobcat, rabbit, opossum, squirrel, and mink), and then birds (i.e., ducks, coot, Canada Goose, cormorants, grebes, Great Blue Heron, Common Egret, and eagle). Various reptiles and shellfish (rangia and freshwater mussels) were exploited, but their relative importance has not been ascertained. A small amount of elusive plant remains was recovered by flotation; these included acorn, persimmon seeds, grape seeds, and unidentified seeds (Springer n.d.). No direct evidence of cultigens was ascertained.

The Gibson Mounds (16TR5), on the flank of the Teche levee near Morgan City, have yielded faunal remains but the site has a long history of occupation that spans Troyville, Coles Creek, and Plaquemine periods, rendering the faunal information useless for time-specific subsistence reconstruction (cf. Weinstein et al. 1978).

Altschul (1978) has identified faunal remains from 15 sites in Terrebonne Parish on the southeastern margin of the Atchafalaya Basin. However, as in the case of the Gibson Mounds, time and cultural specificity of the faunal assemblages is lacking.

The Oak Chenier site, near the Bayou Shaffer-Bayou Penchant confluence below Morgan City, provided an inventory of animals exploited. Based on minimum number of individuals, Byrd (1978b:224, Tables 39-40) was able to specify the following order of selection: rangia, gar, bowfin, muskrat, catfish, porgy, snapping turtle, mud-musk turtle, pond turtle, soft-shell turtle, rabbit, raccoon, mink, deer, and duck. No plant remains were recovered from this Troyville component.

The present survey disclosed faunal remains, i.e., rangia, fish, deer, small mammal, turtle, and bird, from Belle River Landing (16SM6?), along the East Atchafalaya Basin Protection Levee.

The major uniformity of this admittedly limited data pool is the emphasis on aquatic resources during the Troyville period. The brackish water clam, rangia, when available, and fish were taken in greatest numbers, though they may have not provided the greatest portions of animal foods because of the relatively large sizes of other animals exploited. The virtually ubiquitous deer may be the most variable element of diet. There is a general impression that the importance of venison in aboriginal tablefare may vary directly with distance from coastal marshes, less important in the marshes and more important in the swamp interior and basin edges. This suspicion, if ever verifiable, would probably not be due to natural differences in animal population densities but to hunter accessibility.

The limited data on plant foods is confined to wild species. There is not one shred of direct evidence for cultigens nor, via reconstructions, for the practice of plant husbandry at this time. As a matter of fact, Gibson (1978a:256-260) has presented a detailed argument against the practice of horticulture in the marsh section of the Lower Atchafalaya region during any prehistoric period. The Troyville span in the Atchafalaya Basin seems to have been a stage of expansive subsistence activities throughout the myriad natural habitats in the Atchafalaya Basin. The push into the swamp and its southerly marshes in a large scale manner relieved the inhabitants of any food dependance on the upland edges around the basin. Wild foods were "experimented with"; swamp and marsh ecosystems assimilated a new predator. So adaptable was this relative newcomer that virtually every economically useful ecosystem was tapped. The adaptive process, seemingly in evidence, has been previously termed, "settling in", or "living in" (Gibson 1975). This ever-increasing familiarity with swamp and marsh environments no doubt produced some highly specific and geographically restricted subsistence and economic systems. It might have created a virtual community-specific, economic autonomity, which would prevent generalized modeling of Troyville subsistence patterns. However, after subsistence stability became established, the high natural food potential of the basin and the fine honing of exploitative techniques eventually produced such efficiency that swamp populations swelled.

During the next span of occupation, the Coles Creek-Plaquemine-Natchezan continuum, the Atchafalaya Basin seems to have harbored the largest number of residents ever to have lived within its interior. This conclusion seems warranted because of the increased numbers of sites.

Subsistence bases do not seem to have changed significantly from the effective Troyville pattern. Although specific food information is nearly unavailable, there are generalized impressions from multiple component sites and others to indicate little nor no modification in foods exploited. Economic systems may, however, have undergone some revamping to accommodate to the presumably larger populations and the fact that villages in some localities may have had relatively close neighbors. In other words, the possibilities of subsistence specialization and intercommunity interchanges seem more likely than before and would have helped to establish the economic-subsistence pattern described for the historic tribes in the basin, particularly the Chitimacha.

It is apparent that by late prehistoric times, groups living along the swamp-marsh interface had thoroughly assimilated an economic strategy of seasonal transhumance; group fission and marsh-bay residence during the spring and summer, group fusion and inland occupation during the fall and winter (cf. Altschul 1978; Gibson 1976a, 1978a). This pattern is indicated only for the southerly margins of the Atchafalaya, where rangia clams figured prominently in diets and food quests. This strategy was nonhorticultural.

In areas of the swamp above the marsh-swamp contact, different economic strategies were almost surely followed. Exposing their precise nature remains a problem for future research, but some general guesses may be appropriate; guesses based not on archeological data but on historic records and an appreciation of inland swamp ecology. The swamp proper, with its lakes, year-round or seasonally inundated backswamps, poorly-drained flats, and the like, probably never supported horticultural villages, though it may have supported part-time horticulturists on a seasonal basis. Even along natural levees of many of the interior waterways, gardening as a full-time occupation may be doubted, because of the constant threat of flooding and the

predictable annual backwaters (inundation). Cultigens, especially maize, are harmed as much by standing freshwater as they are by simple proximity to saltwater, or by soils with a high salt content. If horticulture was practiced by late prehistoric Atchafalaya natives at all, it would, because of the flooding-inundation and salinity constraints, have necessarily been restricted to those higher ridges paralleling larger and older streams in the interior and to the better drained peripheries of the physiographic basin.

This author harbors strong suspicions that horticulture as a primary economic pursuit was adopted in a wholesale fashion only by those late prehistoric (Coles Creek and post-Coles Creek) natives in the northernmost reaches of the basin; that it was assimilated and practiced to a lesser degree by Indians along the higher lands along the eastern (Lafourche Ridge) and western (Teche Ridge) margins of the middle and lower basin; and that it was not pursued at all by occupants of the flooded or flood-prone basinal interior and of the coastal marshes. Even where horticultural commitments were greatest, cultigens probably only furnished a portion of the food stuffs; the remainder, possibly the lion's share, was comprised of wild resources.

Different means of accommodating to horticulture, i.e., cultural organizations, seem to have sprung up throughout the freshwater part of the basin. Full-fledged horticulturalists in the upper basin seem to have implemented the farming strategy by tilling large, as well as small, tracts of elevated levee soils (i.e., friable loams). More extensive plots correlate with large, long-occupied, sedentary or semi-sedentary villages; for example, Pech Rouge Nord, a huge Plaquemine village along Bayou Rouge, and the Plaquemine component at Savage (16AV68), on Bayou Jack. Surrounding these large, unbroken areas of tillable soils are smaller, more isolated patches of good soil; correlating with some of these localities are small sites, or hamlets, of nuclear or extended family size. Fish Bayou (16SL61) and DuPont-DesGlaises (16AV69) are examples, Coles Creek and Plaquemine periods respectively, of these smaller farming units. Economic, social, and political ties between large villages and small hamlets may have been maintained, and it is possible that the interacting settlement nodes may have constituted single communities, or societies.

Along the middle and southern lateral margins of the swamp and possibly along perched, relict meanderbelts in the center of the swamp, horticulture is suspected to have been of less importance. Call these folks semi-horticulturists, part-time gardeners, economic pragmists, or what you will, but if these late prehistoric groups in any way resemble (or are) the Chitimacha Indians of post-contact times, subsistence and economy were matters of practicality, not unswerving rigidity. Conformance to economic norms meant conformance to diurnally, seasonally, and more irregularly fluctuating ecosystems. Some years, some decades, horticulture might have provided some or most of the necessary foods. Some years, some decades, horticulture might not have put a single ear of corn in the larder. In face of such habitat dynamism, where numerous constraints, or limitations, to horticulture are always present, sometimes latent and sometimes manifested, residents had better have had economic safeguards to avert disaster in the form of food shortages.

The economic structure in this section of the basin appears to differ from that of the upper swamp. Individual villages, scattered here and there, probably as high ground and food resources dictated, apparently functioned as nearly autonomous units of food consumption and production. To be sure, certain small sites in the locality were short-term and economically specialized, but these units were simply extractive camps extended into the outer reaches of the dominant village catchment zone. In other words, unlike the economic pattern suspected for the northern basin, which apparently involved large, permanent units of production and consumption surrounded by small, budded, residentially stable hamlets, the arrangement of middle basin means of production centered on single villages from which extractive activities emanated. These little camps were units of production, not consumption. Foods and other resources acquired at these locations were returned to the main village for use.

The late prehistoric subsistence base and economic strategy, envisioned above, for the middle basin, was probably identical or very similar to that of the Chitimacha of post-contact, pre-modern times. Gatschet (1883:4-5) has provided a brief description of Charenton Chitimacha subsistence, which is probably of general

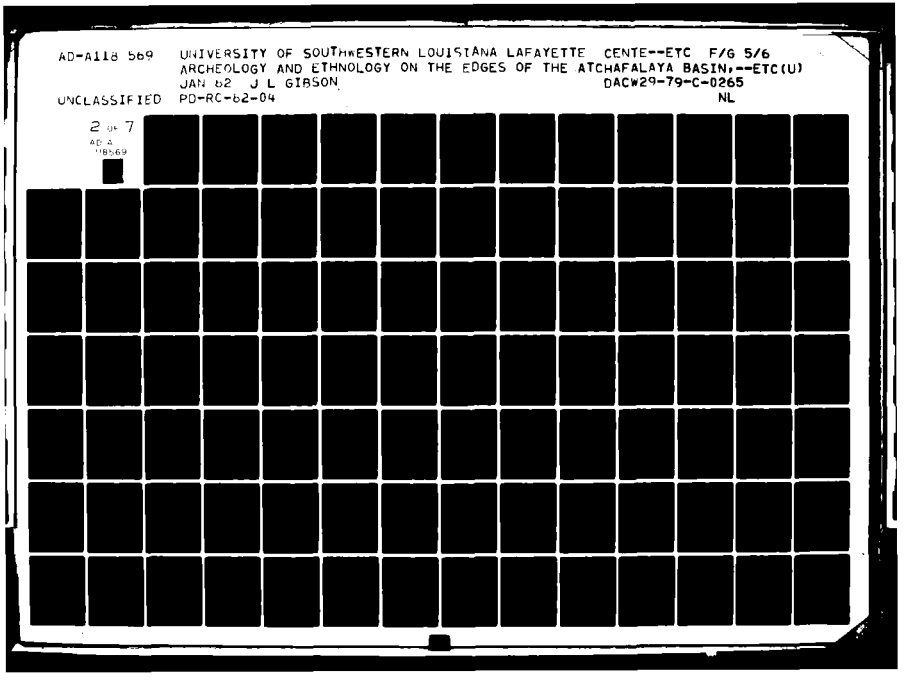
relevance to the whole of the Atchafalaya midsection above the marsh. According to Gatschet (1883:4-5), the Chitimacha depended primarily on wild vegetable foods, secondarily on ". . . products of the hunt", and lastly, in Gatschet's words, ". . . to some extent, on maize, sweet potatoes, and . . . wheat".

Wild plants collected by the Chitimacha included pistaches(?), wild beans (Strophostyles helvola), Kupinu (?), woman's potatoes (Ipomoea pandurata), pond lily seeds (Nelumbo lutea), palmetto grains (Sabal minor), two kinds of arrowhead rhizomes (Sagittaria sp.), persimmons (Diospyros virginiana), wild grapes (Vitus sp.), cane seeds (Arundinaria tecta, A. macrosperma), and succu (?). To this list, Swanton (1911:346) later added: wild berries--strawberries, blackberries, raspberries (?), and mulberries, and ". . . a white berry growing near Plaquemine Bayou". He also mentions, but does not specifically identify, fruits of certain trees (Swanton 1911:346).

Animal foods seem to have included deer and smaller mammals (Gatschet 1883:5), fish (species unidentified but certainly including gar, Gatschet 1883:5; Stouff and Twitty 1971:23), two species of turtles (Swanton 1911:346), and shellfish (no doubt, the omnipresent Rangia cuneata; Stouff and Twitty 1971:33).

Of domestic plants, four kinds of corn were recalled by Swanton's (1911:346) informants: white, yellow, blue-black, and a fourth variety which made the best flour. Pumpkins and melons were also mentioned, but informants seemed to think that these grew wild in olden times and were not cultivated (Swanton 1911:346).

This inventory is, without doubt, incomplete, yet it should suffice to provide a good impression of the nature of Chitimachan subsistence and, if Gatschet (1883) is correct, of the relative value of wild vis-a-vis domestic foods. The evident retentions of wild plant collecting, fishing, and hunting, alongside plant husbandry, is no doubt a bow to regional ecological constraints and stresses with which these natives were intimately familiar. Economic systems all have limitations. Subsistence and economic procurement-production strategies are designed to operate within a certain familiar sphere; the sphere defined by those natural and cultural dictates beyond which the system cannot function, or can function only with impaired efficiency.


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ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN,--ETC(U)
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In Chitimacha country, horticulture is a tenuous means of providing foods. Perhaps for several consecutive years, garden crops could have furnished the dominant source of foods, but when fields were breached by that occasional severe flood or when that unpredictable hurricane pushed saltwater into the midst of the swamp, crops would have been ruined. Modern corn hybrids will, for example, rot if roots of the plants are covered with water for more than 48 hours (Lynn Desselle, personal communication, 1978). The inland saltwater surge, propelled by hurricanes or tropical storms, may leave lands unfit for cultivation for periods up to 15 years (Lynn Desselle, personal communication, 1978). Desselle also reports that corn production is severely reduced when soil salinity levels reach as little as 1600 parts per million; corn grown on land having salinity contents between 1600 and 3200 parts per million generally yield half the normal yield. Higher levels, therefore, would begin to seriously impair subsistence, if gardening was the sole or primary means of production.

Therefore, the semi-horticultural, marginal horticultural, or practical horticultural nature of Chitimachan economy was the wisest system of food production that could have been adopted in the territory. Dominated by effective wild plant collecting, shellfishing, fishing, and hunting with horticulture as an adjunctive aspect of subsistence, the Chitimachan economy exhibited necessary safeguards (i.e., internal regulatory mechanisms) to insure stable food production and a built-in immunity to potentially disasterous environmental stresses.

That such natural constraints to horticulture are not merely conceptual, one has but to recall the recent migration of the Houma into the Lower Lafourche country of the southeastern edge of the Atchafalaya Basin. The Houma and their assimilated compatriots, the Bayogoula and Acolapissa, were confirmed farmers of the broad Mississippi River levees. Moving into the near-coast zone of the Lafourche delta and being more exposed, frequency-wise and in terms of intensity, to the stresses of flooding and saltwater intrusion than even the Chitimacha, the economy of this group was completely transformed, inside two centuries, from intensive horticulture to hunting, fishing and collecting.

CULTURE HISTORICAL CONSIDERATIONS

As mentioned throughout this volume, considerable reservations are had about the imposition of culture historical frameworks, particularly the Red River Mouth and Yazoo Basin schemes, onto Atchafalaya Basin prehistory. The reservations are largely subjective because of the paucity of sound archeological information from the basin proper. Additionally, the environmental uniqueness of the swamp is a source of concern, especially if one adheres, as does this author, to a Whitian perspective of technological determinism. Further uneasiness derives from the synchronic origin and extension of available culture period schemes, when their general nature and detachment from the localized realities of technological, social, and political spheres is a well recognized problem, presently incapable of resolution. Some specific archeological issues, of cultural historical import, have been recently identified, and the remainder of this discussion will concentrate on these problems.

A major issue of contention deals with the Troyville, or Baytown, culture period. This problem is not exclusive to the Atchafalaya Basin but applies to the Louisiana coastal zone in general. Some time following the Tchefuncte archeological culture period (and its late specialized Marksvillian phase), there seems to have been considerable regional divergences in aspects of material culture, especially in archeologically emphasized ceramic decorations. As previously discussed in connection with settlement and subsistence-economy, this stage of cultural development seems to have involved, in many localities throughout the Lower Mississippi Valley, a technological and economic reorientation to previously unused or marginally or selectively used environments, particularly wet lowlands. This suspected restructuring was probably not geographically uniform, nor did it affect, or involve, every group in or along the valley. We do not know why or how it happened, but the benefit of hindsight permits us to detect some of its consequences.

One of its most apparent results seems to have been in increasing polarization of ceramic decoration styles and style associative complexes. In other words, northern, upvalley localities began to

diverge considerably from coastal and near-coastal zones. In fact, a strong hint of territoriality, or regionalism, appears throughout the Lower Mississippi Valley. This is most obviously represented in ceramic differences--styles and complexes, and seemingly bespeaks an interruption of the rather free flow of ceramic ideas and ideals which had characterized previous style-sharing spheres. Actually late Tchefuncte-Marksville pottery-sharing zones anticipated this divergence but not to the extent that it would be manifested later. This is discussed specifically in connection with the Tchefuncte component at the Savage site (16AV68, Chapter 9).

Locality- or confined region-specific ceramic complexes may not seem superficially to be cause for archeological concern. Actually they would seem to be the norm, not the exception, when one considers that information flow, including pottery style ideas, is largely a function of the familiarity of interpersonal interactions. Highest levels of conformance to styles should reflect the intensity of contact, e.g., families, work groups, communities, etc.; lower levels should be expected once the bounds of familiar interactions are approached and exceeded. As a matter of fact, one of the most intriguing archeological questions that this author can imagine centers on how and why ceramic style-sharing zones came into being in the first place and assumed such broad geographic dimensions. In other words, the question of locality specialness should be reversed and inquiry made of the hows and whys of ceramic similarities that geographically exceeded the parameters of daily, face to face interaction spheres.

No, this exposition of theoretical concern is not the focus of difficulty with the historical span being considered here. The difficulty is methodological. All post-late Marksville occupations, regardless of their locations within the Lower Mississippi Valley, are embraced by the same culture historic unit, Baytown or Troyville. Since the unit was archeologically defined on the basic ceramic styles and complexes lying north of the Red River Mouth and extending as far as the Yazoo Basin, it is next to impossible to identify Baytown, or Troyville, components in those localities, such as in the Atchafalaya Basin and in other sections of the Gulf Coast, when

the typological criteria set up to sort ceramics are not present or combine with non-Troyville criteria in apparently singular cultural contexts.

Troyville, or Baytown, in its northern guise is typologically identified by the dominating presence of Mulberry Creek Cord-Marked, Larto Red, certain broad-line incised and rocker-stamped varieties, and other types in minor proportions (cf. Phillips 1970). In the lowermost Valley and adjoining sections of the coast, this complex does not occur. Mulberry Creek Cord-Marked is totally absent, its place suspected to have been taken by a check-stamped type, labelled Pontchartrain. Rocker stamped types, if present, occur in decided small percentages. Larto Red seems to remain as strong as ever. And nearly always associated with this complex, sometimes assuming majority representation, is French Fork Incised, a type which seems to have reached maximum popularity in inland regions during a later span (i.e., early Coles Creek period).

If the appellation, Troyville-Baytown, is automatically and synchronically extended to lower Louisiana, there can be but two conclusions, and both are faulty. One conclusion would have to be that Troyville occupation was missing from the region. There are simply no complexes which fit the criteria for recognition. The second erroneous conclusion would be the temporal alignment of the ceramic complex described above for South Louisiana components with a later time period, i.e., Coles Creek, which would be compatible with the upvalley appearance of the Pontchartrain and French Fork types.

Since there are no independent data bearing on massive migrations from Lower Louisiana during the Troyville-Baytown temporal interval and, to the contrary, populations seem rather to have been building and expanding, this author concludes that the archeological classification unit, labeled Troyville or Baytown, and the synchronic views which produced it are incompatible with the culture history of southern Louisiana. Baytown-Troyville is an historical accident; a product of time, place, personality, and then current archeological perceptions. In this, it is actually no different than any other typological or classifactory abstraction. For what it was originally intended--broad segmentation of cultural time--it served a useful purpose. For

many localities, north of the mouth of the Red River, it still has heuristic merit for identifying archeological components. Applying it below this latitude, such as has been done following Phillips' (1970) lead, has only produced archeological confusion and led to misunderstanding of coastal zone prehistory.

Its usage should be discontinued for South Louisiana, but rather than create a new set of typological problems by posing a replacement unit in advance of solid information on complex content, variability, and temporal parameters, the issue will have to remain temporarily open. At least now, the problem is recognized and effort is being expended toward its ultimate resolution.

Another issue of similar ilk is perceived for the southeastern edge of the Atchafalaya Basin. Since the southeastern section of Lower Louisiana was opened to archeological investigations, there have been emergent stories of foreign intrusions into the region. Again, the lead-in for such interpretations centered on pottery types. Pontchartrain Check Stamped, or check stamping under other names, has a virtual pan-Gulf distribution from western Louisiana through the Florida panhandle. French Fork Incised, also under various labels, traces a similar distribution (cf. Ford 1952). As early as 1936, Kniffen (1936) drew rather detailed comparisons between his Bayou Petre complex and sites around Mobile Bay. McIntire (1958), Saucier (1963), and Gagliano (1967a) followed suit by identifying certain pottery types, usually shell-tempered, by Eastern Gulf typological labels. More recently, Phillips (1970) and others have continued this trend of envisioning foreign influences and have reified them by according typological labels to certain "phases," which contain significant percentages of these "exotic" types. Phillips (1970) has also plotted a route by which these foreign invaders arrived in South Louisiana. Other investigators (Brown and Brown 1979) have postulated a possible reason for the attractiveness of Lower Louisiana to these intruders; they came seeking salt. The presumed foreign entrada has reached its most extreme form (and it might be added, a most logical form) with a recent hypothesis having preliminarily tested and testable consequences (Altschul 1978). Altschul (1978) has conceived a replacement model involving horticultural, militaristic, Mississippian expansion into

Lower Louisiana which resulted in displacement of indigenous folks who lacked either the will or the means to withstand the onslought. The Mississippians came in, took over the territory, and pushed the locals into new regions (one of which would have had to be the Atchafalaya Basin since it immediately borders the area under Altschul's purview).

This author has no qualms over the presence in Lower Louisiana of pottery types, which are identical to or closely resemble late prehistoric types from inland and Eastern Gulf regions, nor is the fact of the occurrence of shell-tempered ceramic fabrics (a presumed Mississippian correlate) questioned. The conceptual difficulty resides in the ease with which the elements of curvilinear incising and shell-tempering become translated into a social and political entity, that great and ever-expanding war machine called Mississippian. Presumably fueled by a maize-bean-squash economic mixture, borne by a superior socio-political carriage, responding to presumed stresses of large populations and growing cultural complexity, and perhaps wafted along on waves of religious fervor or covetous desires for new lands, Mississippian culture arrived in South Louisiana; that is to say, it arrived in the region if one places an unquestioned faith in that particular meaning of shell-tempering and complicated incised motifs. Of proponents of the Mississippian invasion hypothesis, it is tempting to ask what possible attraction, what magnet, could have drawn outsiders into the swamps and marshes of Lower Louisiana. Such country is endeared only to its natives. As the Houma would discover several centuries later, it is also an intolerant part of the world. External technological, economic, and social and political structures are not simply imposed on the country and its natives, with any lasting impact. Not even the industrial might and technological efficacy of contemporary oil companies has been imposed on the South Louisiana landscape without being changed as a result. What is being suggested is that a classic, militaristic Mississippian invasion into the region not only seems ecologically untenable but, if it did occur, it would not have been long manifested and would be difficult, if not impossible, to recognize archeologically.

Like most military operations, the front-liners would either have had to maintain long materials and sustenance supply lines or would

have had to quickly adapt to the local countryside. The maintenance of long distance supply lines was assuredly beyond the capabilitiss of even the most socio-politically sophisticated Mississippian groups. To have retained any semblance of their militaristic and political integrity, Mississippian outposts would seemingly have had to institute strong measures of territorial control and strict enforceable sanctions over conquered populations in order to have assured survival in an economic sense. In other words, systems of territorial tribute, taxation, or obligatory gift-giving would have had to have been immediately imposed for the postulated Mississippian organization to have continued for long as an identifiable foreign invasionary force. In this regard, it should be recalled that the Mississippian entrada is supposed to have been responsible for displacement of local populations, not for the reorganization and governance of the conquered.

Since the invasion model, as it is presently conceived, does not allow for this kind of adaptation (an ecologically incredulous possibility in South Louisiana anyway), there remains only the more culturally sound hypothesis that Mississippian populations would have had to change, and change rapidly, to accommodate to the environments of Lower Louisiana. Such essential modification would have initially involved the economic structure and attendant thereon virtually every other aspect of things Mississippian. They would have been quickly recast in a South Louisiana mold (cf. the Houma of the nineteenth century). Lost by the wayside would have been any adherance to the addage, "I'd rather fight than switch," because what or who would there have been to fight, except growing hunger pains. Foreigners did not simply come into South Louisiana, sequester land, and conquer local residents, no matter how numerous and mighty they may have been. It would have been too easy for natives to have just slipped into the swamps and marshes and disappeared.

If the Mississippian invaders, as the present model presumes (Altschul 1978), were left to fend for themselves and if they stayed for any length of time in the new region, they would have not long remained identifiably Mississippian. They would probably have become just another Lower Louisiana tribe, reshaped from their original form into a structure more compatible with local ecosystems. This has

happened time and time again in South Louisiana; the Houma have been redundantly mentioned in this regard. The various racial and ethnic enclaves which became today's Cajuns provide other excellent case studies. This likelihood has implications for archeological capacities to identify such singular, or even repeated, historical events. The suspected rapid transformation of Mississippian culture, presuming momentarily that it was imported into the region, would have left few, if any, traces, and unless the first outpost, fort or palisaded village or two that were established just happened to be excavated and all material cultural items bespeak foreign origin, there will be little chance of ever recording Mississippian entrada and confirming the invasion hypothesis.

One might ask then, how can the shell-tempered pottery and the Natchezan and Eastern Gulf decorative types be accounted for. To this no sure reply is forthcoming; not because alternative explanatory models have yet to be conceived but because supporting data simply have not been assembled. The following discussion sets forth an alternative model for consideration.

The occurrence of shell-tempered pottery and Natchezan, Moundvillian, and Floridian design styles can be viewed in terms of cultural contexts, other than invasionary events. Zones of style-sharing, for example, already mentioned in connection with the Troyville-Baytown problem, have bearing on the presence of Mississippi pottery technology and stylistic uniformities. That the sharing phenomenon itself is not understood is not the same as saying that it did not operate. Archeologists are all too familiar with the consequences of aboriginal style spheres to doubt that some cultural mechanism or mechanisms was responsible for carrying decorative ideas from site to site and beyond. If such mechanisms had not functioned there would be no such things as pottery types, culture historical units, traditions, horizons, or the like. There would only be individually unique pottery vessels, every one distinctive from every other, except possibly those made by an individual during her lifetime. The fact that types can be formulated and can successfully be applied to ceramics from one site to another, from one locality to another, and sometimes across areas as broad as the Gulf Coast and the Lower Mississippi Valley, is certain proof that

styles spread. This seeming tautology is simply an admission that culture exists, is patterned, and is expansive, and without really knowing how and why it works, it is sufficient to understand that it did.

Coupled with the concept of stylistic interaction spheres are interesting historical narratives bearing on Indian-Indian relationships and tribal shifts following initial European contact. For example, descriptions of the friendly interactions between the Chitimacha and the Natchez, relations bordering on beliefs of common origin and intimate familiar ("brothers") attachments, are recorded (cf. DuPratz 1774; LaHarpe in Conrad 1971; Swanton 1911). Intermarriage seems to have transpired, and reciprocal visits by political delegations, families, and friends seem to have been paid. The records also bespeak of close ethnic, political, and social ties between the Avoyels, who lived around the upper margins of the Atchafalaya Basin, and the Taensa, a Natchezan branch living across the Red River. Iberville, in fact, gave them the name, "little Taensas" (Iberville in Brasseaux 1979).

Also of considerable relevance are the migrations and simple shifting around of tribal groups following the DeSoto expedition of 1540-1543. Some of these relocations have been historically documented by later French writers and some have been shown archeologically, but many, perhaps most, remain obscure, undetected, and unrecorded. The Tunica, for example, are known to have moved down valley in a series of successive migrations and eventually wound up at their present Coulee des Grues home on the Marksville Prairie at the northwestern border of the basin. The original Tunica hearth lay opposite the mouth of the Arkansas River in western Mississippi (i.e., the aboriginal province of Quizquiz, according to Brain 1977), a location which lay close if not actually in the midst of the old Mississippian territory.

The Houma group of the Terrebonne low country was comprised of the survivors of several tribes, much reduced by White contact, all of whom were original occupants of the east bank of the Mississippi River. United in this aggregate were the dominant Houma, the Quinipissa, Mugulasha, Acolapissa, and probably several other tribal

remnants (cf. Swanton 1911); among these the Acolapissa, had actually vacated an original homeland along the Lower Pearl River, which forms part of the present border between Louisiana and Mississippi.

What is being suggested by joining the concept of style interaction sphere with the records of the physical displacement of various tribal groups after 1540, and possibly before, is an alternative way of viewing the presence of so-called Mississippian pottery in Lower Louisiana, a view that has absolutely nothing to do with a late prehistoric Mississippian military invasion. The migrant tribes, identified above, left homes which fell within various Mississippian ceramic style-sharing spheres; the Acolapissa, and possibly to a more attenuated degree, the other east bank Muskhogean tribes, from the Eastern Gulf (Moundvillian-Floridian) interaction zone; the Tunica from the upvalley Mississippian sphere via the Natchezan zone. Resident tribes maintaining close and friendly relations. i.e., the Natchez-Taensa-Avoyels connection and the Natchez-Chitimacha connection, could have furnished additional inroads directly into South Louisiana. Both of these means could have provided the avenues by which presumed Mississippian ceramics found their way into the region.

In this sense there is little gain, heuristic or otherwise, in the continued application of the term, Mississippian, to the latest purely aboriginal situation in Lower Louisiana. The term itself is so imbued with socio-political, economic, and expansive militaristic overtones that its mere mention conjures mental images of a great, sophisticated, superior, and ever expanding warring force. And as has been suggested, there is an equally, if not more, plausible way to account for "Mississippian presence" in Lower Louisiana. At present, we have not assembled the necessary archeological data nor provided the essential chronological framework to support this less spectacular and less eventful hypothesis of rather normal relations and simple interterritorial tribal movements. Nonetheless, the simple fact that such an alternative to the invasion model can be offered is, in this author's opinion, ample reason to reactivate the useful term Plaquemine, which Phillips (1970) rather effectively purged from existence. There is really nothing in a name <u>per se</u>, but the more normal state of affairs

signaled by the reference, Plaquemine, seems, in light of the preceding discussion, far more preferable than the value-laden term, Mississippian.

CONCLUSIONS

The great Atchafalaya Basin, the largest overflow swamp in North America, was the home of Indians for millennia. Unique problems connected with archeological investigations in such dynamic flood water basins and the peculiar history of the investigations in and around the Atchafalaya swamp have brought not only a very restricted perspective of local prehistory but a real short-fall in many categories of relevant information. In short, we know very little about substantive prehistory in the Atchafalaya Basin and, in many cases, what we think we know is not based on findings from the basin proper but from outside regions, so distinctive from the swamp that applicability may be questioned. Virtually every aspect of Atchafalaya prehistory is an issue, from chronological segmentation and culture unit systemization to simple descriptive and reconstructive categories dealing with settlement, subsistence, and higher-order levels of culture interest. The state of understanding is so infantile and the technical problems with acquiring representative information so numerous that it would be highly pretentious to claim that the Atchafalaya Basin has contributed greatly to the explication of culture change, evolution, and historical events among Native American populations in the Lower Mississippi Valley.

One thing seems rather certain. The ecological uniqueness of the region commands unique archeological perceptions and interpretations. The Atchafalaya swamp dwellers were living participants in specialized ecosystems and the results were both varied and special. To view the cultures of the Atchafalaya region without regard to these specialized orientations is to misconstrue the real meaning of culture itself, as man's extrasomatic adaptation.

CHAPTER 5

CULTURE HISTORY IN THE ATCHAFALAYA BASIN, 1700 TO PRESENT

INTRODUCTION

During the historical period, interaction between cultural and natural processes in the Atchafalaya Basin occurred in a number of interrelated areas. First, throughout much of its recorded history, the basin has functioned as an impediment to east-west travel and transportation. Current settlement patterns in and around the basin are at least partly due to the build up of human populations at transition points along routes through this difficult terrain.

Secondly, and more recently, the basin has served as a major artery of north-south water transportation between the Gulf of Mexico and the Mississippi River north of Baton Rouge. The completion of the Intracoastal Canal across the lower portion of the basin has accentuated this usage and modified human settlement patterns, concentrating them in areas which cater to this activity.

Third, and even more recently, the basin has been subjected to the exploitation of non-renewable resources in the form of oil and gas and longterm renewable resources such as timber. This has led to the dredging of canals, and the corresponding creation of fill areas. Dredge and fill activities have, in many cases, modified the hydrological regime of the basin as well as the pre-existing distribution of flora and fauna. This has led to subsequent modification of human cultural activities such as recreation and subsistence.

Finally, the basin has served as the setting for more permanent forms of cultural activities such as settlement, subsistence, and recreation.

While the first three areas of interaction have generally highlighted

human modification of the physical environment, this last area of interaction has led to the modification and emergence of a distinctive occupational subculture. The transition from subsistence or cash crop agriculture to essentially a hunting and gathering or extractive economy interwoven with modern technology, has resulted in the surfacing of unique human economic techniques and processes. Furthermore, since this emergent subculture has formed over a considerable time span, is still undergoing modification, and is the result of some rather clearly defined economic and social variables, it offers an excellent chance for the examination of the process of human cultural change. Accordingly, much of this narrative will focus on the complex system of interaction between relatively permanent forms of human activity and the Atchafalaya Basin as an ecological unit.

EARLY EXPLORATIONS

Although De Soto had discovered and crossed the Mississippi River 140 years earlier, it was Rene Robert Cavelier, Sieur de la Salle who first sailed down the Mississippi in 1682 and claimed the great river and the lands that it drained for France. La Salle's attempt to establish a French colony near the mouth of the Mississippi in 1685 ended in failure. Thirteen years later, France tried again in the person of Pierre le Moyne, Sieur d'Iberville. Iberville settled near present-day Biloxi, but not before a reconnaissance of the Mississippi River which gave names to the sites of Baton Rouge and Pointe Coupee. France's colonization attempts for the next 63 years were in general abject failures. However, French influence was to last through the period of Spanish control and even after Louisiana was acquired by the United States in 1803 (Taylor 1976:3-7).

EARLY SETTLEMENT PRIOR TO 1803

Early access to and within the basin depended entirely upon water transportation (Stoddard 1812:166). There were two main routes across the basin prior to 1803. Both routes entered the swamp through Bayou Plaquemine, a Mississippi River distributary, on the eastern side of the basin. The northern route followed Bayou Plaquemine to Bayou Grosse Tete and then

along Grand River, Atchafalaya River, and Bayou Courtableau to Bayou Teche at Port Barre (Figure 1.1). The southern route followed Bayou Plaquemine, Grand River, and Bayou Sorrel into Grand Lake. The route continued through the lake into Bayou Teche via the Lower Atchafalaya River near present-day Patterson, Louisiana. Minor routes led from Grand River through Bayou Pigeon to Grand Lake, and from the lower Grand River through Lake Palourde to the Lower Atchafalaya River (Comeaux 1972:10) (Figure 1.1). Passage through Bayou Plaquemine depended upon the level of the Mississippi River, and although the bayou was cleared and dredged in 1770, reliable passage through the basin was available only at high water until recent times (Comeaux 1972:9; Robin 1966:183-4). Smaller boats could, however, be transported over land around the shallow entrance of Bayou Plaquemine. By 1805 a private portage service, complete with log rollers and mules, was operating on a sporadic basis (Prichard, Kniffen and Brown 1945:26-27).

Early settlement was limited to the periphery of the swamp and occurred entirely along the Teche ridge. In 1765 Poste des Attakapas (St. Martinville) was established by several hundred Acadian refugees who arrived in Louisiana via Santo Domingo (Rushton 1979:319). After Louisiana was ceded to Spain in 1766, a small Spanish settlement was established at New Iberia under the leadership of Don Francisco Bouligny in 1779 (Conrad 1979a:4-7). Although never substantial, immigration and settlement continued steadily through the Spanish period. A 1784 account notes some of the settlements (Hutchins 1784:46-47):

> In ascending the Tage river, it is 10 leagues from its mouth to an old Indian village, on the East side, called Mingo Luoc, which signifies Fire Chief. From this village to the habitation of Monf. Mass, which is on the West side, it is 2 leagues. One and an half leagues further up, on the East side, is the village de Selieu Rouge, from whence there is a portage of half a mile to lake Chetimacha. Two leagues further up the river, and on the West side, is the habitation of Monf. Sorrel. From whence, to the town la Nouvelle Iberie, on the same side, it is tolerably well settled. From this town about six leagues westerly across the country is situated the village de Skunnemoke or the Tuckapas /near Lafayette/, on the Vermillion /sic/ river, . . . The river Tage, is in general better than 100 yards wide, with gentle current, and a small ebb and flow of about 8 or 10 inches. It narrows as you ascend it, where in some places, it is not 50 yards over. Vessels drawing from

> 7 to 8 feet water may go from the sea to this town without any obstructions . . .

Settlers in Louisiana along the natural levees were primarily subsistence farmers growing pumpkins, maize, and beans (which were frequently planted together) and rice (Pittman 1770:23, Knipmeyer 1951:K7). Cash crops included indigo and cotton although some planters were experimenting with sugar cane (Pittman 1770:23). During this period slaves were also introduced along the Teche (Conrad 1979b:5). By 1797, Thomas Berwick, a native of Pennsylvania, was living along the Lower Atchafalaya River at what was later to be designated Berwick Bay and the town of Berwick. Thomas' son Joseph and wife Eleanor were listed as recipients in a Spanish land grant of 70 arpents dated July 3, 1797 (The Morgan City Historical Society 1960:11).

Many of the settlers in Louisiana prior to 1803 were refugees from Acadia (Nova Scotia) and Creole French forced out of Santo Domingo during the slave rebellion (Rushton 1979:322-323). Although some settled in the Teche region, most established themselves along the banks of the Mississippi River at New Orleans and upriver at the so-called Acadian Coast (Taylor 1976:25). In 1803, Louisiana was returned to French control but only for 20 days as part of a political maneuver enabling Napoleon to sell the territory to the United States. By 1803, population of the area (i.e., the Attakapas District) had increased to 3746. Of this total, 2,270 were white, 210 were free blacks, and 1,266 were slaves (Robin 1966:98).

FACTORS LEADING TO THE GROWTH OF THE PLANTATION SYSTEM, 1803-1861

Immigration began in earnest with the Louisiana Purchase. Between 1803 and 1810, the slave population doubled. Between 1810 and 1820, the entire population of the state doubled again (Rushton 1979:323). Throughout the territorial period and early statehood (granted in 1812), population along the natural levees of Bayou Teche grew rapidly.

It was during the early days of the American period that agriculture became quite diversified, and cash crops grew in importance. Robin (1966: 198-207), traveling through the Attakapas region in 1805, recorded a variety of domestic animals (sheep, cattle, pigs, poultry of all types, oxen, dogs, and horses), gardens or subsistence crops (pumpkins, corn, a

variety of beans, and rice), as well as a number of commercial agricultural products (cattle, cotton, indigo, and sugar cane). About 1810, the Attakapas Canal between Bayou Lafourche and Lake Verret was completed (Prichard, Kniffen and Brown 1945:757). This opened a new route into the Basin from the east, a route which was, however, like Bayou Plaquemine, only useful during periods of high water in the Mississippi River.

In 1819 when James Leander Cathcart undertook a survey of the timber resources of the Atchafalaya Basin, settlement was continuing on the high natural levees of Bayou Boeuf and Bayou Teche and was beginning in interior sections of the Basin such as Bayou Plaquemine (Prichard, Kniffen and Brown 1945: 760). St. Martinville had grown to a town of approximately 700 with a church, jail, courthouse, a bridge across Bayou Teche, and a ballroom (Prichard, Kniffen and Brown 1945:825-26). Cathcart gave a colorful narrative of the contemporary lifestyle (Prichard, Kniffen and Brown 1945: 789-790, 795-796):

> We landed at a white man's house on Tiger Island where La coup /Bayou Boeuf between Lake Palourde and Bayou Chene/ is from 80 to 100 yards wide, there is likewise a house on Lafourche Isle /Cathcart's name for the land surrounded by Lake Verret on the north, bayou Lafourche on the east, Lake Palourde on the west, and the Gulf of Mexico on the south/ opposite to it own's by one Garrett Taylor from Ouachitta - Pierre Moreaux at whose house we landed is a sailor, a native of old France, and is about 60 years old, his wife is a native of Bedford County Pennsylvania, about 33 and has two children the youngest a fine fat boy of a year old, their house is fix'd on a hill of clam shells, which bounds on Indian burial ground, from whence they frequently dig human bones, and once they found a whole skeleton; behind the hill is a piece of good alluvial land; as low as the surface of the water, the soil appears rich and produces red maize, cabbage, garlic, beans, and sweet potatoes - they have some poultry.
>
> . . . . . .
>
> Sunday 24th / January, 1819/ remain'd here to refresh; Mr. Renthrop and his son are Taylors natives of Westphalia, came to Philadelphia some years ago, and have traveled through many places in the United States since, and about nine years ago settled upon this spot, they keep a tolerable good table for this part of the world, their beds are clean, provisions wholesome, liquors whiskey, taffia and bad claret, they are obliging but wholly illiterate. Their farm is not very extensive, but their garden is productive, they raise

> poultry and hogs in abundance, and some fine cattle, and this is the first place we have had milk with our coffee since we left New Orleans; fresh butter is entirely out of the question, and salt cannot be procured except in the city; hog lard is made its substitute in all culinary purposes, the land everywhere is rich alluvion, capable of producing every necessary of life, and many of the luxuries; but owing to the prevalence of slavery, the whites are lazy, and in general dissipated, and confine themselves to the culture of cotton and sugar alone, because more production with less labour; the flats (so call'd) used at this ferry, are form'd of two large canoes, on which is a platform for houses, the price of carriage for a man and horse is 12 dollars, and for black cattle 1.50 cs per head they cross the lake to the canal which runs into Lake Verrett from Lafourche a distance of 30 miles, and from thence passengers proceed to Donaldsonville, and take passage in steam boats that pass either up or down the Mississippi, at the rate of 12½ cts per mile. The flats or double canoes, row with two or more oars, and sail when the wind is fair, the rudder is on one canoe only, the pilot sits on the platform, and steers with a yoke and lines, as he would a gid or wherry.

As settlement continued along the stream levees in and on the margins of the basin, the growth of commercial agriculture was stymied because of the lack of an effective and easy means of getting products to market (primarily New Orleans). The watery nature of the basin practically assured that the primary system of marketing transportation would make use of the natural transportation linkages--the waterways. Virtually all European and Euro-American travel in the basin had been by boat. Robin observed (1966:100):

> People in this country are so accustomed to travel by water that the generic term "voiture" /standard French for "carriage"/ is always applied to a boat. If a Louisianian says to you "I brought my voiture"; "Can I give you a lift in my voiture"; he is referring to his pirogue or skiff as a Parisian using the same word would mean his coach.

However, the steamboat, which enabled rapid, efficient, and economical means of water transportation, began to make significant inroads in southern economy by the first few decades of the nineteenth century. Its impact on the Atchafalaya Basin was enormous and lasting.

The steamboat, which has perhaps been incorrectly attributed to Robert Fulton in 1807 (Hunter 1949:5), was first developed in the eastern United States but soon spread to rivers west of the Appalachian Mountains.

Here, on these large, sometimes swift rivers west of the Appalachians, the steamboat underwent transformations which rendered it the work-horse of the nineteenth century.

Hunter (1949;66) notes some of these adaptative changes:

> The western steamboat, however, through a process of elimination, adaptation, and accretion, gradually lost all but the most generalized resemblance to a ship and became a fresh-water, shallow-river vessel which in its final form was even less suited to marine navigation than the first steam vessels in the West were adapted to use on the rivers. The model, proportions, and manner of construction of the hull underwent radical changes. The keel disappeared, the hull lost depth, and the superstructure mounted higher and higher. In the stern wheel boats the rudder was extended forward as well as aft of the sternport; the single rudder gave way to two, three, and even more rudders.

By 1815, runs between New Orleans and Louisville were being made on a regular basis, and a decade later, the steamboat had put in its appearance on most western rivers. The steamboat was an ideal solution to the water transportation problem for several reasons. First, the boats had tremendous cargo capacities. Most steamboats could carry their own weight in cargo. Considering a hogshead of sugar weighed approximately 400 pounds (180 kg) and a bale of cotton around 450 pounds (205 kg), load capacities were of extreme importance. Secondly, the steamboat, after its adaptive evolution, became a shallow draft vessel. This was accomplished by both hull and propulsion system design changes; hulls became flat-bottomed and saucer-shaped, and paddle wheels were moved so that they did not extend below the vessel hull. By the 1850s, steamboats (of the 190 ton class) were operating which had an unloaded draft of 14 inches (about 35 cm) and a loaded draft of 28 inches (71 cm) (Hunter 1949:84). Thirdly, maneuverability was considerably improved. Paddle wheels worked as well in reverse as in forward; screw propulsion systems do not. This factor was quite useful for a vessel which made bow-on landings to load or unload cargo every few miles along the river. Also on side wheel vessels, the paddle wheels could be rotated in opposite directions, giving a turning radius no longer than the vessel (Hunter 1949:167). Fourthly, the steamboats were mechanically quite simple and repairs could frequently be made on the spot. Finally, fuel (wood) was readily available virtually anywhere.

Steamboats first reached the Atchafalaya Basin in 1819. The 103 ton Louisianais, constructed in New Orleans, was one of the first. It served primarily as a cattle ferry boat in the lower Atchafalaya Basin. By 1820 the Attakapas Steamboat Company operated the 295 ton Teche between New Iberia and New Orleans via the Gulf of Mexico (Brassaux 1979:211). Following the demise of the Attakapas Steamboat Company (due to the loss of its government monopoly), Captain Robert Curry brought his 48 ton Louisville through Bayou Plaquemine and the Atchafalaya Basin to Franklin in 1825 (Planter's Banner 4/27/1848). Smaller steamers used Bayou Plaquemine (and later the improved Attakapas Canal) and the safer interior route to Bayou Teche during periods of high water. Since high water occurred in the late winter and spring, when agricultural products were ready for market, steamer traffic took on a decided seasonal emphasis. Larger steamers were restricted to the Gulf route, down the Mississippi River from New Orleans to Bayou Lafourche, and then through the Gulf and Atchafalaya River to Bayou Teche. Since the Teche was navigable year-round by larger steamers up to New Iberia, New Iberia soon became a major inland center for water transportation.

> New Iberia, being the real terminus of deep-water navigation on the Teche, began to assert its commercial importance in the forties /1840s/. The interruption of navigation through Plaquemine during the low stage of water in the Mississippi created a demand for a class of gulf steamers of large carrying capacity. These steamers, not being able to ply above New Iberia, landed their large cargoes, destined for all points south and west on the Vermilion and Calcasieu, at New Iberia. It was then that she became the radiating point for the trade of a large territory, extending some sixty miles in all directions. About the same period, and continuing until the completion of the New Orleans, Opelousas and Great Western Railroad from Morgan City to its western terminus, New Iberia became the distributing point for mail and passenger traffic overland into Texas. New Iberia also controlled a large cattle trade from Texas and adjacent territory. It was at this juncture that she assumed commercial supremacy over St. Martinville and Franklin. (Duperier 1979:22)

In addition to passengers and cargo, livestock were commonly transported by water.

> The principal industry of the country was grazing large herds of cattle that ranged from the Cypremort to the Mermentau and Calcasieu. The entire Opelousas country, including Lafayette and St. Landry parishes, was used for grazing purposes. The Pellerins, the Wickofs, the Dupres

> and Moutons branded thousands of calves annually. The cattle trade of the early days supplied the Mississippi River plantations with beef. The use of Western pork and cured meats was unknown at this period. Francois Duplessis, a refugee from Santo Domingo, a civil engineer by education who subsequently owned a sugar plantation immediately fronting Morbihan plantation in consideration of some engineering work executed by him at the mouth of Bayou Plaquemine, secured an exclusive privilege for transporting cattle and livestock from Bayou Portage, in the rear of Loreauville, to Plaquemine. This proved a valuable franchise over a short route and has often suggested itself to me as a proper line for the building of a railroad from the east bank of the Teche to the Mississippi. Immense herds of cattle were constantly driven to the point of embarkation on the Duplessis steamers, which after a few hours were landed on Bayou Plaquemine to be driven thence up and down the Mississippi coast. (Duperier 1979:59-60)

Steamboat travel was not without hazard.

> Travel aboard antebellum steamboats was also dangerous. Teche Valley pilots all to frequently whiled away their off-duty hours by drinking, and playing cards with the passengers in the bar. Fatigued and often inebriated, the pilots returned to duty frequently to steer their craft over dangerous shoals and snags. In fact, between 1825 and 1860, at least 19 vessels, 89 lives, and thousands of dollars in goods were lost along the Teche and in the Atchafalaya Basin as a result of mishaps. Ocean-going steamers were not much safer, as they were frequently top-heavy and thus were easy prey for the violent thunderstorms for which the Gulf Coast is noted. (Conrad 1979b:215)

In spite of seasonal limitations and natural dangers, the steamboat provided the efficient and essential means of transportation from farm to market that permitted the rapid development of the plantation system along the margins of the Atchafalaya Basin.

THE PLANTATION SYSTEM IN THE ATCHAFALAYA BASIN

The growth of the plantation system in the Atchafalaya Basin resulted from the wedding of a socio-economic system born in southern states east of Louisiana with a locally successful crop--sugar. The familiar ideological bases and means for the plantation system spread westward with the emigration of English-speaking settlers.

> The plantation economy must be recognized as a distinct and individual force in the entire culture complex. It consisted of an entirely different assemblage of traits and the people associated with this complex were of a different background than the rest of the settlers. Their patterns of culture show relationships with the plantation system of non-French settlements in the southeastern part of the United States (Knipmeyer 1951:K6).

Rivers provided the natural transportational logistics and the steamboat, the work-horse for system functioning. The period of most accelerated development of the plantation system transpired between 1830 and 1860. Large plantations resulted in the displacement of the small subsistence farmers and stock-raisers, particularly along the linear stretches of prime land, the natural levees of streams. As Sitterson (1953:47) noted:

> West of the river, along Bayou Lafourche and in the Attakapas parishes of St. Mary and St. Martin, small holdings were still the rule; in 1828 there were only 34 sugar plantations producing more than 100 hogsheads, compared with 83 producers of less than 50 hogsheads. But the invasion of this area by the large plantation unit was already under way in the 1830's and proceeded rapidly in the next three decades. As a result, a section that as late as 1820 was composed of small landholdings owned generally by Acadian and Spanish peasants (petits habitants) with few or no slaves and cultivating mainly cotton, corn, rice, and peas, gradually succumbed to the encroachment of the large plantation.

In other areas of the South, the plantation system developed around cotton. In southern Louisiana, including the Atchafalaya Basin, the system came to center on the production of sugar. In Louisiana, early plantations along the Mississippi produced indigo and tobacco. Indigo, which was more important than tobacco, grew wild in the lower Mississippi Valley. However, the cultivated variety, introduced from the West Indies, was grown on Mississippi River plantations (Knipmeyer 1956:23). Between 1793 and 1796 an infestation of caterpillars attacked the indigo crops, threatening the entire Louisiana plantation economy (Knipmeyer 1956:26). Indigo never recovered as a cash crop, for after three disastrous years, the planters found a more profitable substitute, sugar.

Sugar had been produced on a limited basis in Louisiana since earliest colonial days, and throughout the eighteenth century, rum (tafia), produced from local sugar, was about the only distilled drink available. It was after 1800 that production of sugar became a serious enterprise.

By 1835, the transition to sugar was virtually complete, and the sugar plantation began to develop as a social and economic way of life.

The plantation system of the Old South was an agrarian system generally oriented around a single cash crop and marked by a rigid social stratification system. The social organization was characterized by four distinctive classes. The upper class consisted almost entirely of large plantation owners. Although there were a few relatively well educated non-land owners who were treated as equals by the upper class, these individuals were generally transient and did not constitute a stable element in the local hierarchies /cf. Timothy Flint's (1826) treatment by the plantation owners in Louisiana 1815-1825/.

The middle class was characterized by smaller plantation owners and skilled craftsmen. The distinction between middle and working (or lower) class farmers lay in the type of agriculture. Cash crop agriculture was inevitably upper or middle class, while subsistence agriculture was indicative of the lower class /cf. Robin's (1966:191) distinction between the Acadian life style and that of more "pretentious" families/. The lower class was composed of subsistence farmers and journeymen laborers. Below them in the social hierarchy were slaves. Mobility within the upper three (primarily white) classes occurred in both directions, but mobility between these classes and the slave class occurred only in an upward direction. Thus, while it was possible for a slave to become a "free man of color," and even to acquire land and other slaves (Raphael 1975:122), downward mobility by whites into the slave class was impossible. Although white indentured servants were common earlier in colonial history, the period of indenture was clearly defined, and was not inherited.

Relations between whites of all classes and Indians were maintained at such scales of social distance that Indians never really figured in the white-black social hierarchy. The Indians remained totally outside the system. Early attempts to enslave Indians, particularly the Chitimacha, were abject failures. These Indians, who possessed a stratified social system every bit as complex as the plantation hierarchy, were all too familiar with the system to be thrust into its lower levels. As entrepreneurs, middle-men, in the stock, tallow, and fur trade, Indians fared somewhat better. But the enormous

differences in ethos and world-views kept integration practically nill. The Indian took from the whites certain useful elements of material culture, as well as some unfortunate traits, and generally stayed away from white contact. Whites took from the Indians the main enabling basis for plantation economy--the land.

In its earlier stage of development through the 1840s, social stratification was incipient and infantile. This was a time of land acquisition, clearing of vast acreages, establishing managerial systems, and just plain hard work. Fortunes were made and lost in the unpredictable sugar market. With industry and luck, many planters became wealthy; those who were lax, floundered (Sitterson 1953:71). The really successful sugar planters were self-made men. Their success was not inherited. With the continued acquisition of cheap uncleared land and slaves to work it, social distinctions between the wealthy planter and the other social classes became stronger and more rigid.

By the 1850s, the plantation society was in full bloom in the Atchafalaya Basin area (Sitterson 1953:70). The wealthy planters evidenced life styles and value systems characteristic of the upper class everywhere, a life style dominated by leisure and recreation, travel and conspicuous consumption.

Much of the travel undertaken by the upper class was to New Orleans, the North, or Last Island (Isles Dernieres). New Orleans was the social and economic center of Louisiana, and larger planters were drawn there several times a year to make necessary financial arrangements for their sugar enterprises. Many planters, despite their large land holdings, were heavily mortgaged in order to expand their sugar operations and maintain a high standard of living (Sitterson 1953:72). New Orleans also provided entertainment not available in rural south Louisiana, as well as luxury wares befitting upper class status.

One of the favorite vacation spots, however, was Last Island. Regular steamer service from Brasher City was available by the 1840s and by the 1850s, many planters had cottages on the island. In 1856 a hurricane struck killing hundreds of wealthy vacationers and ending the island's tourist popularity (Kane 1943:56-60).

Leisure time, outside of travel, was variously spent hunting, raising and racing horses, entertaining, and reading (Sitterson 1953:77-84). Many planters had extensive libraries, and in the absence of public education,

many upper class children learned the arts and letters through private tutors. During the 1850s, a private school which prepared students for college in the north operated in Franklin (Sitterson 1953:85).

At the bottom of the social scale were the slaves. A census of the Attakapas country taken in 1813 listed 1,266 slaves, 210 free persons of color, and 2,270 whites (Bergerie 1962:18). The treatment of slaves varied from plantation to plantation. Robin (1960:233-261) describes very poor conditions for slaves in 1804. However, as the sugar economy solidified, slaves became quite valuable and apparently their treatment improved (Sitterson 1953:90-100). Living conditions were always crowded, family structure extremely tenuous, and food and clothing were generally simple but adequate. In 1853, the average number of working slaves per plantation was 37 in St. Mary Parish and 26 in St. Martin Parish (Bergerie 1962:17). Even among slaves, status differences were evident (Sitterson 1953:90-91).

> The driver was a key figure both in the work of the plantation labor force and in the society of the "quarter." This dual status placed him in a position of great power among his people, but required on his part the exercise of leadership and exceptional judgment to retain both their obedience and respect. The many minor problems that arose in the everyday life of the slaves usually never went beyond the driver. He intervened to prevent possible trouble between two rivals for a likely looking girl; he gave aid and comfort to the sick; he kept quarrels and feuds from disrupting harmonious community life. When he erred seriously in handling problems, resentment was certain to follow.
>
> Above even the driver in social status, at least in their own estimation, were the house servants. Since they lived closer to the planter's family there were many opportunities to gain the favor of the master. Usually such Negroes were selected because of intelligence, training, appearance, and reliability, and their position in the Negro hierarchy was certainly a high and envied one. Since planters and their families traveled extensively, the household was often left under the supervision of a house servant.

The common field hand had acquired little status within the slave community, and his life style reflected this lack (Sitterson 1953:92).

> Negro clothing consisted of shirts, pants, coats, and shoes for the men, and frocks, underclothing (drawers and chemises), coats, and shoes for the women. Some planters purchased ready-made clothing, but the more usual practice was to purchase materials and have the

> clothes made on the plantation. Shoes were either brogans or boots, the latter used by field laborers while ditching and working in the swamps. On some plantations field workers received two pairs of shoes a year, one in the spring and one in the fall, while on others they were given only one pair; going barefoot throughout the summer was apparently a common practice.
>
> Plantation journals rarely give descriptions of the slave quarters. Other evidence indicates that they generally consisted of one or two room whitewashed cabins of wood arranged in rows. It is not unreasonable to suppose that the small number of rooms contributed neither to cleanliness nor to morality.

One of the by-products of these crowded conditions and lack of sanitation facilities was the ever-present threat of illness, which in the case of yellow fever and cholera frequently reached epidemic proportions. In 1833 and again in the winter of 1848-49, cholera ravaged southern Louisiana killing thousands (Sitterson 1953:93). While such epidemics were not common, cholera remained a problem until the beginning of the twentieth century.

Less common than cholera but more virulent, yellow fever made its appearance in the lower Atchafalaya in 1839 and after the Civil War in 1867 and 1878 (Conrad 1979b:132-135). Introduced into Louisiana in the 1790s from the Caribbean, yellow fever decimated nineteenth century urban populations in southern Louisiana. Unaware of the cause of the disease, or the fact that it was spread by the Aedes aegypt mosquito, nineteenth century treatment and preventative techniques did little to control its spread (Conrad 1979b:134-139). During the 1867 epidemic, the town of New Iberia with a population of approximately 1,500 had almost 1,000 cases of yellow fever and over 100 deaths (Conrad 1979b:139). Ironically, the steamboats, which made the plantation way of life feasible, were also responsible for the spread of cholera and yellow fever. The large scale movement of human populations throughout the area facilitated the spread of disease and increased the probability of epidemics. While slaves were more commonly the victims of cholera because of crowding and poor sanitary conditions, the ever-present mosquito did not distinguish social classes. Thus the period marked by the growth and decline of the plantation-dominated economy in the Atchafalaya Basin area was also noteworthy for its attendant loss of life due to illness.

By the middle of the century not only was the Teche Ridge heavily settled, but the plantation system had also spread to the adjacent levees

of Bayous Black and Boeuf and to the interior of the basin. The change along Bayou Black was swift and as one contemporary noted, dramatic (Anonymous 1850:145-146).

> We will next speak of an important section of country bordering on Bayou Black. This bayou has its origin near Thibodeaux, Lafourche, and its general bearing is toward the Attakapas country. It contains more tillable land than any other in the parish, and the lands are considered of unsurpassed fertility. They have been of later settlement and have the advantage of being new. Though a great portion of this bayou a few years past was new, and the wild deer, and bear, and some say buffalo, prowled unmolested among its solitudes, yet, as if by magic, the wilderness has become transformed and the bayou become thickly inhabited, and the refinements and blessings of society become established along its banks. We notice large plantations, fine dwellings, with the yards and gardens arranged with taste and comeliness. There is heard the sound of the steamboat bell announcing an arrival from New Orleans, and we see schooners loading with the sweets of the sugarcane for a distant city. There are many plantations on this route which would vie in improvements and appearance with the older sections of this country.
>
> What impresses one as novel and interesting, is the rapidity with which improvements have been made, and which is more clearly observable on the lower portion of the bayou: the transition from dense forest and dreary solitudes to large cultivated fields, and rich pastures, and improvements, which display taste and energy and wealth, have been so sudden and yet so substantial. We notice one which derives its name from a solitary and venerable "live oak" fronting the handsome dwelling, and which produces a sage contrast in its towering and brawny limbs to the various neat evergreen hedges and orange trees and bananas, which decorate the yard, and are not far from its vicinity. This is a new place, in cultivation five years, and yet, such is the congeniality of the climate, that taste and fondness for ornamental improvements and horticulture, abundantly repays the devotee. There are in this tract 2000 arpents, 400 in cultivation, with the area rapidly expanding. There are near 75 slaves who make 350 hogsheads of sugar. The quarter is situated a short distance from the road of the bayou, near a shady grove. As is usual, a cook house forms one of the buildings in the quarter, where abundant and well prepared food is supplied to the blacks. The sugar house is a large and beautiful building, with all the modern improvements of railroads & c., for expediting the work of sugar making. The saw-mill, a very necessary appendage to a large plantation, lies far in the background, to make it convenient to the cypress swamp to which it lies contiguous.

The interior of the basin began to be settled as early as the 1840s around Bayou Chene. Comeaux (1972:14, 107), drawing from local informants and the similarity of surnames, contends that the land around Bayou Chene was settled by migrants from the Lower Teche Ridge who considered this interior location their home, not simply lands to be exploited for quick profit. /A Ranthrope and a Bateman settled Bayou Chene during the 1840s. There was a Ranthrope who operated a ferry at the conjunction of the Teche and the lower Atchafalaya River, and a Bateman who was settled on modern Bateman's Island when Cathcart (Prichard, Kniffen, and Brown 1945) visited the area in 1819./ These were small plantations with few slaves which never produced crops equal to those along the periphery of the basin.

Agriculture also began along Bayous Pigeon and Sorrel and the Grand River by 1845 (Planter's Banner 6/17/1847). This area was developed primarily by absentee landlords and was heavily dependent on slave labor (Comeaux 1972:15). A third area, in the interior of the basin, in which plantation agriculture was practiced was along the natural levees of the Atchafalaya River north of Butte la Rose. This land was settled by 1818 (Darby 1818:52), and most of the land spoken for by 1838 (Prichard 1941: 42). Between 1850 and 1860, prime years for sugar production in Louisiana as a whole, floods ruined crop after crop in the interior basin. In addition to sugar, cotton was grown during this time period along Bayou Alabama (Comeaux 1972:15). Substantiating this, Coulon (1888:26) located an abandoned cotton gin on the bayou during his travels.

In 1857, the New Orleans, Opelousas and Great Western Railroad was completed from Algiers, on the Mississippi River across from New Orleans, to the Atchafalaya River at Berwick Bay. The railroad, which took five years to complete, was to reorganize transportation and settlement in the basin and to spark the development of what was to become the Atchafalaya Basin's major urban area. It was undoubtedly anticipation of the growth which was to occur with the completion of the railroad that motivated the owners of the Tiger Island Sugar Plantation to go into the real estate business. Tiger Island (the current site of Morgan City) was originally claimed by the heirs of Thomas Berwick (The Morgan City Historical Society 1960:13). Purchased in 1816 by Dr. Walter Brashear, a retired Maryland physician, Tiger Island was transfered in 1842 to Brashear's children who operated it as a sugar plantation. When construction of the rail-

road began in 1852, Brashear's children apparently decided that the plantation's location, at the junction of land and water routes, would render the property valuable as a town site. By 1855, advertisements were appearing in the New Orleans Picayune lauding the advantages of the new town of Brashear and offering to donate lots to skilled craftsmen who would settle there (The Morgan City Historical Society 1960:15). With the completion of the railroad, regular steamboat service from Berwick Bay to Galveston was initiated by the New Orleans, Opelousas and Great Western Company in conjunction with Cornelius Vanderbilt, a national shipping magnate.

The town grew rapidly. Located along a crucial transportation route, its advantages quickly became apparent to would-be settlers. By 1859, there were 40 homes, a Catholic church, and a number of businesses in Brashear. In 1860, the town was officially recognized by the state legislature, and the community looked toward its first experience as a boom town, an experience which was to be delayed by the Civil War (The Morgan City Historical Society 1960:16).

THE CIVIL WAR

Civil War hostilities in and around the Atchafalaya Basin were related to General Benjamin Butler's foray up the Mississippi River to capture New Orleans and Baton Rouge in May of 1862. With the fall of New Orleans, Confederate military authority in the Atchafalaya Basin area was temporarily in limbo. Forts under construction for the defense of the Atchafalaya River (Fort Berwick at the junction of Big Wax Bayou and the Atchafalaya River, four miles below Berwick, and Fort Chene eight miles below Fort Berwick on the Atchafalaya River) were abandoned and dismantled (The Morgan City Historical Society 1960:17-19). The establishment of a large Union garrison of approximately 13,500 troops in the New Orleans area provided a base of operation from which to launch attacks upon troublesome rebel strongholds along the Teche Ridge and the Opelousas Prairie.

Furthermore, the recently completed section of the New Orleans, Opelousas, and Great Western Railroad, between Algiers and Brashear City, provided a transportation and communication link through the Atchafalaya

swamp and practically guaranteed Union invasion of the rich sugar plantations along the Teche Ridge.

The first advances in the Atchafalaya Basin did not, however, come along this overland route. Lieutenant Commander Thomas Buchanan U.S.N. took Brashear City and Berwick on November 1, 1862 in an abortive attempt to trap Confederate troops under General Alfred Mouton on the east bank of the Atchafalaya River. Mouton had been active in the Bayou Lafourche and Donaldsonville areas. Retreating before Butler's vastly superior numbers, the Union strategy was to cut off Mouton's escape (Raphael 1975: 45-48). However, the Union scheme was foiled by alert Confederate defenders along Bayou Teche. Buchanan ascended the Lower Atchafalaya River and lower Bayou Teche with four gunboats. About a mile upstream from the mouth of Bayou Teche, Buchanan encountered the Confederate gunboat Cotton positioned behind obstructions in the Teche. The obstructions consisted of the steamer Flycatcher and an unnamed schooner loaded with brick. Both vessels were sunk lengthwise across the Teche (Raphael 1975: 56-57). Buchanan was forced to retreat with heavy damages and casualties. A second attempt by Buchanan was repulsed on November 5 (Raphael 1975: 58-59). The solitary actions of the Cotton, commanded by Captain E.W. Fuller, were simply a delaying tactic. Fuller was aware that Union numerical superiority would eventually prevail and that his position would ultimately have to be abandoned. However, he had been instructed to retard the Union advance as long as possible so that Mouton could complete fortifications further up the Teche (Raphael 1975:56).

Confederate forces in the Teche area were under the command of General Richard Taylor who was assigned to the District of Western Louisiana in July of 1862. The District of Western Louisiana had by this time expanded to fill the vacuum left by the fall of New Orleans. General Taylor, a veteran soldier and a native of south Louisiana, was quite at home in the bayou country. Throughout the fall and winter of 1862-1863, Taylor trained his troops and strengthened his fortifications. The primary Confederate defenses were being constructed at Fort Bisland (straddling the Teche near modern Calumet) and on the western bank of the Atchafalaya River at Butte la Rose.

This period of relative quiet was marred only by two brief confrontations. In late November, an unsuccessful Union attack was made on Petite Anse Island (now Avery Island). The intent of the action was to destroy

the salt works which were the main Confederate source of salt since the Union blockade had cut off the supply from England. Confederate intelligence learned of the invasion, and the Union flotilla was repulsed with minimal difficulty. Since the salt works were mining rock salt rather than evaporating salt from a spring, there was little to destroy, and this ill conceived mission brought Butler much criticism (Raphael 1975:62).

In mid-January 1863, a coordinated attack involving Buchanan's flotilla--the Calhoun, Estella, Kinsman and Diana--and cavalry and artillery under General Weitzel succeeded in driving the Cotton from its obstructed position on the Lower Bayou Teche. This opened the way for a Union invasion in the spring. Buchanan was killed in the skirmish, and the Confederates burned and sunk the Cotton in the Teche just above Cornay's Bridge (Official Records of the Union and Confederate Navies 1905:521-25).

Meanwhile, command of Union forces in the area changed hands; General Butler was replaced by General N.P. Banks. Banks brought 20,000 fresh troops from New York to join the New Orleans force, already 10,000 strong, in December 1862. It seems that the command change was political, for Banks lacked strong credentials as a military tactician (Edmonds 1979: 3). Banks' major objective was to open the Mississippi River for Union troop movements.

A principle obstacle was Port Hudson, a Confederate fortification on the Mississippi River north of Baton Rouge. Banks felt that the solution to this obstacle was an alternative route. He proposed to drive Taylor out of the Teche country and bring Union forces through Bayou Plaquemine north up the recently cleared Atchafalaya River to the Red River, and then east to the Mississippi River north of Port Hudson. This strategem would also have severed Port Hudson's main supply line--the Red River (Raphael 1975:73).

Weitzel, on the other hand, felt that the primary thrust should be made along Bayou Teche rather than through the Atchafalaya Basin, since the Atchafalaya River flooded annually in the spring and troop movements through inundated swamps would have been impossible. Weitzel proposed a pincer movement against Fort Bisland. Union troops would be moved up the Teche Ridge from Brashear City. Another contingent would be boated up the Lower Atchafalaya River to Grand Lake and then west to Indian Bend,

where Grand Lake approached the Teche Ridge. The landing of this force would be above Fort Bisland and would cut off Confederate retreat (Raphael 1975:73-74).

Weitzel's plan apparently found favor with division authority. By early April 1863, Banks had moved his headquarters to Brashear City along with three divisions of the Nineteenth Army Corps, commanded by Generals Weitzel, Groves, and Emory. The Union forces were approximately 18,000 strong. Weitzel occupied Brashear City, while Emory and Groves were in bivouac at Bayou Ramos and Bayou Boeuf respectively, and thus remained undetected by Confederate scouts in Berwick (Raphael 1975:86-87). On April 10, Banks detailed the impending offensive to Major General Halleck (Official Records of the Union and Confederate Armies 1882:294):

> On Grand Lake, just beyond the head of Cypress Island, and within a few miles of each other, are two shell roads, leading from what are reported as good landings, a distance of 1½ or 2 miles to the Bayou Teche. At one or the other of these landings I propose to disembark Grover, with the object of taking the enemy, who is at Pattersonville, in reverse and cutting off his retreat. The best say that our steamers cannot come nearer than about 1¼ miles to the shore, and all our information confirms the truth of this. From that distance the disembarkation must be by the flats which we have collected and prepared for that purpose. Using all the expedition possible, Grover cannot reasonably be expected to land and take up position in less than twelve hours. The boats cannot run at night. His landing must necessarily take place by daylight. To insure this he must leave here by daybreak. The moment Grover passes Pattersonville with his fleet the enemy will certainly take the alarm and if we let night interrupt the landing he will escape. We do not move against the enemy in front today, as I do not wish him to take the alarm any sooner than we can possibly help. We can whip him in any event, but if he stays where he is, and Grover gets into position before we attack in front, we shall destroy him. Everything promises success. Having destroyed the enemy's force and his salt works at New Iberia, I propose, if time permits, to push a force as far as Opelousas.

The plan was simple but its execution involved considerable complexity. It depended not only on a successful landing by Grover, under especially difficult conditions, but on precise coordination among the three field divisions under less than optimal terrain and battlefield conditions, without any means of effective communication.

On the morning of April 9, Weizel and Emory crossed the Atchafalaya

River at Berwick Bay with 8,000 men and proceeded toward Patterson. Banks followed later that afternoon. Grover had some difficulty loading the remaining 10,000 men aboard his makeshift fleet but early on April 12, loading was completed and the fleet set out. Meanwhile, intelligence records had reached Confederate General Taylor and he massed his 4,000 troops at Fort Bisland awaiting the attack. Union ground troops reached the Confederate fort late on April 12 and fighting commenced, with neither side gaining an advantage. That night, Taylor received reports of Grover's flotilla, then in Grand Lake, and he dispatched several cavalry regiments to report on the landing. Taylor himself rode to Franklin to assess the situation, returning after midnight. The Battle of Bisland raged through the following day with losses heavy on both sides, but with neither side making any strategic gains.

Grover had disembarked and begun his march on Fort Bisland, crossing Bayou Teche on a bridge only partly burned by Taylor's reconnaissance cavalry regiment. Following the crossing, Grover encamped for the night, believing the Rebels to be trapped between his and Banks' forces. Other possible escape routes were determined to be unfeasible because of the Atchafalaya swamp and the coastal marshes. What Grover failed to realize, but not his Confederate opponent, was that he had stopped short of a major road across a large bend in Bayou Teche, called Irish Bend.

In a nocturnal reconnaissance on April 13, Taylor discovered Grover's tactical mistake and rousing a Confederate encampment under Major F.H. Clark, dispatched from New Iberia to join the Fort Bisland defense, Taylor stationed Clark's troops between Grover and the road to hold Grover's advance. With Clark's unit in place before dawn, Taylor ordered the abandonment of Fort Bisland and retreat along the Irish Bend road.

On the morning of April 14, Grover's advancing troops were ambushed by Clark's small Confederate contingent, an engagement called the battle of Irish Bend. The element of surprise proved decisive, and Clark effectively stalled Grover's advance. Leaving the Confederate troops at Irish Bend under command of General Mouton, Taylor returned to Fort Bisland, where the fighting was in its third day, to supervise the retreat. By noon on April 14, the Bisland defenders had withdrawn through the cutoff road, and Mouton's stalling troops retreated under the covering fire of the Confederate gunboat Diana. With Taylor and Mouton safely

withdrawn, Captain Semmes blew the Diana's magazines, destroying the boat. Captain Semmes also scuttled a number of other vessels in Bayou Teche at Franklin to block Union penetration and prevent them from falling into enemy hands. These included three troop transports, the Gossamen, Newsboy, and Eva No. 2, as well as the Blue Hammock, the Darby, the Louise, the Uncle Tommy, and the Cricket. When Union forces arrived in Franklin, there was virtually nothing left of the Confederate military presence (Raphael 1976:116-117).

While the Battle of Bisland was being fought, a short-lived naval engagement took place on Grand Lake between the Confederate ram, Queen of the West, and the Union gunboat Calhoun. The Queen of the West, commanded by Captain Fuller (former captain of the Cotton), was accompanied by two loaded troop transports, the Grand Duke and the Mary T. These reinforcements had been dispatched from Butte la Rose to strengthen Taylor's force at Fort Bisland. The Confederate flotilla was sighted at dawn on April 13 by Union naval forces under Captain Cooke. Cooke's force consisted of three of the four gunboats--the Calhoun, the Estella, and the Arizona--which had been repulsed by Fuller on the Teche several weeks earlier. From long range, the Calhoun shelled the Queen of the West, hitting a steam line and setting the vessel on fire. Cooke rescued 90 crew members from the Queen of the West before the magazine exploded and the vessel sank in Grand Lake. The Confederate transports escaped and returned to Butte la Rose (Official Records of the Union and Confederate Navies 1905:137-138). Continuing his retreat, Taylor marched up the Teche Ridge through New Iberia and then to Vermilionville (now Lafayette). Two miles below New Iberia, Taylor ordered the sinking of the gunboat, the Stevens, to impede Union water-borne advances. Banks, in hot pursuit of Taylor, dispatched a brigade to Petite Anse Island (Avery Island) and finally realized his long-sought goal of destroying the Confederate salt works.

Following a brief skirmish at Vermilionville, Taylor retreated northward to Alexandria and beyond with Banks still in pursuit (Raphael 1976: 137-139). Although Taylor escaped with most of his force intact, the troop pull out left the Confederate fort at Butte la Rose--Fort Burton--completely isolated and vulnerable to attack. Fort Burton was beseiged on April 19 by Captain Cooke's flotilla, now strengthened by the addition of the U.S.S. Clifton. The fort's defenses proved no match for the barrage by the four gunboats, and with the arrival of federal troop transports,

Fort Burton surrendered. The Confederate troop boats, the Mary T. and the Grand Duke, which had escaped Cooke's force in the naval battle in Grand Lake (during which the Queen of the West was sunk), escaped again up the Atchafalaya River (Official Records of the Union and Confederate Navies 1905:153-154).

Banks now enjoyed a considerable tactical advantage in terms of both position and communication. Union forces now controlled the Atchafalaya Basin and troop movements by water were now unopposed. In addition, telegraph lines had been strung across Berwick Bay giving Banks direct communication with New Orleans (Franklin Banner Tribune 4/281 1959:12).

Taylor continued to retreat through Alexandria and on toward Shreveport. Banks arrived in Alexandria on May 7, and began to reassess his plans. Unwilling to pursue Taylor any longer, Banks had a choice of joining General Grant who had Vicksburg under seige or marching on Port Hudson. Since his original goal was to open a water route to the Gulf, Banks chose to mount the Port Hudson offensive. Before marching on Port Hudson, Banks left his calling card. Ordering the surrounding country to be stripped of valuables, e.g., livestock, food, wagons, supplies, and household appurtenances, he had them shipped by steamers to Brashear City. What could not be placed on boats was assembled on a wagon train, six miles long, and transported to Berwick Bay along the Teche Ridge, escorted by Colonel Chickering (Raphael 1976:161-165).

Banks launched his offensive against Port Hudson. The fort put up such a tenacious defense that Banks was forced to bring up reinforcements from several areas of southwestern Louisiana including the critical Berwick Bay area. Learning of Banks' troop redeployment and the weakening of federal strength in Berwick Bay, Confederate General Taylor quickly devised a counter-attack to retake the area.

> At Alexandria, Taylor devised a plan whereby he proposed to attack the Lafourche and Teche country by two different fronts with such effectiveness that Banks would be forced to abandon his seige upon Port Hudson. The Confederate general planned to move a force through Plaquemine and Thibodeaux and then attack Brashear City from the rear, while along the Teche and Atchafalaya another detachment would move against Brashear City's front. A target date was to be set for the simultaneous attack upon Brashear City from both fronts.
>
> Besides Brashear City, the Union command had detach-

ments posted at Plaquemine, Donaldsonville, New Orleans, Thibodeaux and along the Western Railroad. All the rest of Banks' troops were at Port Hudson.

Taylor welcomed the arrival of three small Texas cavalry regiments numbering around 650 men and ordered Colonel J.P. Major, the senior officer, to move his force to Morgan's Ferry on the Atchafalaya. This began the upper thrust of Taylor's plan. The general then boarded an ambulance, and, by using a relay of mules, arrived in the lower Teche country within a matter of a few hours. He met with Generals Mouton and Green and laid out the procedure for the drive in that area.

Taylor directed the two generals to collect small boats of every description that they could find and to impress upon everyone that the secrecy of the upcoming mission was of the utmost importance. The plan was no doubt one of the most daring on record. Volunteer Rebels would man the "Mosquito Fleet," as it was later called, and navigate the lakes and bayous above Brashear City during the night, landing secretly in the rear of the town. At dawn cannonading from the Berwick side would draw the attention of the Yanks to the Berwick front and then the "Mosquito Fleet" men would set off a surprise attack upon the garrison. Taylor then returned to meet Colonel Major and engaged in a movement which carried them down the Fordoche and Grosse Tete Bayous to "Fausse Reviere" (Raphael 1975:167).

Taylor's strategy, like Banks' at the Battle of Bisland, involved a pincer movement. The execution, unlike Banks', was flawless. Colonel J.P. Major with three cavalry regiments was directed to ferry his men across the Atchafalaya River and move down the east side of the Atchafalaya Basin to attack Brashear City from the rear on June 23 with a volunteer force. Major Hunter traveled down the Teche Ridge to a point within striking distance of Berwick Bay. Once in position, Hunter assembled an armada of 53 small vessels, consisting of skiffs, bateaux, and pirogues. These little boats, loaded with 300 men, were dispatched on the evening of June 22. The "Mosquito Fleet" paddled down Bayou Teche, up the lower Atchafalaya River, and across Grand Lake and Lake Palourde and were stationed to attack Brashear City from the north (Raphael 1976:167-168).

At dawn on June 23, the remainder of Taylor's force, under General Green, opened diversionary fire from the west bank of Berwick Bay. This tactic succeeded in diverting federal attention and permitted Major Hunter to land and advance within 400 yards of the rear guard line before being discovered. Surrounded and confused, the Union forces quickly surrendered.

One Union regiment under Lt. Colonel Duganne managed to get out of Brashear City. Fleeing toward New Orleans, the Yankee regiment was engaged

by Colonel Major's cavalry along Bayou Boeuf. After securing the captured town, General Green advanced eastward to join Colonel Major. Realizing its situation, the trapped Union regiment surrendered. The success of the Brashear City campaign provided the Confederates with abundant supplies and a much needed boost in morale (Raphael 1976:168-171). Confederate reoccupation was, however, to be quite temporary.

Although Port Hudson held out to Banks' seige during the summer of 1863, it was quickly gained with the fall of Vicksburg to General Grant. With the Mississippi River controlled above and below the fort by Union forces, Port Hudson's situation was rendered untenable. With this coup and circulating rumors about a French invasion of Texas and Louisiana (via Mexico), General Banks was ordered to move on Texas (Edmonds 1979:5). Anticipating a quick victory, Banks assembled an invasion force of several thousand men and a flotilla of gun boats and set out for the Sabine River. At the river's mouth, his invasion was repulsed by a Confederate force under Lieutenant Dowling. This engagement, termed the Battle of Sabine Pass, was quite humiliating for Banks, for the total Confederate force numbered but 43 artillery men (Official Records of the Union and Confederate Armies 1883:285-312).

Following this embarrassment, Banks returned to New Orleans where, remembering his earlier success along the Teche Ridge, he planned an overland invasion of Texas. By September 13, 1863, Banks had started troop movements along the Algiers to Brashear City Railroad, and the second Union invasion of the Louisiana bayou country was underway (Edmonds 1979:6).

Termed the Great Texas Overland Expedition, Banks concentrated troops, artillery, and supplies in the Berwick Bay area throughout September. Taylor had prudently abandoned Brashear City prior to the advance of the huge Union army and bivouaced near Alexandria. Confederate scouts and patrols, however, kept a close watch on the growing Union force. By October, the expedition had grown to over 30,000 men. On October 3, the Union army began its move toward Texas, under the command of General William B. Franklin (Edmonds 1979:8-12). Franklin, who had been blamed for the Union disaster at Fredericksburg, was characterized as indecisive and cautious, personality traits which Banks apparently desired in a field commander (Edmonds 1979:13).

The huge Union war machine steamrollered through the Teche country

encountering no resistance. Whether by design or lack of control, Yankee officers failed to stop the looting and destruction by their troops. Most of the civilian homes and property which had somehow managed to escape the rampant destruction of the earlier spring campaign were lost during the Great Texas Overland Expedition during the fall.

General Franklin advanced through Vermilionville, where he encountered only token Confederate resistance, and on to Opelousas. Banks' original plan called for Franklin to secure Barres Landing, east of Opelousas. Barres Landing was accessible through both the recently won Atchafalaya route through Bayou Courtableau and Bayou Teche. Holding this strategic landing would allow the Union army to be supplied by water for their strike against Texas.

Several factors intervened which prevented the successful operationalization of Banks' schemes. First, October is usually a low water period on Louisiana rivers, and October 1863 proved no exception. Low water prevented supply steamers from reaching Barres Landing. Secondly, the vastly outnumbered Confederate forces in the area initiated a hit and run strategy. Unable to face Union troops in pitched battle, the constantly moving Confederate cavalry and patrols sniped, raided, and continually harassed the federal contingent, keeping them in a continual state of battle readiness and giving them no rest or relief. Finally, the indeciveness of Union commanders, Banks and Franklin, cast the last fly in the expedition ointment.

Once in control of the Landing and the Opelousas area, Banks permitted Franklin to sit for two weeks while trying to decide whether to push on with the expedition or withdraw to a more easily supplied position (Edmonds 1979:198-265). With Franklin's army idle at Opelousas, Banks concluded to invade Texas via the Gulf of Mexico, abandoning the overland route. All this while, Franklin's army had consumed all that could be foraged from the surrounding countryside and became entirely dependent on an over-extended supply line from the impassable low water point on Bayou Teche. Supply difficulties and increasing Rebel harassment placed a frustrating damper on the aggressive mood of the Union force.

On November 3, a federal contingent, under Brigadier General Burbridge, camped on Bayou Bourbeaux, between Opelousas and Vermilionville, was pinned down and soundly defeated by a combined force of General Green's cavalry and Texas infantrymen (Edmonds 1979:272-278). The Battle

of Bayou Bourbeaux was the turning point for the Great Texas Overland Expedition. Suffering heavy losses and humiliation at the hands of the small Confederate force, Franklin withdrew his army to Vermilionville and then on to camps at New Iberia and St. Martinville respectively. There, the Union expeditionary force spent the winter of 1863 enduring unusually cold weather and sporadic Rebel sniping. In spite of several small victorious engagements, it was clear the expedition had simply run out of steam, and Banks' planned Gulf invasion of Texas never materialized (Edmonds 1979:394).

In March of 1864, Banks made one final attempt to push overland to Texas. The Union operation was three-pronged. Admiral Porter with 19 gunboats and 10,000 men, under the command of General A.J. Smith, was advancing up the Red River. General Steele, with 12,000 men, was moving toward Banks from Camden, Arkansas. And Franklin, with 18,000 men, was advancing northward along the Teche Ridge (Evans 1899, vol. 10:124-130).

Confederate General Taylor, who had been camped at Alexandria, moved on to Mansfield ahead of Porter's fleet. Porter captured Alexandria on March 15. Low river conditions, however, precluded the use of Porter's gunboats above Alexandria. In addition, Steele's Arkansas force was delayed. When Banks arrived in Alexandria, he linked with Smith's 10,000 men and moved on Mansfield. In the ensuing Battle of Mansfield, Taylor's Confederate forces though outnumbered almost three to one, routed Banks and pursued him south through Alexandria engaging in almost daily skirmishes (Evans 1899, vol. 10:151-154). Leaving Alexandria in flames, Banks retreated down the Red River road and escaped across the Atchafalaya River at Yellow Bayou. At the Atchafalaya River, Taylor stopped. Although the war was not to end until the following summer, General Taylor was later to write (Taylor 1879:235): "From the action of Yellow Bayou to the close of the war not a gun was fired in the trans-Mississippi department."

RECONSTRUCTION AND ECONOMIC REORGANIZATION

The Civil War had several major impacts on the sugar plantation system. First, the war eliminated the primary source of labor--slaves. Many slaves left the plantations during the war, initiating a migration of blacks from the rural South to the urban North which continues to the

present day. With post-war emancipation, blacks who remained in the South had to be hired by planters. Gone forever was the forced "free" labor under slavery, and the transition to a wage economic structure was neither smooth nor painless. General Banks had issued regulations in 1863 and in 1864 concerning abolition and economic reintegration, but implementation was another matter. Many a crop in the Lower Atchafalaya Basin was ruined by the break down of labor-management relations in the post-war years (Sitterson 1953:205-227).

Another major blow to the sugar industry was the destruction of physical facilities during the three major Union campaigns along the Teche Ridge. Particularly destructive was Banks' first push up the Teche in the spring of 1863 (Raphael 1975). Fences and buildings were used for firewood, livestock and supplies were consumed, and in many cases homes and plantation facilities were subjected to destruction and other kinds of extreme vandalism.

A final serious consequence was the war-disrupted financing and marketing structures. Heavily in debt, with plantations in need of extensive repairs, credit destroyed, and with little ready cash in hand or available from lending institutions, many formerly wealthy plantation owners faced extremely grim times (Sitterson 1953:204-227).

Agriculture within the Atchafalaya Basin proper virtually ceased during the war (Comeaux 1972:17). The swamps of lower Louisiana had become a refuge for southerners avoiding a rigid Confederate conscription policy (Shugg 1939:178). Many of these English-speaking draft-dodgers settled in along Bayou Chene, which soon developed a reputation for being a rough place (Comeaux 1972:17). With the later migration of the descendants of these original settlers to Bayou Sorrel went the reputation for rowdiness, and it remains to this day.

While the war disrupted agriculture in the basin, an event which was to have more far-reaching consequences was the clearing of the log jams blocking the Atchafalaya River. As early as 1816, Darby (1816:73) had commented upon the Atchafalaya River's potential for navigation, noting that the journey from the Gulf to the Red River could be shortened by 127 miles if the Atchafalaya were rendered navigable. The log jams, or rafts, supposedly formed in 1778 (Darby 1816:65) and, as one contemporary notes, completely blocked the river (Blowe 1820:627):

> Bayou Atchafalaya, leaves the river three miles below the mouth of Red River, and enters the gulf near Vermillion /sic/ Bay. It is large, but rendered unnavigable by an immense floating bridge or raft across it, formed by the gradual accumulation of drift wood. It is many leagues in length, and so firm and compact in some places, that cattle and horses are driven over it.

Although Darby disputed the accuracy of reports of cattle being driven across the rafts, he did acknowledge the growth of "small willows and other acquatic bushes" on the logjams (Darby 1816:65). Clearing was begun in 1840 and completed in 1861 (Elliott 1932:51). The immediate result was the rapid enlargement of the Atchafalaya River channel and increasingly severe floods in the basin (Mississippi River Commission 1881:131). A particularly severe flood in 1874 put an end to practically all commercial agriculture in the basin (Comeaux 1972:17). The increased flooding was to become a prominant factor in bringing major cultural changes to the basin.

THE EMERGENCE OF AN EXTRACTIVE ECONOMY

Accelerated by war- and post-war-related events, the Atchafalaya Basin witnessed the emergence of a unique form of nonagricultural, extractive economy. Several factors were responsible for this reorientation. Initially, the large pre-war land-holdings along the broader, arable natural levees had forced the original small farmers and stock-raisers into less desirable locations along natural levees on the smaller waterways in the basin and in the marsh. With raft-clearing, these lowlands were more frequently and more extensively flooded. With less arable land available even for gardening and the disastrous effects of floods and backwaters on crops, swamp dwellers turned increasingly toward wild resources to supplement their garden foods. This trend continued, and many of the inhabitants turned completely to extractive pursuits. Some completely forsook the land and moved into houseboats. These floating houses, impervious to high water, could be moved as water and fishing conditions changed. Entire families could thus be located near the source of their economic activities without the attendant problems caused by flooding (Comeaux 1972:21). Although many swamps and marsh dwellers continued to practice some subsistence farming, the

extraction and civilization of wild resources had become a unique, full-fledged economic way of life in the Atchafalaya Basin. It centered on the seasonal exploitation of fish, crabs, crawfish, turtles, frogs, moss, and fur animals in an annual round closely tied to changing water levels in the swamp and other ecological conditions (cf. Comeaux 1972;98; Begnaud and Gibson 1975).

While some of the swamp exploiters spoke English (primarily around bayous Chene and Sorrel), most spoke French. The French-speaking Acadians were among the earliest Euro-American settlers of the area and, consequently, were among the first dislocated by the expansion of the plantation system. These Canadian exiles, whose life styles came to be molded by adaptation to South Louisiana environments, became a distinctive culture group--the Cajuns.

CAJUNISM

Previous attempts to define Cajunism have utilized several different conceptual approaches. First, and perhaps most commonly, Cajunism has been defined normatively--what Cajuns do or are expected to do (Keating 1966:135; King 1970:70-71; Ketchum 1973:181; DelSesto 1975:121-142), or attitudinally--what Cajuns think or believe (Harris and Gramling 1978; Robin 1966:191). While some minor differences are expressed by these authors, they are agreed on the point that "Cajunism" is reflected in values associated with "laissez le bon temps rouler" (trans., "let the good times roll") and is manifested in behavior, such as eating, drinking, dancing, and gambling. Positive or negative value judgments such as carefree and happy-go-lucky, or shiftless and lazy are frequently applied to this ethos or behavior depending upon the authors' points of view and personal attitudes.

Another major approach toward delineating Cajunism might be called cultural history, or historical induction (Conrad 1978:1-17; Rushton 1979: 1-19). Under this approach, the elements of Cajunism are traced historically to their cultural roots, and general and specific contributors and contributions to Cajunism are isolated. Again specifics may be debated, but common to all cultural historical definitions of Cajunism are: exile from Nova Scotia (Acadia), French language and culture, assimilation of some African culture traits, isolationism in Louisiana, Catholic religion,

and physical environmental influences.

Finally, a more general approach has been utilized in which the primary criterion for Cajunism, or any ethnic group for that matter, is considered to be ascription and self-ascription (Barth 1969:13). Quite simply, Cajuns are those people who identify themselves as Cajuns and are so identified by others (Tentchoff 1975:88). While possibly quite accurate, this approach allows for little differentiation by outsiders.

These three approaches are more conceptually than empirically distinct. Elements of one approach may appear in delineations resulting under the others, and at least one definition has drawn upon all three approaches (cf. Gibson and DelSesto 1975:1-11).

It is the contention of this author that a fourth paradigm may offer more explanatory power regarding the emergence of Cajunism. I believe the norms and attitudes originally associated with Cajunism result primarily from a set of religious and socio-economic statuses, and that the presumed Cajun uniqueness stems principally from unusual linguistic and physical visibility. This is an oversimplification, but two major supporting arguments can be marshaled.

Cajuns are Catholic. Weber (1958) analyzed the Protestant ethic and its relationship to what he called the "spirit of capitalism." Weber's basic and well documented argument was that the Protestant influence, primarily in the persons of Martin Luther and John Calvin, resulted in the emergence of a new economic philosophy. The "spirit of capitalism" which implied a duty toward one's occupation and striving to increase personal capital was, according to Weber, a unique doctrine. It emerged in Europe during the early sixteenth century and was transported to the eastern seaboard of the United States, primarily by English Protestants. By the eighteenth century, the doctrine was widespread and dominated the scholarly writings of the day, perhaps best personified in the works of Benjamin Franklin (1736:80):

> For six pounds a year you may have the use of one hundred pounds, provided you are a man of known prudence and honesty.
>
> He that spends a groat a day idly, spends idly above six pounds a year, which is the price for the use of one hundred pounds.
>
> He that wastes idly a groat's worth of his time per day, one day with another, wastes the privilege of using one hundred pounds each day.

> He that idly loses five shillings' worth of time, loses five shillings, and might as prudently throw five shillings into the sea.
>
> He that loses five shillings, not only loses that sum, but all the advantage that might be made by turning it in dealing, which by the time that a young man becomes old, will amount to a considerable sum of money.

As Weber (1958:50-51) notes:

> It is Benjamin Franklin who preaches to us in these sentences, the same which Ferdinand Kurnberger satirizes in his clever and malicious Picture of American Culture as the supposed confession of faith of the Yankee. That is the spirit of capitalism which here speaks in characteristic fashion, no one will doubt, however little we may wish to claim that everything which could be understood as pertaining to that spirit is contained in it. Let us pause a moment to consider this passage, the philosophy of which Kurnberger sums up in the words, "They make tallow out of cattle and money out of men". The peculiarity of this philosophy of avarice appears to be the ideal of the honest man of recognized credit, and above all the idea of a duty of the individual toward the increase of his capital, which is assumed as an end in itself. Truly what is here preached is not simply a means of making one's way in the world, but a peculiar ethic. The infraction of its rules is treated not as foolishness but as forgetfulness of duty. That is the essence of the matter. It is not mere business astuteness, that sort of thing is common enough, it is an ethos. This is the quality which interests us.

Spread by the strong Puritan influence in the English colonies (Bailyn et al. 1977:51-59), the spirit of capitalism stands in marked contrast to more traditional economic approaches.

> The most important opponent with which the spirit of capitalism, in the sense of a definite standard of life claiming ethical sanction, has had to struggle, was that type of attitude and reaction to new situations which we may designate as traditionalism. In this case also every attempt at a final definition must be held in abeyance. On the other hand, we must try to make the provisional meaning clear by citing a few cases. We will begin from below, with the laborers.
>
> One of the technical means which the modern employer uses in order to secure the greatest possible amount of work from his men is the device of piece-rates. In agriculture, for instance, the gathering of the harvest is a case where the greatest possible intensity of labor is called for, since, the weather being uncertain, the difference between high profit and heavy loss may depend on the speed with which the harvesting can be done. Hence a system of piece-rates

> is almost universal in this case. And since the interest of the employer in a speeding-up of harvesting increases with the increase of the results and the intensity of the work, the attempt has again and again been made, by increasing the piece-rates of the workmen, thereby giving them an opportunity to earn what is for them a very high wage, to interest them in increasing their own efficiency. But a peculiar difficulty has been met with surprising frequency: raising the piece-rates has often had the result that not more but less has been accomplished in the same time, because the worker reacted to the increase not by increasing but by decreasing the amount of his work. A man, for instance, who at the rate of 1 mark per acre mowed 2½ acres per day and earned 2½ marks, when the rate was raised to 1.25 marks per acre mowed, not 3 acres, as he might easily have done, thus earning 3.75 marks, but only 2 acres, so that he could still earn the 2½ marks to which he was accustomed. The opportunity of earning more was less attractive than that of working less. He did not ask: how much can I earn in a day if I do as much work as possible? but: how much must I work in order to earn the wage, 2½ marks, which I earned before and which takes care of my traditional needs? This is an example of what is here meant by traditionalism. A man does not "by nature" wish to earn more and more money, but simply to live as he is accustomed to live and to earn as much as is necessary for that purpose. Wherever modern capitalism has begun its work of increasing the productivity of human labour by increasing its intensity, it has encountered the immensely stubborn resistance of this leading trait of pre-capitalistic labour. And to-day it encounters it the more, the more backward (from a capitalistic point of view) the labouring forces are with which it has to deal (Weber 1958:58-60).

It is, thus, my contention that a significant portion of the Cajun ethos is derived from this traditional economic attitude toward one's livelihood. It should be remembered that Acadian settlement in Nova Scotia occurred throughout the seventeenth and early eighteenth centuries. From the time when the Acadians left their native France for Nova Scotia through their subsequent expulsion and relocation in South Louisiana, Acadians were physically and, later, linguistically isolated. Acadians were isolated from a changing European society and quite outside the mainstream of American westward migration which was dominated by Anglo-Saxon Protestants. Tucked away in the swamps,

marshes, and prairies of South Louisiana, they remained buffered from Anglo-Saxon Protestants because of language barriers. Other areas settled by European Catholics failed to maintain the religiously imbued economic attitudes because of language commonalities with surrounding Protestants.

The second major argument concerning Cajunism and its uniqueness resides in the values and attitudes associated with socio-economic statuses. Virtually all traditional Cajun occupations (fishing, crawfishing, moss gathering, frogging, crabbing, trapping, etc.) were working class occupations (Comeaux 1972; Begnaud and Gibson 1975). That class has an effect on life style and ethos is indisputable. The working class is traditionally associated with close family ties (Komarovsky 1967: 236-258), low political involvement (Saenger 1945:103-113), less motivation to advance in the economic structure (Hyman 1953:426-442), and in general an orientation toward immediate, as opposed to deferred, gratification (Davis 1946:84-106). Thus an emphasis on dining, drinking, dancing, gambling, etc. shows not only a traditional economic ethos in which the individual feels no compulsion to amass capital beyond that necessary for comfortable existence but also a desire for immediate gratification.

If Cajunism is a religious and class phenomenon, as this writer contends, then why are Cajuns more visible than other working class or Catholic populations? Cajun visibility is largely a product of their isolation. Nowhere else in this country, known to this writer, have a group of people who are both Catholic and working class been as physically and as culturally isolated as the Cajuns. Working class populations exist in virtually all areas of the country, but they span the religious spectrum so that working class Protestants, Catholics, and other denominations live and work side by side. Likewise, Catholic populations are found throughout the nation and are concentrated in some regions. But these Catholics span the socio-economic status continuum, so that working class, middle class, and upper class Catholics are evidenced in communities. In addition, neither of these elements--religion or class--have led to physical isolation elsewhere. Working class neighborhoods are interspersed throughout urban areas , and, while there are more Catholics in some areas of the country, there is certainly no geographic concentrations of Catholics within towns and cities. In short, communities

tenented by peoples of various backgrounds tend toward cultural homogeniety. Isolated peoples of unique religious or economic class statuses tend to remain distinctive.

Cajun isolation was a product of several factors. Paramount among these factors was a distinct language and a particular pattern of land succession. Although Acadians were among the earliest settlers along the natural levees in and around the basin, their supremecy as land holders was temporary. Following the Louisiana Purchase in 1803, migration from the former British colonies into Louisiana increased tremendously. These English-speaking settlers, perhaps more ambitious and certainly wealthier than their Acadian counterparts, were looking to establish a cash crop agriculture and brought with them the plantation system, complete with slaves. Less competitive than their English contemporaries, the Acadians soon sold the best land along the major bayous and retreated to the natural levees of smaller bayous and into the swamp.

> There were many reasons why Acadians sold the good land and moved into the swamp. First, they could not afford to build and maintain the levees and roads as required by law for all front holders. Second, they feared debt, and once in debt they sold their land. And third, these poor, independent Acadians were considered to be a bad influence on the plantation slaves, and plantation owners were willing to buy their frontage at almost any price. The main result of the aggressiveness of the Anglo-Americans was the abandonment of such areas as the upper Bayou Lafourche by small independent farmers and their replacement by large sugar-producing plantations employing Negro labor (Comeaux 1972:11).

This tendency is noted by a number of contemporary accounts throughout the nineteenth century (cf. Brackenridge 1814:173; Sparks 1872:379). An excellent example was given to Lyell (1849:113):

> The French had a fair start of us by more than a century. They obtained possession of all the richest lands, yet are now fairly distanced in the race. When they get into debt, and sell a farm on the highest land next the levee, they do not migrate to a new region farther west, but fall back somewhere into the low ground near the swamp. There they retain all their antiquated usages, seeming to hate innovation, To this day they remain rooted in those parts of Louisiana where the mother country first planted her two colonies two centuries ago.

Once in the swamp, gradual changes in economic practices occurred. Forced to poorer lands, the emerging Cajuns, originally subsistence farmers, turned evermore toward extraction of the swamp and marsh resources to supplement agriculture. Additional pressure for agricultural lands, and increased flooding of existing lands caused by the removal of the rafts in the Atchafalaya River, made the slow transition from agriculture to an almost entirely extractive economy inevitable. At the same time that a plantation economy was developing and flourishing along the major natural levees, a unique extractive economy was emerging in the Atchafalaya Basin and marshes of South Louisiana, associated with working class statuses. This began a physical isolationism of the working class Catholic peoples in South Louisiana.

Buffered by linguistic barriers, the Cajun culture developed, centered on Catholic working class norms, but influenced, to be sure, by French heritage, Acadian experience, and the resources available in the environment. Cultural continuity was bolstered by the fact that mobility out of the culture required drastic individual change. Social mobility into another socio-economic class requires that the individual adopt the values of the class to which that individual aspires (Merton and Kitt 1950:80).

> For the individual who adopts the values of a group to which he aspires but does not belong, this orientation may serve the twin functions of aiding his rise into that group and of easing his adjustment after he has become a part of it.

Upward mobility for the Cajun generally required physical and linguistic change, since there were few if any middle class jobs in the extractive economy, and middle and upper class occupations were dominated by English-speaking people. Many an individual of Acadian descent did just that, and more moved into Creole culture.

> Aware that the Creoles looked down upon the Acadians as peasants, /(Eaton 1963:128)/ the upwardly mobile members of the Acadian population sought to model themselves upon the Creole pattern. Manners, dress, home decor and social exchanges were determined by Creole mores. Local tradition insists that the town of St. Martinville, once the obscure Poste des Attakapas, became Le Petit Paris, where Creole families from all over the state mingled with the Acadian upper class at parties, balls and productions of the New Orleans Opera Company /(Perrin 1891:71)/. Successful Acadians, benefitting from increasing prosperity and a developing social

> sophistication, assumed an aristocratic demeanor based on their economic ascendency which apparently became fundamentally indistinguishable from the Creole landowners (Baker 1978:121).

It is from the remaining Acadians that we can trace the roots of Cajun culture.

LUMBERING IN THE BASIN

One swamp resource which was not part of the extractive economic complex (presumably since it required relatively large capital outlays) was logging. Although timber was removed from the Atchafalaya Basin as early as the first half of the eighteenth century, its real commercial importance was not realized until after the Civil War. Cypress (Taxodium distichum) was by far the most valuable species available for exploitation. Cypress was not familiar to the early European settlers. However, its qualities as a decay resistant building material were quickly recognized. Du Pratz (1758) described its exportation and use for early prefabricated housing during his tenure in Louisiana from 1718-1734 (Du Pratz 1958:182):

> From Louisiana to the Islands they carry cypress wood squares for building, of different scantlings: sometimes they transport houses, all framed and marked out, ready to set up, on landing at their place of destination.

The logging technique used from the early 1700s to the 1880s, took advantage of the rise and fall of the river. Trees were ringed or "deadened" in the fall. In the early spring the dead trees were cut. As the water rose, the logs floated where they were felled and were towed downstream to markets.

By an Act of Congress in 1849, the United States Government granted to the state of Louisiana all of the overflow and swamp lands within the state which were unfit for cultivation (U.S. Congress 1849). The state accepted these lands in 1850, and much of the land was soon transferred to individuals having political influence (Norgress 1947: 992). While the Civil War slowed exploitation of the timber, the Congressional Timber Act of 1876 allowed the sale of most of the remaining land for as little as 12.5 cents per acre. With the swamp

now open to exploitation, improvements and innovations in the cypress lumber industry soon followed. Principal among these items was the overhead skidder and the pullboat. The overhead skidder utilized a cable stretched above the ground and suspended between two tall poles or trees. This allowed a steam winch to drag logs out of the swamp from distances of up to 1000 feet. The pullboat was simply a barge with a steam operated winch which could pull logs from 3000 feet away into the canal in which the pullboat operated. Later, skidding the logs to a railroad was developed as a more flexible way to logging (Norgress 1947:1002-1003). Beginning in the 1880s and continuing through the 1920s, cypress was removed from the Atchafalaya Basin at a phenomenal pace. The introduction of the circular saw and, later, and more importantly, the band saw allowed the timber to be processed at ever-increasing rates. Saw mills and shingle mills developed along the Teche and at Morgan City (Norgress 1947:1009). Cypress was used for much of the contemporary construction, and today many of the older houses and barns in southwest Louisiana are built of cypress and date back to the turn of the twentieth century. Additionally, cypress shingles were shipped to the north and eastern United States and for a while were so plentiful that they sold for less than pine of a similar grade (Norgress 1947:1006). By 1925, the cypress was practically exhausted and the industry almost dead. The once great cypress swamps were cut out. An era had come and gone, and the aesthetic and ecological character of the basin had undergone drastic revision. The lumbering years in the basin contributed much to the folklore and legends of the swamp. The swampers, who lived much of the year in camps constructed on rafts of great cypress logs, were much memorialized, if not actually envied (Coulon 1888). Hand-hewing trees up to six feet in diameter from raised platforms was a difficult and dangerous occupation, and like most jobs which bear an element of danger, swamping carried a respected status.

THE GROWTH OF URBAN CENTERS IN THE BASIN

On the eve of the Civil War in 1860, Brashear City was recognized by the state legislature. Described in 1863 as "a miserable dirty village of a dozen houses," it was not exactly a metropolitan dream (Edmonds 1979: 10). With the close of the war, however, the strategic location of

Brashear City began to play a crucial part in the economic reorganization of the area. It was located on the Lower Atchafalaya River which connected all parts of the basin with the Gulf of Mexico. It also was linked to New Orleans by rail. This transportation network soon attracted outside attention, namely from Charles Morgan, a New York shipping and rail magnate. Morgan purchased the New Orleans, Opelousas, and Great Western Railroad in 1869 and operated it in conjunction with steamer lines connecting Brashear City with the Sabine River and Galveston. Its new-found role as a major terminal in east-west ship and rail traffic brought great prosperity to the town, and its grateful citizens renamed it Morgan City in honor of its benefactor.

In addition to improving the rail link between New Orleans and Morgan City, Morgan was also successful in dredging a channel through the mud flats and oyster reefs in Atchafalaya Bay. The channel, completed in 1874, was 10 feet deep, 200 feet wide, and approximately 6 miles long (The Morgan City Historical Society 1960:65). The completion of this channel permitted Morgan's steamers ingress and egress to the Gulf regardless of tidal or river conditions.

By 1880, rail links between Berwick and Vermilionville (Lafayette) were completed, and in 1882, a railroad bridge across the Atchafalaya River completed the rail connection between New Orleans and Vermilionville. With the initiation of regular rail service, the steam boats began gradually to lose their competitive edge. More reliable, faster, and safer, trains were the prime factor in the demise of the steamboats. By the 1880s, a great deal of diversification had occurred in the urban areas within and contiguous to the Atchafalaya Basin. Formerly, almost totally dependent on agricultural products and related services, basin towns--especially Morgan City--were now serving as collection and distribution centers for agricultural products, lumber, fish and seafood, moss, pelts, and waterfowl. The extractive economy which had developed in the basin funneled its products through Morgan City to New Orleans. The growth of the oyster industry was indicative of the area's potential, and was closely paralleled by increases in other economic pursuits.

> Jacques Lehmann, who arrived in Brashear from France in the year 1870, was an employee of the Morgan line, tried other ventures until 1879, and

> then went into the business of buying and selling oysters. Natural reef beds lay within a short sail of Brashear and the men who lived on neighboring islands or who went out from this port (first in sailboats, later in gasoline-powered craft) manually wrested the bivalves from water bottoms, brought them to town and peddled them for 75¢ to $1.00 a barrel. Lehmann and his wife and perhaps a couple of friends or employees bought barrels at a time, shucked the oysters and sold the succulent meat to the Morgan and Pharr lines of steamers. A big business was quickly developed. Lehmann was soon employing as oyster shuckers men who came from Galveston, Biloxi, and Baltimore. He shipped oysters by boat and rail to Texas and California. When he started he is said to have had a demand of approximately 25,000 oysters a week. In 1887 a newspaper item reports that he was averaging 300,000 oysters weekly and had one customer who took between 2,000,000 and 3,000,000 in December 1886. The DeHarts and LaCostes on Plum Island are among those remembered as regular suppliers of oysters to the Lehmann plant (The Morgan City Historical Society 1960:78-79).

In short, Morgan City became a boom town, and experienced all of the growing pains generally associated with rapid expansion.

> The social life of the area at this time reflected the diverse economic activities and boom town characteristics. A certain amount of violence and vagrancy were to be expected in the frontier-like atmosphere, and newspaper accounts of the day deplore a wide variety of behavior--from knife fights to public drunkenness--among the town's large transient male population (Reilly 1977:315-316). Activities such as trapping, commercial fishing, and working sporadically on steamers are not conducive to stable life styles. In addition, the area was characterized by ethnic diversity, which tended to add fuel to the fire fanned by late night alcohol-oriented activities. Ethnic diversity is still a characteristic of the area, and Morgan City is known for being less distinctively "Cajun" than the surrounding cities. Much of this is due to the high in migration rate which has continued to the present. Many of the activities which were expanding in Morgan City and the surrounding area, such as shrimping, fishing, lumbering, employment on boats, etc., had traditionally been areas of high employment for various ethnic groups on the eastern seaboard. With the increased opportunity for employment in the area contiguous to the lower Atchafalaya River, migration by these ethnic groups was assured (Gramling 1978:59).

Seafood, freshwater fish, and lumber continued as the mainstays in

the Atchafalaya Basin through the turn of the century and well into the 1930s. Once the regular steamboat traffic ceased, siltation became a continuing problem, especially in the channel through Atchafalaya Bay. Lack of a deep water channel discouraged Morgan City's attempt to become a major port, although some ship building and repair services were in existence during this time. A major boost occurred for the shrimp industry in 1937, when Captain Theodore Anderson unloaded the area's first load of offshore jumbo shrimp at the Riverside Seafood Market in Morgan City. Shrimping prior to this time had been limited to shallow water and inland bays. Rapid growth of the shrimping industry occurred thereafter, and by 1940, Morgan City was claiming the title of Shrimp Capital of the world. The channel through Atchafalaya Bay was redredged during the winter of 1939-40, largely because of increased traffic from shrimping activities and local political pressure (The Morgan City Historical Society 1960:68-69). By 1940 with the lumber industry on the decline, the shrimp and seafood industries were booming, and sugar production was once again on the rise. Trapping in the coastal marsh was also reaching its peak. However, other events of the time were to have major consequences on the Atchafalaya Basin.

PETROLEUM PRODUCTION AND MODERN EVENTS IN THE BASIN

Oil was discovered. Actually, the first oil well had been drilled on Belle Isle, a salt dome in St. Mary Parish, in 1896. The try was unsuccessful. However, 39 years and 72 dry holes later, Herton Oil Company completed an oil well in the Jeanerette area. Exploration in the basin interior was underway by 1928 and by 1940 widespread seismographic and drilling activities were being conducted throughout the basin and in the coastal marsh south of the Teche Ridge (The Morgan City Historical Society 1960:71-72).

Like the early lumbering operations, petroleum related activities altered the natural environment. Where the land is at or only a few feet above sea level, as it is throughout much of the Atchafalaya Basin, the simplest means of getting drilling and production equipment to well and tank sites was by barge through canals dug specifically for

the purpose. Additionally, connective pipelines had to be installed and other canals were required to facilitate their construction. Today the Atchafalaya Basin and the marshes below Morgan City are honeycombed with canals. These waterways were gained at the expense of swamp and marsh and the natural ecology of these environments. While some of the impacts of oil-related canals have been deleterious, there have been some beneficial ones. Canals have provided more waterways for commercial and recreational fishing, crabbing, and trapping. Certain fish populations have been enhanced, particularly in the deeper canals, and under prime conditions, there are some evidences that the entire acquatic food chain is greatly proliferated (Gramling, Stallings, and Hardway 1977).

In 1946, Magnolia Petroleum Company put down an exploratory well near Eugene Island, off the Louisiana coast, south and east of the mouth of the Atchafalaya River. The well was a failure, but an important precedent was set. Offshore drilling was born in the Louisiana Gulf. Kerr-McGee soon followed and brought in the first producing offshore well in 1947 (The Morgan City Historical Society 1960:72-73). The race was on, and offshore oil-related industries soon became the dominant economic activity in the lower Atchafalaya Basin. The shift to petroleum related activities has brought considerable change to the basin. Dramatic increases in the population of urban area and drastic shifts in land use, especially along waterfronts, are two of the more visible changes (cf. Stallings et al. 1977). The economy of the urban centers in the lower Atchafalaya Basin has become ". . . highly dependent on offshore petroleum and gas activities" (Manuel 1927:87). Unable to compete for dock space with oil companies, the once large shrimp fleet has considerably diminished (Gramling and Joubert (1977:133). The extractive economic pursuits of the basin interior, so important in the early development of Morgan City, now funnel their products through the dozens of small towns which have sprung up along the Atchafalaya protection levees. The conversion of the Atchafalaya Basin into the Atchafalaya Floodway after the 1927 flood, expelled the basin's residents. These hunters, trappers, fishermen, and crawfishermen moved to levee settlements or larger nearby towns. However, this migration did not hurt the extractive economy of the basin. In fact, concurrent technological advances, especially the outboard motor and the planing hull bateaux, have if anything, increased

access to the prime resource grounds in the basin. Recreational use of the basin has also increased by leaps and bounds.

Today, the Atchafalaya Basin is devoid of human habitation. Yet utilization for livelihood and recreation is greater than at any other time in its cultural history. In the 300 years of Euro-American settlement and use, the Atchafalaya Basin has undergone sweeping changes. In fact, the enormous siltation which has occurred since its transformation into a floodway, the primary release valve for Mississippi flood waters, threatens to bring even more drastic changes. The next few decades will be a critical time in the cultural and natural history of the Atchafalaya Basin. We may be in the basin's final throes as an overflow swamp. The next culture history to be written may be a chronicle of cultural events associated with the adoption of the area by the main channel of the Mississippi River.

CHAPTER 6

THE MODERN ATCHAFALAYA CULTURE: RESULTS OF THE ETHNOGRAPHIC SURVEY

INTRODUCTION

The field of cultural resources management has begun to reexamine the meaning of cultural resources. Heretofore, it has been mainly concerned with tangible properties of historical interest. Recently it has come to be realized that federally funded construction often impacts many more aspects of culture than simply historical properties. Elements that make up the richness and variety of the culture and heritage of this country include far more than ancient physical objects. Unique in the country are enclaves of peoples who exhibit unique traditions and lifeways and who often form ethnically identified and identifiable groups. As modernization continues to homogenize America, these islands of refreshing distinctiveness have become increasingly rare. They have become increasingly important to a nation awakened to the diversity of its cultural heritage; they have become more important to the student of culture concerned with the present and future courses of humanity; and perhaps most importantly, they are essential to the living individuals who comprise them. The present effort thus explores this expanded view of cultural resources. Basic to this perspective is the idea that cultural resources may take the form of observable behavioral traits, folk or culturally distinctive knowledge or belief systems, and, actually the bearers and adherents of these intangibles--people themselves.

In recognition of this broadened view of cultural resources, the contractual scope of services included the following requirement:

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"Conduct a field investigation sufficient to identify and describe any ethnic groups, culturally distinct lifeways, folk cultures or historic areas that may be impacted by the proposed construction".

These concerns have not traditionally been included in cultural resource surveys. The nearest traditional requirement to these concerns has dealt with historic sites and areas. An historic area is tangible; it has physical dimensions. An ethnic group may also be conceived of as tangible. It has members, which at least theoretically, can be counted. The same may be said for folk cultures, dependent on which of the many materialistic definitions are used. But first identity and folk culture must be defined and described for it is not simply the tangible aspects that are important here but the intangibles such as ideologies and attitudes that render such things unique. It is clear that evaluation and management of these "new" kinds of cultural resources must be accomplished outside the present framework, which is singularly structured around old properties.

Proposed construction on the East and West Atchafalaya will affect narrow corridors along both levees (cf. Chapter 1). These served in a general way to define the project area for the ethnographic survey, but this survey was not confined just to the 460m corridors, as was the archeological investigation. The nontangible aspects of the four primary problems under investigation, i.e., ethnic groups, culturally distinctive lifeways, folk cultures, and historic areas, are not confined within the levee corridor proper. And while the levees may now serve as a base, or staging area, for some of the folks whose habits, customs, ideas, attitudes, and identities are being studied, their actual ranges and residences cover much broader territories. Several near but off-levee communities were targeted for investigation. These included Henderson, Catahoula, Coteau Holmes, Bayou Benoit, Livonia, Maringouin, Pierre Part, Bayou Sorrel, Belle River, Bayou Pigeon, Plaquemine, Sherburne, Amelia, Charenton, Krotz Springs, Musson, and Bloody Bayou, a total of 17 in all (Figures 1.3-1.5). These augmented the ethnographic work conducted within the limited construction corridors.

FIELD METHODS

The communities were canvassed during a 17-day period from 11 September to 11 October 1979. The ethnographic team was composed of two and sometimes three people under the specific direction of the author and general guidance of the project principal investigator, Jon Gibson. Judy Ronkartz and Diane Dixey aided in the ethnographic field work. A total of 296 field manhours were spent on the community phase of investigation. Since the ethnographic team, under the personnel organization of the overall project structure, also participated in the archeological survey, ethnographic data within the levee corridors were concommitantly obtained during that phase of the project as well. Because dual tasks were being performed at that time, the number of manhours pledged strictly to ethnology cannot be separated.

The rapid pace and broad sweep of the communities investigation placed severe restrictions on the tools, techniques, and methods used in data collection. Most of the communities had never before been visited by members of the survey team, and some had never even been heard of before. As a consequence, there were no preselected contacts or informants in the communities. The small amount of time spent in each town prohibited the use of formal interview techniques and tape recorders. It is felt that the latter procedure, tape recorded formal interviews following a standardized questionnaire approach, would have been unproductive under the circumstances. People on the Atchafalaya edges, like people everywhere, make poor subjects when encountered by a stranger, armed with a tape recorder and notepad, asking "silly", often personal questions, and shoving a release affidavit in the informant's face requiring him or her to sign their names to something the consequences of which they might not fully understand. With more time to establish rapport with informants and more time to become acquainted with a variety of informants representing a fuller, cross-section of the communities under investigation, the formal interview technique has definite advantages, especially to the compilation of quantitative and quantifiable data.

The luxury of time was simply not had in this investigation. Therefore, data acquisition methods had to be adjusted accordingly.

Informal interview, observation, and participant observation became the principal means of investigation. Time constraints also obliged the ethnographic team to target a select informant population rather than one predicated on more "desirable" statistical sampling procedures. Public officials and community leaders, e.g., town officers, religious leaders, owners and managers of business establishments, and other public servants, were identified as the most likely sources of information about varied aspects of the communities, sources that because of their leadership roles might be more willing to discuss their communities than the "average" person, who probably could not have been found in the little time alloted to each town anyway. Thus in a rigorous sense, the present information is nonrandom, or biased. This probably has more serious consequences for quantitative, rather than qualitative, dimensions, but the latter cannot be disallowed because of the possible social distances between the levels of community hierarchies.

Thus in a very real sense, the Atchafalaya ethnographic survey must be regarded as a highly preliminary statement, only a beginning toward the exposition of an Atchafalaya ethnography. The essence of cultural groups cannot be captured in a single morning spent with one or two informants. Neither has it been possible to grasp the full meaning of ethnicity and its parameters and degree of cohesiveness when an acknowledged member of one "group" is being quizzed about another, for whom informants cannot be found or refuse to be questioned. As one of the survey members said, "If you can 'bag' all of the cultural distinctiveness in a community in half a day, you can walk a straight line from Catahoula to Bayou Sorrel without getting your feet wet". These compounded difficulties are recognized. In spite of them, the ethnographic survey managed to record data relevant to each of the research areas defined in the scope of services. The following sections of this chapter deal with these four issues: identification and description of ethnic groups, culturally distinct lifeways, folk cultures, and historic areas.

IDENTIFICATION AND DESCRIPTION OF ETHNIC GROUPS

Background

Simple identification and description of ethnic groups in the Atchafalaya region is no small task. Other than the difficulties attributable to insufficient field reconnaissance, ethnic group definition, itself, is mired in theoretical controversy as formidable as any viscid bog the great swamp has to offer. George A. DeVos (1972: 437) suggested that precise definitional qualities common to all ethnic groups are virtually impossible to obtain. After more than a decade devoted to ethnic matters, James H. Dorman (1980:24) reported that "the absence of conceptual and definitional clarity is the central problem in ethnic studies today".

When the term "ethnic group" was first defined in the Dictionary of Social Sciences, in 1964, the emphasis was on shared cultural traits. Melvin Tumin, who supplied the entry (Tumin 1964:243), defined an ethnic group as: ". . . a social group which, within a larger cultural and social system, claims or is accorded special status in terms of a complex of traits (ethnic traits) which it exhibits or is believed to exhibit". Together with shared cultural traits, an accepted definitional quality of ethnic groups pertained to common historical origin. William S. Bernard (1972:3) stated:

> . . . ethnic groups are people who have been brought up together under a particular cultural roof. They share the same ways of doing things, the same beliefs and institutions, the same language and historical background.

Using these definitional criteria, ethnic studies generally proceed by examining outwardly manifested, objectively perceived cultural criteria.

But, in 1969, a volume edited by Fredrik Barth, entitled Ethnic Groups and Boundaries, revolutionized the concept of ethnicity and ethnic groups. In the introduction to this volume, Barth (1969a) insisted that the "cultural roof", formerly of principal importance in the analysis of ethnic phenomena, was not a primary and definitional characteristic of ethnic groups. To the contrary, Barth (1969a:14) argued that:

> The nature of continuity of ethnic units is clear: it depends on the maintenance of a boundary. The cultural features that signal the boundary may change, and the cultural characteristics of the members may likewise be transformed, indeed, even the organizational form of the group may change--yet the fact of continuing dichotomization between members and outsiders allows us to specify the nature of continuity, and investigate the changing cultural form and contents.

Barth's statement shifted analytical focus from the inconsistent and situational cultural content of the group to the social boundaries that separate them.

To illustrate his logic, Barth (1969b:117-134) described the retention of ethnic identity among Parthans living in different ecological zones despite a great diversity in the social systems and value orientations exhibited by these people. This example bears some resemblances to ethnic retention among Cajuns who have adapted to various ecological zones (Comeaux 1978:142-158). Despite considerable cultural diversity manifested by Cajuns of the levees, swamp, prairies, and marsh, there remains a persistent identity. In Barthian terminology, ethnic boundary maintenance mechanisms must therefore transgress ecological zones in south Louisiana.

But if the entire range of cultural content is not important to group maintenance and if the cultural features that signal its boundary may change, how is the ethnographer to recognize meaningful boundary markers? Because in Barth's model, self-identification is the critical criterion of ethnic identity (Barth 1969a:24), these boundary markers are perceived and agreed upon by members of the ethnic group. According to Barth (1969a:15):

> It makes no difference how dissimilar members may be in their overt behavior--if they say they are A, in contrast to another cognate category B, they are willing to be treated and let their own behavior be interpreted and judged as A's and not as B's; in other words, they declare their allegiance to the shared culture of A's.

The ethnographer, then, is directed to a study of boundary markers subjectively defined by members of the ethnic group. Apparently, no amount of empirical observation from an etic perspective will illuminate these parameters so they are consequential only in the emic perceptions of an ethnic group's members.

Factors leading to the situational nature of these subjectively established boundary markers, according to Barth, pertain to intergroup competition for scarce resources (cf. Barth 1969a:19-20). Actually, this concept was existent before Barth's Ethnic Groups and Boundaries. Beyond the Melting Pot (Glazer and Moynihan 1963) explored the manner in which ethnic groups function as common interest groups by constantly changing and reorganizing their structures to meet challenges posed by other groups. John Paden (1966), taking this argument a step farther, discussed changes in ethnic identity from one social encounter to another (cf. Hicks 1977:11). Throughout the 1970s, ethnic investigators repeatedly pointed to the dynamic situational nature of ethnic groups in conflict and competition with other groups (Nagata 1974; Despres 1975; Patterson 1975; Schiller 1977). These findings commonly implied that ethnic group formation was accomplished by instrumental choices of members as they evaluated their material well being. As Dorman (1980:28) has pointed out, this is the ultimate statement of the subjectivist viewpoint. Ethnicity is reduced to an exclusively circumstantial phenomena.

The theoretical squabble over ethnic group definition has not ended with the advancement of the subjectivist position. Some scholars continue to insist that objective criteria are important primary elements of differentiation between ethnic units. Abner Cohen (1974: 8), for instance, remarked:

> Often it is objective symbolic forms that generate the subjective experience of ethnicity and not the other way around. In terms of observable and varifiable criteria, what matters sociologically is what people actually do, not what they subjectively think or what they think they think.

Elizabeth Herlinger (1972:5, quoted in Hicks 1977:12), in a study of ethnic identity among the hill people of the Ozarks, suggests that:

> The boundary may be specifically cultural and that interethnic interaction is governed . . . by orientation to the cultural symbol system which constitutes ethnic identity.

The situational character of Barth's boundary markers is also challenged by Charles F. Keys (1976:203) who points out:

> If whatever cultural attributes associated with particular ethnic groups are taken to be entirely situational, then the identification of a group as being an ethnic group is entirely arbitrary and without analytical value.

Again reacting to Barthian subjectivism, Wsevolod Isajiw (1974:120) insisted that ethnic group membership is involuntary. The link between ethnic group continuity and the socialization process, according to Isajiw, requires common historical origin among members of the same ethnic group. A person is born into an ethnic group and socialized into the special cultural traits of that group. No choice is involved.

The above summary of theoretical issues illustrates some of the ambiguities in the field of ethnic studies. There are no precise, widely accepted criteria by which to differentiate ethnic groups; indeed, there is no generally acknowledged definition applicable to all groupings of ethnicity. Ethnographers choose between one of two polarized conceptual stances, the subjectivist, or the objectivist view; or alternatively (van den Berghe 1975:72; DeVos 1975:9), select some form of eclectic compromise between the two viewpoints. The Atchafalaya ethnic data will be viewed from both perspectives. The result is somewhat "middle ground-ish", but as will be discussed presently, neither of the polarized models adequately accommodates the Atchafalaya data.

One further issue requires clarification. As George L. Hicks (1977:1)observed, "The very word ethnic and its variations carry a heavy freight of emotion". The charge of any scientist faced with such emotive phenomena is to completely divorce his empirical observations from any personal ties he may have to the subject matter. In the case of ethnic group analysis, for instance, the expression of subjective sensibility should be limited to the informants' purview. Ethnic identity, however, involves a personal, psychological dimension of self-realization. Acknowledgment of the compelling personal value attached to group solidarity has moved James H. Dorman (1980:31) to voice the following directive:

> . . . It is absolutely imperative that those studying ethnic matters clearly establish their individual psychological and emotional relationship to the group under investigation; to place themselves properly vis-a-vis the affective boundary separating the group from the "others" in order to take cognizance of individual bias and prejudice.

The author of this chapter, while born and socialized hundreds of miles west of the Atchafalaya basin, must acknowledge ethnic affiliation with one of the groups under study. His personal background, kinship ties, bilinguistic facility, and empathic capacity has, without doubt, influenced field procedures and conditioned analytical results. There have been advantages to this ethnic commonality and strong sense of identification as a Cajun, at least in terms of securing and appreciating this group's native ethos. The possible disadvantages of this personal self-ascription lie in the difficulty of stepping outside these feelings in order to present an objective view of an highly complex, pluralistic reality. Anthropological training and careful screening of details, most deeply imbued with personal evectiveness, have underpinned the present chapter, but the reader should keep in mind this possible complication to total objectivity.

Operationalizing the Subjectivist Model

The subjectivist model of ethnic group formation and continuity, described above, presupposes several generalized concepts which deserve careful examination. This model is based on the following propositions:

1. ethnic membership is determined by ascription and self-ascription;

2. only certain criteria are selected from the range of cultural phenomena as significant identity markers;

3. individual members of ethnic groups select these particular markers of dichotomization;

4. ethnic group membership criteria changes as a result of conformation and reconformation to perceived concepts of material interest to members of the group; and

5. central to all of the above, ethnic identity is firmly rooted in conscious perceptions of the individual ethnic members.

Fitting a field research strategy to this model has distinct advantages to the anthropologist concerned with ethnic group identification. The criteria determining ethnic identity, from the subjectivist viewpoint, are all clearly crystallized in the minds of the informants.

The only requirement on the part of the anthropologist is to devise the proper instrument capable of detecting these criteria. Furthermore, since ethnic identity is determined by the consensus of ethnic members, the anthropologist need question only a few members of each group to determine the standard boundary markers of group identification. This model relieves the anthropologist of the need to independently determine these parameters. Time need not be spent observing behavioral phenomena and later puzzling over their significance and meaning. All that is required, in a practical sense, is to be exposed to informants willing to divulge their perceptions of self-ascription and the social boundary markers which form the basis for their emic decisions.

Instruments suited for such purposes have been developed by anthropologists and sociologists. Usually they take the form of a series of formal questions administered by the field worker personally or through the mail. Martin Plax (1972), for instance, suggests the following questions be asked: "1) Thinking of your background, what would you call yourself? and 2) Do you ever think of yourself as being _____?" Such questions would, supposedly, establish and name the various collectives of ethnic ascription in the locality being studied. And, in order to arrive at the distinguishing markers of identity, the field worker could simply ask, as did questionnaire administrators for the Projet Louisiane (Project Louisiana 1977), "quoi tu crois c'est un Cajun?" (what do you think is a Cajun?). A question such as this is almost certain to produce the salient markers of group identity that are subjectively agreed upon by ethnic members.

Unfortunately, such simple and direct inquiries, aimed at revealing ethnic identity through the subjective response of the informant, did not prove successful during the Atchafalaya ethnographic study. The formulation of a question which will produce the desired response is far from a simple matter. While the investigator wishes to ascertain the informants' ethnic status, it, for instance, is not advisable, nor generally successful, to include the term ethnic in the question. As Singer (1974:56) has pointed out, the term is highly pejoritive in popular usage.

On 21 September 1979, the survey team asked an Italian community leader living in Maringouin which ethnic groups were present in his

community. He replied that the Blacks were the only ethnic group in Maringouin. His concept of ethnicity, common to many who are aware of the term, produces images of inferior social or racial status. The term, social group, also lacks particular value in eliciting responses of ethnic meaning. To the question, "To which social group do you belong?", an informant might respond (and not without reason) that he is a farmer, a Knight of Columbus, or a Little League coach, or, he may admit that he just stays at home, he belongs to no social group.

The following illustrative example derives from an informal interview with a young, anonymous woman living in Henderson, conducted on 11 September 1979. Her demeanor, revealing an air of congeniality, intelligence, and cooperation, also revealed some degree of formal education.

Q. "To what social group do you belong"?

A. Blank stare.

Q. "According to your background, to which group do you belong"?

A. Fixed stare and meaningless grin.

Q. "You know, are you Italian, German, Cuban, or what"?

A. "Oh, of course, I'm an American".

Q. "Then you're not a Cajun"?

A. "Of course, I'm a Cajun! We're all Cajuns in Henderson".

This example reveals the difficulty in eliciting meaningful responses concerning ethnic membership by asking simple and direct questions about group affiliation.

An important aspect of this and other interviews is the relevation that group affiliation is often simply taken for granted. Patterson (1977:43-44) recognized this phenomenon when he distinguished between "existential" and "ethnocentric" group solidarity. The former meaning of solidarity, while being affective, is merely assumed; the latter is consciously perceived. Yet, as a major proponent of the subjectivist school, Patterson (1975:305) insists that ethnic loyalties are determined by the perceived socioeconomic interests of group members. Are we to believe that some ethnic members subjectively define group affiliation existentially and unconsciously? If so, the operationalization of the subjectivist model may well require the services of a

psychiatrist and/or hypnotist to delve into the ethnic member's psyche and extract the subjective pre-perceptions as they lie hidden.

The following example is an excerpt from an interview with another Henderson resident (11 September 1979). The informant is an elderly man, a business leader in the community, a former swamp dweller who has been part of the surrounding landscape much longer than has the town of Henderson been in existence. The man has already admitted that he is a Cajun.

Q. "What is a Cajun"?

A. "Mixed blood, any but black".

Q. "Were your ancestors from Acadia"?

A. "No idea, don't know".

Q. "What is a Creole"?

A. "Mixed blood but it has black in it".

Q. Can you become a Cajun"?

A. "Yes. If you learn to speak French and if you live among Cajuns. . . . Even the Niggers are Cajun here".

Q. "Can an Italian become Cajun"?

A. "No, a Dago is a Dago, he will never be a Cajun".

Q. "Do the Blacks speak the same French as the white French speakers"?

A. "Yes, we both speak either way".

A cursory analysis of this interview reveals several flaws in a purely subjectivist approach and the dangers of using it exclusively in field strategies. The testimony is replete with blatant contradictions. The informant says that Black blood is unacceptable to Cajun identity. He then claims that "Niggers" (a local pejorative for Blacks) are Cajuns. He claims that members of outside groups can become Cajun, but that the "Dago" (a local pejoritive for Italian) can never be Cajun. He claims that both Blacks and Cajuns from Henderson speak the same French; then he implies that actually two forms of French are spoken but that both groups have competence in either form. These contradictions are not with the informant; a better informant cannot be found in the entire basin. We are, when we attempt to operationalize the subjectivist position, simply asking too much of the informant. He can function in a complex pluralistic social

environment with ease. He can deal with code switching, bi- or trilinguilism, as easily as he brushes his teeth. But he cannot be expected to give a succinct and accurate account or analysis of the socially relevant ethnic boundary markers that govern his perceptions and actions. A large portion of the cultural directives that govern our existence and shape our beliefs are taken for granted. The constraints supplied by social boundaries are often rooted beneath the level of individual consciousness. They are real, but they do not always, in fact seldom, rise to the surface of detectible perceptions.

This, of course, is not to say that subjective informant responses are not valuable. On the contrary, each time an informant attempts to unravel the maze of his identity, insight is gained into the personal nature of ethnic dynamics. Nor should we take lightly the opinions of ethnic members concerning the status of their group vis-a-vis outside groups. These subjective responses, self-views, and personal opinions are valuable tools which aid the anthropologist to arrive at a realistic portrait of ethnic phenomena. Subjective opinions, however, do not, by themselves, adequately define or describe ethnic groups. Not even words from the proverbial "horses' mouth" will substitute for trained objective observation and analysis of individual and group behavior.

Justifiable Eclecticism

Atchafalaya data recovery techniques, albeit partially developed in the field, reflect operationalization of both the subjectivist and objectivist models of ethnic group definition. Whenever informants could be coaxed into describing or explaining group interaction on any level, their comments were accurately recorded. The native informant acting as ethnologist, social analyst, linguist, or psychologist often gives valuable commentary concerning his or her ethnic status. Such subjective responses, growing out of the awakening realization of and sensitivity to the nature of the inquiry, supply valuable information on personal meanings and decision-making justifications of ethnicity and its boundaries. Responses of this nature are incorporated et passim in the following sections.

Usually such information is cloaked within the context of an informant's story or recollection of a certain incident, and in a variety of verbal and nonverbal behavior patterns which even less obviously, but just as certainly, inform on the constraints of ethnicity. Furthermore, ethnic boundary markers are also visible in the physical manifestations of ethnically peculiar behavior. An architectural convention, an emblem on a t-shirt, or a plaited basket aid in group identification. The anthropologists' training and skill at observing and analyzing cultural phenomena is essential in discerning such ethnically meaningful objectifications. Observing these outwardly manifested signs and symbols from an etic perspective offers a corroborative approach to the problem. The sensible approach to the definition of ethnicity incorporates both the emic perspective of the informant and the etic perceptions of the researcher; or in other words, both the subjective assertations of the ethnic member and the trained, objective observation of tangible phenomena.

The following section of this chapter is structured around Isajiw's (1974:117-118) breakdown of the five most common features used by students of culture in defining ethnic groups: common ancestral origin, language, race, religion, and same culture or customs. As Barth suggests (1969a:14), these cultural attributes are differentially pertinent to the question of ethnicity depending upon the particular ethnic group involved. Informant commentary, observations made by field personnel, and supplementation from existing literature supply the data corpus for this study.

Ethnicity and Common Ancestral Origin

A discussion of ancestral origin is a good place to begin analysis of ethnic groups if for no other reason than the historical perspective it offers. The one identifiable group with the longest historical ties to the Atchafalaya Basin is the Chitimacha Indian tribe. The original tribal territory was a triangular tract of land subsuming the middle and lower Atchafalaya basin. This area was bounded by three sacred cypress trees at Vermilion Bay, Lake Dautrive, and Lower LaFourche (Swanton 1911:Map 1). Other parts of the basin were also inhabited by

Indian populations. Small unspecified aboriginal groups, in fact, persisted into the twentieth century along Bayou Sauvage, north of the present Interstate 10 (Leona Martin Guirard; personal communication, 13 September 1979). No groups of Indians, other than the Chitimacha, remain in the Atchafalaya Basin proper today.

Early in the eighteenth century the French and their Indian allies waged devastating war on the Chitimacha (Swanton 1911). Many of the Chitimacha were enslaved, the population was considerably reduced, and the survivors were scattered throughout the swamps and lakes of the Atchafalaya Basin. In 1908-1909, Swanton noted Chitimacha groups at Charenton and Plaquemine, and 15 to 18 smaller settlements scattered across the basin (cf. Gibson, Chapter 4). The Chitimacha became wards of the Department of the Interior Bureau of Indian Affairs in 1925 when they were accorded reservation status and 283 acres of land in the Charenton community (Gregory 1979:245). Since that time, a newly constructed school, tribal center, museum and park facilities, and government stipends, have been established to entice the Chitimacha to maintain residence within reservation boundaries.

Until the twentieth century, Chitimacha society was organized into matrilineal clans (Stouff 1974:7). The leaders of each clan and their families were considered nobles, while the bulk of the people were accorded the status of commoners (Swanton 1911:348). This rank system, unlike the Natchezean system (Brain 1971) was perpetuated by class endogamy. Long-lived noble lineages developed and were maintained for hundreds of years. Ancestral origin was, in pre-twentieth century Chitimacha society, essential to ethnic identity.

By the 1930s, Chitimacha chiefs, like Benjamin Paul, came to be selected more out of respect than because of heritage (Gregory 1979: 238). Many of the rigid class distinctions deteriorated during the twentieth century, and, when the last traditional chief, Emile Stouff, died in 1978, practically all vestiges of traditional social hierarchy died with him. Before his death, Stouff had instituted a change from a chieftian form of leadership to a governing tribal council headed by an elected chairperson. Today relatively few Chitimacha are familiar with the original clan and caste system (Faye Stouff; personal communication, 3 October 1979).

As Gregory points out (1979:238-239) the family continues to perpetuate Chitimachan identity. The Chitimacha are organized into large extended family groups, not unlike that of the extended Creole or Acadian family. The change in social system which occurred during the twentieth century has not diminished the importance of ancestral origin as a primary marker of ethnic identity. Ancestral ties with the native, aboriginal inhabitants of the Atchafalaya basin area continue to distinguish the Chitimacha from other regional, ethnic groups.

In sharp contrast, the relationship between ancestral origin and ethnic identity is not a simple matter among French-speaking inhabitants of the Atchafalaya region. This problem stems from both the highly heterogenous ancestral backgrounds of French-speakers and the complex cultural processes which have affected group relations over the past several centuries. The first French colonists to set up permanent residence in Louisiana were mostly Canadians who arrived with Pierre leMoyne, Sieur d'Iberville (DuPratz 1975:5). Throughout the period of French domination of the Mississippi Valley, immigration from various corners of the French domain was avidly encouraged by the French government and private enterprise alike (Giraud 1978; Clark 1978). The result was a thriving colony in Louisiana steeped with French law, social customs, value orientations, and language. As immigrants from diverse ancestral origins began arriving in Louisiana, a pattern of Gallic acculturation took firm root; it set the processual pattern that would continue for the next two centuries. As various ancestral origins became adapted to the French mold, the factor of original homeland lost a great deal of importance as a primary characteristic of ethnic group identity.

Consider the German immigrants arriving early in the eighteenth century. These Germans, influenced by handbills and pamphlets sent out by the Company of the West, came to Louisiana to establish permanent residence in a land of plenty (Davis 1971:58). They established settlements above New Orleans in an area which came to be known as "La Cote des Allemands" (the German Coast) and also farther upstream in the Lafourche country (Deiler 1969). But, while these Germans were probably responsible for saving the colony by industriousness and providing a dependable supply of food, they rapidly lost their

original identity within the larger French mold that surrounded them (Smith and Parenton 1938). German surnames show this assimilation; Himmel became Hymel, Schaf became Chauffe, Schoen became Chin, Scheckschneider became Schexnaydre, and Sweig (English translation "Twig") became Labranche (Read 1931:111). Today German and Gallicized German surnames are found along both eastern and western margins of the Atchafalaya basin, but the ancestral origins of these people have nothing to do with their ethnic affiliation.

A similar process affected Spanish-speakers and their descendents who arrived in Louisiana during the eighteenth century. The largest group of Spanish people to settle near the Atchafalaya Basin consisted of Islanos, or Canary Islanders, who migrated to Valenzuela on Bayou Lafourche, and to New Iberia on Bayou Teche between 1778 and 1783 (Villere 1971:vii). As the sugar cane planters took control of better levee lands along the banks of the Mississippi and Lafourche, the Islanos were forced onto the brules which form the eastern fringe of the Atchafalaya basin (Hawley 1976). There, social values and cultural traits persist in an extremely limited fashion today, but no evidence of the importance of ancestral ties to existing ethnic groups has been ascertained. Wildy Templet, a local historian from Pierre Part, has done extensive geneological work in tracing Islanos descendents from their initial immigration to their present location both on the eastern and western fringes of the basin. Templet notes that the present descendents have been so integrated into Cajun culture that very few have any notion of their Canary Island ancestry (Templet; personal communication, 27 September 1980).

It may be well to note, however, that the Bicentennial Festival held at New Iberia directed emphasis to Spanish ancestral origin by featuring a flamenco dance troup (Moore 1979). But, the fact that Spanish origin is recollected by Hispanic descendents does not mean that ethnic group formation is appreciably affected by this factor. As far as we can discern, the former Hispanic descendents living in the vicinity of the Atchafalaya basin form no ethnic group distinguishable from those of other French-speakers.

Perhaps the most important immigrants to enter the basin, if not in size then certainly in sustained cultural influence, were the

refugees expelled from Acadia by the English in 1755. These Acadians came to Louisiana in two major pulses; about 2400 arrived from Acadia, the English Atlantic Seaboard Colonies, and Saint-Domingue between 1759 and 1776, and another 1600 came from France in 1785 (R. LeBlanc 1979: 99-124). In as much as the Acadians chose to gather from various corners of the western hemisphere and locate on Louisiana soil during the last half of the eighteenth century, we must assume that ancestral origin was indeed a powerful factor influencing ethnic identity and continuity. Conrad (1978a:11) argues that the Acadian reunion in Louisiana can best be explained by a strong desire to perpetuate a cultural identity developed in Acadia. These strong ties with a remembered ancestral origin are particularly interesting when we consider that three-quarters of the immigrants who arrived in 1785 had never been in Acadia (D. LeBlanc 1966:340).

Upon arrival in Louisiana, some Acadians settled above New Orleans adjacent to the German settlements while others located at the newly established District of the Attakapas on Bayou Teche (Conrad 1978b: 89-90). Somewhat before the Islanos, they spread out into the brules east of the Atchafalaya basin and engaged in subsistence farming and limited herding activities. As the plantation system expanded early in the nineteenth century, and wealthy Americans poured into the newly acquired United States territory, the Acadians (as well as many of the Spanish speakers) were pushed even further away from the prime natural levees (cf. Grambling, Chapter 3). Not able, or perhaps not willing (Reilly 1978) to compete with the ambitious Anglo-Americans, the Acadians retreated to the swamp where they began to develop the skills, technology, and know-how necessary to exploit a new environment.

The peoples who adapted to the swamp during the nineteenth century were not of a single national origin. The Gallic persuasion which dominated the acculturative process in southern Louisiana has been termed Cajunization (Wa[illegible]el 1979:4), because the singlemost important conditioning factor was as the Acadian model. Simple geographic proximity and intermarriage resulted in the rapid enculturation (socialization) of Germans, Hispanics, Old World and Canadian French, Anglo-Americans, Indians, and doubtlessly people of other ancestral origins. Several authors have argued that geographical isolation was responsible

for the distinctive Cajun lifestyle (Gilmore 1933:82; Conrad 1978a:8), but given the incredible absorptive quality of emergent Cajunism, isolation must be ruled out as an important factor. The continued admixture of peoples of various ancestral origins into the dominant Cajun group resulted in a cohesive, if somewhat hybridized, social phenomena that continues to exhibit dynamic and vibrant qualities that simply cannot be explained by geographic isolation.

Though the modern Cajun belongs to a distinctive group, whether viewed from within or without the social boundaries of ethnicity, ancestral origin often does not appear to play a major role in ethnic group definition. In analyzing recent data gathered by representatives of three Canadian universities involved in the extensive Projet Louisiane, Waddel (1979:5) noted the revealing fact that, if you ask the average Cajun where he comes from, he will say "je connais pas", or he will simply name a nearby village. The present fieldwork on the Atchafalaya peripheries produced similar responses. For whatever the reason, in the majority of cases it appears that the ethnic inheritance of present Cajuns does not involve an historical consciousness of even remote Acadian ancestry.

It should be noted that these findings are contrary to those purists in the French rennaissance movement who insist on Acadian ancestry as a necessary prerequisite (Spitzer 1979a:126). Our research even revealed informants who adhere to this belief. One man from Henderson would not claim Cajun identity, because he was not sure if any of his ancestors had come from Acadia. Ironically, this individual, who, like his father, has lived in the basin all of his life, has a surname which appears on the census of Beaubassin, Acadia in 1714, and again on the census of the early Acadian settlements in Louisiana, taken at Donaldsonville in 1766 (D. LeBlanc 1966:391-395). Also like his father, this man is an important and respected member of his community. He speaks French with his neighbors and employees and, to the eyes of the outsider, he fits any empirical definition of the term Cajun. So it may be postulated that, while some Cajuns and non-Cajuns do insist that ancestral origin is essential to Cajun identity, this qualification does not seem to figure prominantly in any real aspect of inter- or intra-group relations in the local sphere. The meaning of the term

"Cajun", the identification of definitional qualities attributable to members of the "Cajun" group, and the precise relationship between "Cajun" ethnicity and ancestral origin, are academic concerns to the historian, sociologist, anthropologist, and politician. The French-speaking, crawfish-eating, boure players living in communities of multiple extended family networks on the fringe of the basin need not, and generally do not, concern themselves with such academic issues.

Another social label which has been applied to French-speakers in the Atchafalaya vicinity is the term Creole. Like the term Cajun, Creole has confused and perplexed anthropologists and ethnic group members alike. Also similar to the term Cajun, the use of Creole as a noun in reference to a social category must be viewed in terms of diachronic and synchronic variations. These variations have in the past and continue in the present to accord varying degrees of emphasis on ancestral origin as a vital definitional criterion.

Dominguez (1977:591-596) has pointed out the major historical shifts in the use of the term Creole in Louisiana. During the eighteenth century the major definitional criterion for Creole identity centered on the fact of birth in Louisiana. European ancestry and French culture, inherited or assimilated, were, however, assumed to be prerequisites. When thousands of white, black, and multiracial refugees from the slave rebellions in Saint-Domingue arrived in Louisiana around the turn of the nineteenth century, this social classification gained political and social importance. The meaning of the term shifted somewhat to include individuals native born in the New World, but at least partial Gallic ancestry was still generally considered to be a precondition.

The rapid movement of Anglo-Americans into Louisiana after 1803 caused concern among the politically affluent Creoles. In order to perpetuate and extend the size of the Creole society to contend and "compete" with the massive influx of English-speakers, the definition of Creole was broadened to include practically any social class, race, or ancestry as long as it exhibited French cultural traits. Recent arrivals from France, the anceinne population (old Creole families), gens du couleur (free colored French-speakers), and French-speaking slaves were all defined as Creole.

After the Civil War, northern English-speakers poured into Louisiana. These newcomers could not comprehend a social classification that included peoples of more than one race and many of them believed Creoles to be the product of miscegenation. To escape the social stigma associated with black birth, white Creoles reemphasized the importance of European ancestry and insisted that people of African ancestry could not be Creoles. The Blacks who considered themselves to be Creole under the previous definition, naturally continued to view themselves as Creoles. This mixed usage and its myriad possibilities for ethnic identification have persisted to this day. Ancestral origin holds little relevance to the current ethnicity-ascribing qualities of the term.

The present fieldwork in Atchafalaya communities confirmed the highly situational use of the term. An English-speaking Black man from Musson, who professed not to be a Creole, considered any French-speaking person a Creole. One French-speaking Cajun from Henderson considered Cajuns and Creoles as the same group. Another French-speaking Cajun from Henderson considered both Cajuns and Creoles to be of mixed ancestry but distinguished Creoles as having some black blood. A woman from Coteau Holmes, who had assimilated both Cajun culture and the Cajun language during her lifetime, considered Creole to be the same as mulatre (mulatto). If there are native black and white French-speakers who do consider ancestral origin as important in distinguishing identity, the present investigation failed to identify them. It should be noted, however, that Maguire (1979:3) in his study of Black creoles in Parks, Louisiana, many of whom were descendants of refugees from Saint-Domingue, encountered several old people who remembered familial oral tradition of Saint-Domingue ancestry. However, while some of the Black Creoles in Parks recalled Saint-Domingue ancestry, other Black Creoles in Parks were not descendants of Saint-Domingue refugees (Maguire 1978:1). Since Black Creoles in Parks comprise a single ethnic unit, and since some recognize Saint-Domingue ancestry while others are of different national origins, it must be concluded that ancestry, by itself, does not play a large nor significant role in defining Black Creole identity.

Finally, there are French-speakers living in the Atchafalaya basin area whose ancestors came directly from France to Louisiana at various times but who insist that they are neither Cajuns nor Creoles. The ancestors of some of these people, for example, were French Royalists who fled to Louisiana during the French Revolution (Gutierrez 1979: 101). One descendant of French Royalist ancestry was encountered in Henderson. He assured this author that his family line had never mixed with people of Acadian ancestry, and the testimony of his 80-year old uncle verified this claim. When the young man and his uncle were questioned as to group affiliation, both insisted that they were simply Frenchmen. Thus one might draw the tentative conclusion that distinctive French ancestry might furnish the definition for a separate group of French-speakers apart from Cajuns or Creoles. However as the other dimensions of ethnicity are examined, it may be seen that "Frenchmen" neither constitute a clear grouping nor function collectively as a group separate from other French-speakers.

Italians are also prominent among the non-French speakers living in the Atchafalaya area. Between 1880 and 1910, over 30,000 Italians immigrated to Louisiana, chiefly to work as laborers in the sugar industry (Rathburn 1979a:310). Italians are most numerous today in areas where sugar cane remains or was once the major crop. Relatively large Italian enclaves were confirmed in Maringouin, Charenton, Morgan City, and St. Martinville. The Italians have not been as strongly affected by the Gallic acculturation process as the earlier immigrants to Louisiana. This is probably due to their relatively late arrival and exposure to the process of Cajunization which itself was being influenced by a more generalized modern Americanization. This is not to say that individual Italians have not been enculturated in Cajun lifeways. Previously, a Cajun informant was quoted as saying that "a Dago is a Dago, he will never be a Cajun". This same informant assured the interviewer, however, that the offspring from a Cajun-Italian marriage would all be Cajun.

Unlike other groups, ancestral origin seems to play a prominent role in distinguishing Italians from other groups in the Basin. As several informants have explained, the proof of Italian identity rests in surnames, which their bearers proudly display on fronts of their

grocery and general merchandise stores in at least one levee community. Nor does the pejoritive, "Dago" seem to inhibit the pride with which these signs of ancestral origin are displayed. The survey team saw one camp on the west bank of the Intercoastal Waterway, nearly due west of Plaquemine, on which was a large sign reading "Camp Da Coon Go". There evidently is no stigma attached by the camp owner to such a proud display of his "Dago" heritage; that is to say no more than he feels toward his relationships, or association, with "Coonass" (a pejoritive for Cajun) identity. While his lack of reserve in "showing his colors" is immediately apparent, there is an enigmatic note in his inability to choose between the two identities, or in their confusion, or in their dualistic implications. There may be something in the Italian ethnic which stops short of complete assimilation into other ethnic groups, and that something may in large measure have to do with ancestral origin, either via outside ascription or self-ascription.

Perhaps the fastest growing group in the basin area today is an assortment of English-speaking Americans. The Anglo-Americans became the first nonaboriginal people to settle in and around the basin in the mid-eighteenth century, when Thomas Berwick set up farming operations around the current sites of Morgan City and Berwick (Grambling 1978:47-48). The major period of Anglo-American migration to Louisiana began after 1803 and reached its peak between 1850-1860 (Treat 1967: 36). During this period, Anglo-American plantations sprang up both within and along the fringes of the basin. Plantations were located on bayous Maringouin, Grosse Tete, Sorrel, and Pigeon, and in the center of the basin along Bayou Chene (Comeaux 1972:14-15), and the southernmost reaches around present-day Morgan City (Grambling 1978: 48-49).

After the Civil War, plantations in the basin suffered greatly because of wartime depredations (Case 1973:47; Templet, personal communication, 1979), and because of increased flooding resulting from the removal of the rafts in the upper portion of the Atchafalaya (Comeaux 1972:12). During the remainder of the nineteenth century, other Anglos from the North entered the area with the development of the cypress lumber industry (Spitzer 1979:263). Others took part in

the fishing and trapping commerce which was also expanding. After the great 1927 flood, the population in the interior of the basin began to disperse. The Anglo-Americans generally resettled in the Morgan City and Lower Teche region or in the community of Bayou Sorrel on the eastern fringe of the basin. With the rising importance of Morgan City as a terminal for the oil industry, Anglo-American immigration to this area has drastically increased in recent years.

The Anglo-Americans are distinctively separate from other ethnic groups living in the basin area, but this distinctiveness seems to have little to do with ancestral origin. Throughout the nineteenth and twentieth centuries, acculturation across ethnic boundaries occurred. Individuals with English surnames, for example, are thoroughly integrated with and assimilated into Cajun communities along the western edge of the basin. On the other hand, a considerable number of individuals with French and Acadian surnames become ethnically Anglo. Case (1973:57-59) has pointed to a number of these individuals who lived at the Bayou Chene community before its dispersal, and Spitzer (1979b:264) has followed their resettlement to the Bayou Sorrel locality. Countless others can be found along the Lower Teche and in the Morgan City vicinity. Among the Anglos who became Cajun, as has been noted, ancestral origin has played no important role. Similarly, ancestral origin is a relatively insignificant factor to monolingual English-speaking individuals of Acadian or French descent who have integrated into Anglo-American communities.

Most importantly, the significance of ancestral origin to the majority of Anglo-Americans living in the basin area, i.e., those who have never crossed ethnic boundaries with the French, cannot be viewed as particularly germane to the question of ethnic identity. As individuals from English, Irish, Welsh, Scandinavian, and other national origins make up the Anglo-American group here, the commonality of European ancestry has meant very little to group solidarity. While many of these individuals have memories of ancestors who came from the Upland South, or Tidewater regions, or other areas of the United States, these recollections have not resulted in the construction of any perceivable ethnic boundaries.

Yet another distinct group inhabiting the basin area includes English-speaking Blacks, who are referred to here as Afro-Americans. Like the black Creoles, the Afro-Americans entered Louisiana as a result of the Atlantic slave trade. Originally at least, the distinctions between the black Creoles and the Afro-Americans were due to the ethnic affiliations of their owners. Slaves who were owned by Anglo-Americans generally arrived in Louisiana somewhat later than those belonging to French owners. Many were taken to Louisiana by planters from the Tidewater region after 1803 (Spitzer 1979c:277). The settlement loci of these slaves corresponded to the location of Anglo-American plantations in the basin vicinity. After the Civil War, most Afro-Americans remained as share-croppers or tenant farmers on the same lands where their ancestors had settled. When the lumber industry expanded around the turn of the twentieth century, many Blacks entered the Atchafalaya basin on a seasonal basis as employees for large lumber operations (Marionneaux and Marionneaux 1979). The Afro-Americans (as well as the black Creoles), however, were barred from entering the interior of the basin in pursuit of trapping or fishing careers by entrenched white groups who had already monopolized that economic niche.

Today, the majority of the Afro-Americans reside at or near their original locations. Sizable communities were noted in Amelia, along Bayou Maringouin, and in the Lower Teche region. Ancestral origin is no more important as a distinguishing feature of ethnicity among the Afro-Americans than it is among the black Creoles. Both groups have lost that common but distant "root" at the slave block. If the remote ancestral origins of these people could be discovered, they would undoubtedly be found to consist of descendants of a variety of African ancestral stocks. Social and cultural factors, other than ancestry, separate this group from others of the area, factors which took effect after settlement in the New World.

Several other ethnic units, numerically less significant than those previously discussed, have settled in the basin vicinity. Of these the Jews are probably the most numerous. Jews have been in Louisiana since 1718 (Kaplan 1957:39), but since they generally cluster around urban areas (Spitzer 1979d:334), the basin itself has

held little attraction. The most cohesive Jewish community in the vicinity is located in New Iberia and serves individuals from the Franklin and Jeanerette areas (Kaplan 1957:127-134). A community leader and long-time resident of Amelia informed us that a few Jews inhabit that community. If the Jews from elsewhere in the basin region are comparable to the community in New Iberia, it is safe to say that ancestral origin means little to the cohesion of their ethnic group. Kaplan (1957:122) reports that French, German, and Eastern European Jews comprise a single ethnic unit in the community at New Iberia.

Though the present survey did not encounter any Eastern Europeans, there is a possibility that some have frequented the basin area. In 1949 and 1950, a total of 2,039 Poles, Latvians and Lithuanians were resettled in Louisiana and Mississippi (Rathburn 1979b:324). Many of these immigrants were resettled in the sugar-producing parishes, among which are Iberia, St. Mary, Assumption, and Ascension.

The most recent ethnic group to enter the basin vicinity is comprised of Vietnamese refugees. Within the last five years, resettlement of these people by the federal government has brought them into the ethnic portrait of south central Louisiana. Large Vietnamese aggregates were observed in Henderson and Amelia. In the Henderson community, they work in the seafood industries; in Amelia, they are laborers in various oil field equipment fabrication plants. Though no Vietnamese were interviewed during our survey, other informants in the towns in which they live claim that the new arrivals form cohesive social units which remain largely apart from other parts of the communities. In this particular case, ancestral origin is a key factor in their distinctiveness.

The importance of ancestral origin as a factor of ethnic consolidation varies from group to group. Ethnic identity among the Chitimacha Indians, the Italians, and the Vietnamese does seem to depend, at least partially, on origin. Factors affecting the formation and continuity of other ethnic units in the basin vicinity, on the other hand, have considerably minimized the significance of ancestral origin. English speaking-groups in the basin, the Anglo- and the Afro-American enclaves, while distinctive from other groups, cannot lay claim to specific ancestral origins as a primary condition for their uniqueness.

Similarly, French-speakers living in the area, come from a variety of distinct ancestral origins, the relevance of which appears to be more pertinent to individual idiosyncratic self-appraisal than to any real (i.e., empirically evident) groupings of ethnicity.

Language and Ethnicity

The following discussion does not constitute a substantial linguistic analysis of verbal behavior in the Atchafalaya area, or even of selected parts of the basin. Rather it is an inquiry into one small aspect of sociolinguistics; an inquiry centering on the question: "Is language a key factor to ethnic identity?"

It was proclaimed previously that ancestral origin was pertinent to the makeup of a few ethnic groups; the Chitimacha Indians being a relevant example. The social use of specific language competencies, on the other hand, does not seem to presently aid in defining Chitimacha ethnicity. To be sure, the Chitimacha entered historic times with a native language that probably played a dominating role in ethnic cohesion. Studies of the Chitimachan language have led linguists to consider it as a language isolate, divorced by at least two millennia from other major Southeastern Indian language families (Haas 1971:50). The last fluent speaker of the language, however, died in 1940 (Swadesh 1948:230). Although the Chitimacha language was one of several "salvaged" in the 1930s by the students of Franz Boas (cf. Swadesh 1933; 1934; 1946; Haas 1939), no attempt at maintenance or revitalization of the language has ever been attempted (Gregory 1979:241).

It is interesting to note that toward the end of the nineteenth and well into the twentieth century, the speech community centered around Charenton was exceedingly complex. During the 1880s, when Albert Gatschet (1883) was studying the Chitimacha, at least some of the non-Indian residents of Charenton had competency in the Indian language (Crawford 1975:62). Both English and French were also spoken by many of the Indians and non-Indians alike. This tri-lingual situation existed at Charenton as late as 1926 (Stouff and Twitty 1971:7).

The complexity of this speech community has subsequently diminished. Only one individual presently residing on the reservation has any

substantive knowledge of the Chitimacha language. In addition, informants from the reservation claim that very little French is presently spoken by the Chitimacha and that only older individuals have any competence in this language. No language other than English was encountered during the present field work at the reservation. As a basically monolingual, English-speaking group, the Chitimacha are not distinguished by language from other English-speaking ethnic units in the basin area.

Another case in which language fails to circumscribe ethnicity may be found among the Islenos and other Hispanic peoples. As previously mentioned, peoples of Hispanic ancestral origin, around the basin, have largely been incorporated into other ethnic groups. Over the years, the price of assimilation has included the Spanish language. One 87 year-old informant from the tiny brule community of Lone Star, located on the east side of the basin, reported (personal communication, 4 March 1979) that Spanish was commonly spoken in that region during the first few decades of this century, but claimed that since that time the language has been forgotten. One 84 year-old woman from Bayou Pigeon claimed to have some competence in the language (personal communication, 27 September 1979), though if Spanish ever was used socially to any extent in that community, the practice has long since vanished. During the first part of this century a tri-lingual speech community with competencies in Spanish, French, and English undoubtedly existed over a fairly extensive area bordering the eastern edge of the basin and probably around the New Iberia-Spanish Lake area on the west as well. Any Spanish competence today, however, remains only among very old individuals, and is not used in any social situation as far as the present survey has been able to discover.

French language use in the basin, has, however, remained an integral means of communication. In South Louisiana in general, there are, in the estimation of some linguists, four variant forms of French in use: Standard, Cajun, Creole, and the Acadian variant heard in the Breaux Bridge area (Waddel 1979:2-3). Along the fringes of the Atchafalaya basin, two of the forms dominate, Cajun and Creole. The hierarchical status of the Cajun form vis-a-vis the standard language is not agreed upon by linguists. Tentchoff (1975:88) considers Cajun French to be a dialect, for instance, while Phillips (1978:176)

maintains that, instead of a dialect, "It is something of a common language which has assimilated certain dialectical elements, but, on the whole, resembles the French spoken in the villages and rural areas of northern and western France". The lack of agreement on the dialect issue extends to the degree of variation within each form. Phillips (1978:176) insists that Cajun French (he calls it Acadian) does not vary greatly from one parish to another. Waddel (1979:2), on the other hand, perceives distinctive variations in both Cajun and Creole from one region to another and frequently from one community to the next (cf. Read 1931:xix). In short, definitions and descriptions of Louisiana French are fully as argumentative as the entire question of the ethnic identities of the French-speaking populace.

The following discussion centers on the relevance of the two spoken French forms--Cajun and Creole--to the matter of ethnic identity. The Cajun language, whether dialect, patois, or whatever, is widely spoken in villages along the western fringe of the basin and in the Pierre Part-Belle River-Bayou Pigeon area on the east side. Creole, on the other hand, is distributionally limited to the western edge of the basin. The two variants are distinctive. In extremely simplified terms, Cajun is a seventeenth century version of rural French containing certain French archaisms, a number of loan words from Spanish, English, and various Indian languages (Read 1931:xix), and a simplified grammar (Phillips 1978:176-180). Creole is perhaps best understood as a French lexicon within an Africanized phonology and a unique syntax (Spitzer 1979a:139). Spitzer (1977:143) notes that in its "deepest form", Creole is unintelligible to speakers of Cajun French.

Waddel (1979:2-3) suggests that there is some coincidence between distinctive racial groups and the variants of French spoken; Creole is often associated with the black Creole group, while Cajun is associated with the white population identified externally and internally as Cajun. He further notes, however, that many whites and Blacks are bilingual in Creole and Cajun and that Creole appears to be the dominant form among both Blacks and whites in the Atchafalaya area. The survey encounters with several white Creole-speakers confirms the fact that these forms of French should not be strictly linked with race.

On the larger scene it is evident that French competence, in one form or another, does furnish a key identity factor in the Atchafalaya region. This fact is most clearly manifested in the relationship between French- and English-speakers. To begin with, monolingual French-speakers live in the basin area. The survey team spoke at length with one such individual who resides on the levee berm at Henderson (interviews, 8 August 1979 and 12 September 1979). This 81 year-old Cajun, who has lived his entire life within 10 miles of his present home, cannot converse at all in English. To monolingual non-English speakers living in a nation as thoroughly English-speaking as the United States, language must necessarily define the boundaries of ethnicity. If ethnic boundaries ever serve to structure social intercourse in a real sense, they must operate in those situations involving individuals who cannot communicate verbally with each other. The irony of this situation in South Louisiana is in the fact that monolingual French-speakers may not be able to communicate with their own grandchildren (cf. Guidry 1979:116-119). Can we truly say that a person and his or her grandchildren do not belong to the same ethnic group? Such are the difficulties in pinning down the real essence of a phenomenon as fluid and as dynamic as ethnicity.

In one sense, survey information overwhelmingly indicates that personal and group identity is defined by French verbal behavior. Most French-speakers in the basin area have some competence in the English language. The identity of bilingual speakers is often defined within the complex rules governing code switching (Eidheim 1969:46), and switching between English and French does have identity connotations. On numerous occasions, for instance, the survey team was asked the question, "Ti parle Francais"? The resultant response to this question not only determined the language to be used in conversation, but more importantly, it established an "insider-outsider" relationship between informant and interviewer. In public situations, French is used among relatives, members of the same occupational groups, friends, and other "in-group" acquaintances, while English is used with perceived "outsiders". Quite often French is used as a "secret code" which allows insiders to communicate messages not intended for the ears of outsiders. Tentchoff (1975:95) noted that Creole is used among

adolescent males at school when they wish to confirm peer group intimacy or when they wish to conceal their messages from the teacher.

In another regard, in every French-speaking community visited during the survey, the failure of French usage to cross generational boundaries was noticed. In Catahoula, one of the most characteristically French communities in the Atchafalaya region, we were informed by a knowledgeable community leader that individuals under 35 years of age often do not speak French. When we attended the St. Rita's Church Fair in Catahoula (participant observation, 16 September 1979), this fact was plainly evident. We did hear, on rare occasions, teenagers speaking French. As a general rule, however, a clear correlation between age and French usage was noted--the youth generally lack speaking competency in French. The implications of this finding for ethnicity are clear. The French language is an important identity marker among French-speakers but it is not essential to defining ethnicity of their children who, by dint of consanguineous ties, are also numbered among ethnic group members.

To a more particular issue, we may ask does the Creole-Cajun language dichotomy provide a key boundary marker for separate identity groups among French-speakers? The answer seems to be no, or at least it provides an unreliable indicator. In addition to the factor of inter-generational discontinuity discussed above, there is a widespread bilingual competence in both language forms. Further on, ethnic differentiation among French-speakers based on perceived racial terms will be examined in more detail, but in the present context, it will suffice to say that since black and white French-speakers alike use both Creole and Cajun forms, there is no clear ethnic dichotomy predicated on them alone. It should be emphasized, however, that the lack of identity-deterministic qualities of these language forms does not mean that they are not socially relevant. Tentchoff (1975) has, for example, identified some of the socially defined rules governing the use of these forms. Yet a clear connection between ethnic group membership and use of either of these forms cannot be specified.

Another case in which language seems to be a paramount link to ethnic definition involves the Vietnamese. Informants in Henderson

and Amelia testify that most of the adult Vietnamese speak little or no English. There are presently adult classes being held in Amelia to teach basic conversational English, but we were told that a very small percentage of adult Vietnamese attend these classes. Vietnamese children, on the other hand, attend public schools and are learning English at a much faster pace. Often the children act as tutors and translators for the adults. In Henderson, one informant noted that some Vietnamese show a remarkable propensity for the English language but, in general, a communication gap exists between locals and that oriental group.

Though it is quite easy to see the connection between language and ethnicity in the Vietnamese case, there are no hard data emergent to account for the linkage. There seem to be a number of cultural processes, e.g., acculturation, enculturation, maintenance of cultural traditions, and many others, which go together with language in ascribing identity. There are a number of relevant questions to be considered in the Vietnamese example, questions of importance to the whole issue of ethnic identity. Will the Henderson Vietnamese learn French, or will they learn English, or will they learn both? Will group solidarity (ethnicity) be maintained on a larger scale by French-speaking Vietnamese in a small fishing community (Henderson) and English-speaking Vietnamese in an industrialized urban setting such as Amelia? How will ethnicity be maintained? How will it be lost? What are the ramifications of Viet children acting as culture brokers? Textbook examples of ethnic persistence and change are existing at the present time in the Atchafalaya region. They simply must be monitored and studied now, else the acculturation-enculturation processes always at work will soon cover up the pristine situation.

Excluding French and Vietnamese, English is the only other language of widespread social importance in the basin. There may be Italians who have retained some competence in that language, but, if so, their numbers must be relatively small, and more importantly, no evidence of the social relevance of Italian has been discovered. Some Italians may speak French as a second language, but the majority are monolingual English speakers.

The Anglo-Americans, Afro-Americans, Italians, Chitimacha Indians, and Jews (as far as can be ascertained) are predominantly English-speakers. Their common use of English does distinguish them from French-speaking individuals inhabiting the basin area. Language, itself, does not, however, serve to differentiate these groups from each other, or from other English-speaking groups in the United States. To be sure, considerable variation does occur in the form of English used by these groups. Perhaps it could be argued that the distinctiveness of Afro-American English in relation to Anglo-American English is important to ethnic boundary maintenance between these groups. But, this author doubts, for example, that there is as much difference between the "black" English and the "white" English used in the basin as there is between the black English spoken in Amelia and that spoken by Afro-Americans in Ohio.

There is a further cautionary note in according primary importance to the English language as an identity-producing factor in this country. The problem centers on the process of "Americanization". Ethnicity is a dichotomizing process. Ethnic continuity hinges upon some characterization of distinctiveness. Americanization, on the other hand, is a homogenizing process. In America, the loss of ethnic distinctiveness most often indicates some degree of assimilation or at least acculturation to dominant American norms, among which the use of the English or "American" language is extremely important. It is difficult to view the monolingual English competency of an Italian or a Chitimacha Indian as a factor which encourages ethnicity. Can the Anglo-American of Scandinavian extraction promote his ethnicity by speaking English? Does the English speech of the Afro-American promote ethnicity, or does it merely include him in a larger cultural category which has long since devoured the true dichotomizing elements of his ethnicity? This author leans toward the latter view.

Race and Ethnicity

The concept of race used here does not pertain to physical genotypical or phenotypical characteristics. The concept of a "pure" race, in the empirical sense, has long been abandoned by anthropologists.

If the concept itself ever had usefulness, its applicability to South Louisiana would be especially hard to justify. The fact that perceived racial differences are important in the real world, however, has nothing to do with the empirical validity of any biological category. Race is definitely a *cultural category*. Isajiw (1974:118), invoking Barthian subjectivism, pointed out that when the subjective self-definitions "of people remain the same over a period of time, they become part and parcel of the people's culture". Race, as a category of ascription and self-ascription is a factor in ethnicity.

Perceived racial affiliations do structure intergroup relationships in the Atchafalaya region. Chitimacha Indian ethnicity, for instance, is officially defined in racial terms. To be a Chitimacha, one must be prepared to prove at least one thirty-second Chitimachan "blood". This racial expression forms the border between their group and others who do not possess Chitimacha racial features. While this view may not coincide with various definitions of Indian identity maintained by the federal, Health, Education and Welfare Department (cf. Daily Advertiser 1979:8), it carries considerable weight on the Charenton reservation.

The merger of race and ethnicity in the Chitimacha example, however, must not be oversimplified. Informants from the reservation indicate that intergroup marriages between the Chitimacha and "whites" from Charenton and elsewhere commonly occur. The offspring of these unions are generally classified as Chitimacha, provided the proper quantity of Indian "blood" remains. Informants from the black, white, and Indian groups living in Charenton also attest to a number of consanguinal relationships between Blacks and Chitimachas. The children of their unions are not accepted as Chitimacha, regardless of the amount of Chitimacha "blood". So, while a mixture of "white" blood does not negate Chitimacha identity, any measure of "black" blood does. This explains why the identity crisis faced by the Houma Indians with regard to black blood is not a focus of concern among the Chitimacha. According to the "blood" rules of identity, there are no Chitimacha with black blood. Evidently, the concept of degrees of racial purity, important to Chitimacha ethnicity, are supplanted by perception of social status when Black-Chitimacha boundary markers are raised.

Racial categorization also contributes to ethnic distinctions between French-speaking groups in the Atchafalaya basin vicinity. It involves the black-white dichotomy. This fact is not particularly evident from the literature of Acadiana, no doubt because racial categorization is often not pertinent to social identity in many areas. Blacks are often considered legitimate members of the Cajun group, and either black or white may be Creole. Nevertheless, evidence gathered during the present survey unequivocally indicates that racial categorization as perceived by white French-speakers is essentially important to ethnic distinctiveness. It was discovered that both black and white French-speakers of the Henderson area are Catholic, speak the same languages, and have similar cultural traits. The black French-speakers, however, do not attend Our Lady of Mercy Catholic Church in Henderson because, as informants indicate, they are not welcome there.

When the survey team attended the St. Rita's Church Fair in Catahoula, Louisiana, we were heartily welcomed. When a delegation of locals engaged us to ascertain our "business," we were assured that "niggers" would not be allowed at the gathering. One local, who wished to make this point emphatically clear amid the highly spirited festivities, explained: "We have a good time in Catahoula. We never have any trouble because we don't let niggers come in." Another, who was speaking to this author of his job in St. Martinville, added with an expression of self-amazement, " . . . and, can you believe, I work all day with niggers!"

This feeling of distinctiveness seems to extend to all areas on the fringe of the basin inhabited by white French-speakers. One man from Pierre Part spoke disparagingly of the few black sports fishermen now entering the basin; "Used to be, a black man couldn't go in the basin," he remarked. He assured me that no Blacks were allowed to fish commercially in the Atchafalaya basin. Very few or no Blacks live in the communities of Henderson, Coteau Holmes, Catahoula, Pierre Part, Belle River, or Bayou Pigeon. White French-speakers living around the fringe of the basin, referred to here as Cajuns, do not consider Blacks, no matter which language, religion, or culture they practice, to belong to the same ethnic group as they themselves do.

There are other evidences of ethnic dichotomization based on race. This dichotomization is vividly apparent in the physical spatial

segregation and/or complete absence of black settlement in many basinal communities. Krotz Springs, a community inhabited by both Cajuns and Anglo-Americans, has no black residents. There are no Blacks in the Anglo community of Bayou Sorrel. In Amelia, which is predominantly Anglo-american but with a strong Cajun contingency, Afro-Americans live within a small geographically distinctive precinct. Settlement also appears to be racially controlled in the Charenton community outside the boundaries of the Chitimacha reservation.

The Hispanic race, or the broader Latin category, seems to be of less importance in defining ethnicity than either "black" or "red" categories. This survey found no evidence of an ethnic group comprised entirely of Hispanics. A possible exception might be a Creole who considers Spanish and French mixture as a definitional quality of his group. In such a case, Mediterranean (Hispanic) racial features may be important to such classification. The vast majority of individuals who have Hispanic racial features, however, appear well integrated into other ethnic categories. It is largely undetermined whether Italians believe their ethnicity to be determined in some degree by Latin racial characteristics. This author guesses that most would not differentiate their race from the "white" category. They do, however, if the testimony of an Italian from Maringouin speaks for the general Italian view, differentiate their group from that of the "Blacks".

Members of two other basin groups may consider racial categories as important to ethnic definition. The Jews, though none were interviewed by the survey team, seem to generally espouse the belief of Jewish racial separation. This attitude of racial distinctiveness could be based upon an extremely high rate of endogomy among the Jews (Kaplan 1957:64). The Asian race also, for the time being at least, significantly sets the Vietnamese apart from other ethnic groups. Race seems to be one of many characteristics which result in their distinctiveness.

In conclusion, while there are no empirically valid, biologically distinct "black" or "white" races in the basin area, these culturally perceived racial categories are pertinent to ethnic boundaries. Black-white dichotomization is essential to distinguishing Cajuns from black Creoles, and Afro-Americans from Anglo-Americans. This dichotomy

probably affects the self-definition of Italians and individuals of Hispanic stock as well. In the case of the Chitimacha, this white-black dichotomy "colors" the blood rules of ethnic identity to which they ascribe. The Vietnamese and possibly the Jews are distinguished by racial characterizations which exceed this simple white-black duality.

Religion and Ethnicity

The ways in which religion shapes individual and group identity are complex and far-reaching. The task of defining and describing ethnic groups in the Atchafalaya basin would not be complete without a description of the variety of religious behavioral characteristics of endemic groups. Being aware of the enormity of religious influences in all aspects of culture obligates this author to confine this discussion to the religious implications and expressions of ethnicity only.

Traditional religion among the Chitimacha linked this tribe to the widespread Southeastern ceremonial complex (Gregory 1979:243). Though the traditional Indian religion has been lost since the early 1800s (Stouff 1974:6), segments of this ceremonial complex have fortunately been retained in print (Gatschet 1883; Swanton 1911). Whether or not Chitimacha identity is presently affected by traditional religious concepts is a question yet to be answered. This influence, if it exists, is not demonstrated by public ceremony although segments of traditional religion may still be transmitted within families. The survey team did encounter one woman on the reservation who yet remembers many of the traditional prayers, some of which are associated with medicines and cures. This knowledge, however, remains safely locked in the private domain of Indian consciousness. Traditional influences on modern Chitimacha religious behavior is a topic of great concern to the field of ethnic inquiry. It is also an issue which must be delicately pursued with a large measure of respect for personal and private sectors of knowledge.

The majority of the Chitimacha have long been Catholics. Catholicism was maintained despite years of discrimination. Informants

testify to the rigorous policy of segregation which once determined seating arrangements in churches. In one church, Indians were forced to sit in the last two pews which were marked "Indians Only". So, while practices of public ceremonial worship served to merge the Chitimacha with other Catholics of the community, the boundaries of ethnic identity were maintained. If the homogenizing influence of Roman Catholicism has not strengthened the distinctiveness of Chitimacha identity, at least it seems not to have weakened it greatly. Factors other than religion seem to be more critical social determinants of ethnicity among this group.

Hispanic immigrants to Louisiana were traditionally Catholic. This survey disclosed only one instance of specifically Spanish religious practices. An old woman from Bayou Pigeon reported that her mother recited a long Spanish prayer which had the power to heal snake bite wounds. This informant, herself, knows another, shorter Spanish prayer used for the same purpose. Specific Spanish survivals of this sort are undoubtedly rare. They certainly do not seem sufficiently widespread to affect ethnic identity on a group level. Socially practiced religious ceremony among individuals of Spanish origin do not seem distinct from those practiced by Catholics of other groups.

The French-speakers of the Atchafalaya basin, both Cajun and black Creole, are predominantly Catholic. Religion is certainly a major conditioning factor in the cultures of these groups. A sign hanging in the Henderson City Hall reveals this influence, as it lists among the municipal holidays, the traditional American holidays such as Christmas, Thanksgiving, etc. and the Catholic holidays, such as Mardi Gras, Good Friday, and All Saints Day. Other "American" holidays (e.g., Columbus Day, George Washington's Birthday, etc.) are not included.

If Catholicism organizes the life of Cajuns and black Creoles in the basin area, it also is molded to fit the peculiarities of French folk tradition. A series of unique ceremonial activities, folk medicine practiced by the traiteurs, and other spiritualist behavior are classic examples of cultural redefinition of religion by ethnic groups. Other ethnically peculiar behavior which seems to be quasi-affiliated with Catholicism includes gambling, drinking, and various fetes de benefices (benefit functions). An important item of French ethnicity

that is occasionally incorporated into Catholic religious services is the French language. In Catahoula and Henderson, masses are offered in French for those mainly older individuals who have little or no competence in English. The priest from Catahoula also reports that approximately 40 individuals confess to him in French. (It is interesting to note that other predominantly Catholic communities such as Pierre Part, Belle River, and Charenton do not offer French services, while one Baptist preacher in Belle River does.)

Apart from the peculiarities which mark French Catholicism, the Catholic religion delineates ethnic boundaries in a more general way. As an old Cajun woman remarked, "i'y en a deux religions auras d'icit; i'y en a des Cat'lics, et i'y en a des Halleluyahs" (Translation: There are two religions around here; there are the Catholics, and there the Hallelujahs"). The comment of the old Cajun woman does not, of course, do justice to the great variety of religious predilections evident in the basin area. Yet, the Catholic-non-Catholic dichotomy is important with regard to ethnic boundaries. The Catholic religion, in general, does not act as a boundary mechanism among the Cajuns, black Creoles, Chitimacha, Italians, or Vietnamese. They are predominantly Catholic. If anything, Catholic religion serves as a sort of bond among these peoples. Granted the bond is often tenuous, certainly not strong enough to dissolve ethnic distinctions, but it nevertheless sets these groups apart from the Anglo- and Afro-Americans who generally adhere to various protestant denominations.

The boundary between Catholicism and Evangelical Protestantism cannot be easily mapped. The existence of a boundary has been postulated by Newton (1975:44), who shows it running through the Atchafalaya Basin; Newton, however, has been careful to note that this boundary is often blurred. So it is in the Atchafalaya area. If the western fringe of the basin is depicted as Catholic, then the line must be interrupted by protestant congregations in Krotz Springs, Henderson, Coteau Holmes, Charenton, and all along the Lower Teche to Morgan City. If the eastern fringe is marked as predominantly protestant, then breaks must be shown at Bayou Pigeon, Pierre Part, Belle River, and Stephensville. It seems more logical to view the entire Atchafalaya region, both eastern and western fringes, as a zone of blurred

boundary distinctions between Catholicism and Protestantism, at least in the gross geographical sense.

Ethnicity and Culture

As mentioned before, Isajiw (1974:118-119) determined that "same culture" or "cultural traits" was a category of attributes chosen very frequently by social scientists to define ethnic groups. It is clear that some if not all of the categories previously discussed could easily have been subsumed by this heading. Language, religion, and cultural perceptions of race are all cultural categories. It could likewise be argued that ancestral origins, and myths surrounding them, should also be included under a category of cultural attributes. The fact is, the concept of culture is so inclusive that compartmentalization is necessary to facilitate analysis. Since the relationships between ethnicity and ancestral origin, language, race and religion have already been discussed, this residual category deals with everything cultural that has not been covered. This, of course, opens a wide range of possibly relevant inquiry, and this author proposes to examine some of the more obvious manifestations of ethnicity.

Symbols of ethnicity are occasionally corporal entities wrought by human hands. Examples of these objects can be seen at the Chitimacha tribal museum. Particularly diagnostic are the delicately woven baskets, especially the double-weave type. They often rigidly follow design patterns on baskets over 100 years old (Stouff 1974:8). They are proudly exhibited by the Chitimacha, and some younger women are learning the craft. As a class of objects that represent a continuity in uniquely Chitimacha custom, they are a symbol of Chitimacha identity.

But symbols of ethnicity need not be works of art or even skillfully executed. Wherever Cajuns live around the fringes of the basin statues of the Virgin Mary will be seen enshrined in front yards (Figure 6.1). The placement of many of these shrines atop liquid gas tanks in rural areas has inspired Rushton's appellation, "Our Lady of the Butane Tank" (1971:10). Rushton (1979:15) sees these statues as "evidence of a continuing neo-pagan matriarchal social structure sublimated into fetishism". There is little possibility that the

Cajun consciousness perceives such intricacies. What he does see is that all his neighbors have these shrines. He also notices that members of the protestant community up the bayou do not have them. The shrine thus symbolizes ethnicity; it is actually one of the most noticeable and reliable ethnic markers in the Atchafalaya region.

Sometimes symbols are simply natural phenomena to which cultural meaning is ascribed. In pre-contact times, Atchafalaya natives--the Chitimacha Indians--lived dispersed in communities around Grand Lake, on the banks of Bayou Teche, or elsewhere in the Atchafalaya Basin. Their perception of the land differed significantly from the European settlers; to the latter land was to be owned, not simply used. Because of the enormous differences in perceptions, the Chitimacha, after relocation of reservation lands at Charenton, sold, traded, and even gave away land to non-Indians. The Chitimacha, according to several informants on the reservation, were aware of the White man's concept of land ownership but could see no sense or value in it, since the Chitimacha knew that land could not be really owned by mortals. However, in the last several decades, the continual dimunitions of tribal reservation lands, by legal, paralegal, and illegal (or at least unethical) maneuvers, has engendered new perspectives. Land, the old tribal territory, has become a manifest symbol of Chitimachan identity. Legal efforts are being pursued to win title to lands throughout the basin, where original transfers to non-Indians are of questionable legality. Whether or not there is any traditional or spiritual basis for this new found interest in old tribal lands is really unimportant. The fact remains that these land claims have contributed to group cohesion and revitalized ethnic solidarity.

Even the lowly crawfish has become a symbol of ethnicity. In the 1930s, Walter Coquille recorded some pieces that were thought to be humerous. The following excerpt is from one of his speeches as "Mayor of Bayou Pom Pom" (Old-Timey LP 114):

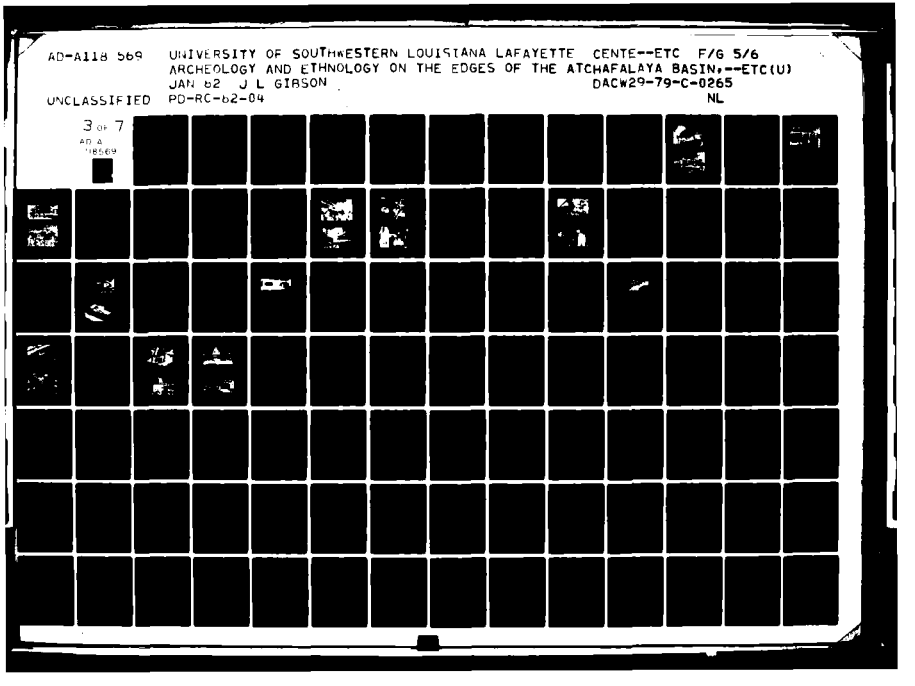
> De other day I seen one parade on de street
> an one t'ing dat always baffle me
> is dat lil bird on top dat flag.
> So I ask a man was stand next to me,
> I say, "what is de meaning of dat bird?"
> An he said, "dat means bravery, dat's de Eagle."
> An me, I tell you, I said,

"He ain't no more braver den de crawfish, haine?"
An he said, "what's dat crawfish?"
I said,"you don't know what a crawfish is?
Where hell is you education?"
An dat's one t'ing about me,
I always take up for de crawfish
because he is de emblem of de Bayou Pom Pom.
An I said, "Put dat Eagle on de railroad track,
let dat train come along blow dat horn ring dat bell.
Ha! You t'ink dat Eagle gon stay dere?
Jamais de la vie!
Dat Eagle will fly away.
Ha! But take de crawfish
de crawfish will stay on dat track.
He will stand dere in all his splendor
an dat train can come along all she please.
Dat crawfish will raise his hands to stop dat train.
He would rather die dan move!
Dat's me my friends! "

As a symbol of dauntless tenacity and stubborness, the Cajun saw the crawfish as an embodiment of his personality. The crawfish symbolized unwillingness to change. When the author was young, the story about the brave crawfish was told and retold by his family and friends in South Louisiana and East Texas. It is still repeated to this day. Among other symbolic representations involving the crawfish is the tee-shirt logo that has become popular among Cajuns in the last several years. It depicts a hand clutching a crawfish held defiantly in the air. Above the logo are the words, "Cajun Power". The Atchafalaya Basin is the home of the crawfish, and the crawfish is a symbol of Cajun ethnicity.

There are countless behavioral traits which serve to distinguish ethnic groups from one another in the basin area. Gambling, for instance, seems to be a mark of Cajunism. The Catholic Church in many communities, far from discouraging this activity, regularly holds bingo games which attract predominantly women and children. For adults, both men and women, weekly boure or poker games are held both in public establishments and within homes. Gambling is also a major attraction at cock fights. No cockpits were encountered by the survey team, but the peculiar rows of separate cock pens, each housing its own [illegible] at private residences are frequently seen on the western [illegible] on the levee berm itself.

AD-A118 569 UNIVERSITY OF SOUTHWESTERN LOUISIANA LAFAYETTE CENTE--ETC F/G 5/6
ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN,--ETC(U)
JAN 82 J L GIBSON DACW29-79-C-0265
UNCLASSIFIED PD-RC-82-04 NL



Public and private drinking is another trait which separates Cajuns from Anglo- and Afro-American groups. Bars and "honkey tonks" are physical signs of this trait. Almost any type of liquor can be purchased at food stores, servicing Cajun communities. Buying a beer in Bayou Sorrel may prove difficult, but enter the Rainbow Inn Bar in Pierre Part and there hangs a sign that says, "Quand on n'a plus de Schlitz, on n'a plus de biere" (When we don't have Schlitz, we don't have beer). One Cajun from Pierre Part, complaining about the high cost of crawfishing today, listed beer as one of the costly necessities. A woman from Catahoula showed the survey team a family altar belonging to two of her elderly friends. Statues of Mary and Joseph were surrounded by holy water bottles, blessed candles, rosaries and assorted icons set off the centrally located crucifix--behind these stood a bottle of Old Crow.

One 85 year-old Anglo-American from Krotz Springs pointed out other peculiarities of the Cajuns. This informant, originally from Tangipahoa Parish, has lived around the basin since 1915. While cutting timber in the basin during his youth, he had lived near Cecilia. He claims that he did not like the place much because all those Cajun boys wanted to do was dance and fight. "I was not used to that type of behavior," he remarked. The Cajuns still like to dance and fight. At Oudrey's Odyssey, a disco club in Belle River frequented by people from ages 16 to 60+, there is a notice on the front door urging young boys to sign up for the boxing tournament held every weekend in Whitecastle. There was little question in the survey members minds about the ethnic affiliation of Oudrey's patrons, after seeing some of the tee-shirts proudly sported by several customers. Framing a caricature of a raccoon in a revealing indecent posture were the words, "Home of Registered Coonasses; Belle River, La." (Parenthetically, the term "Coonass" has become symbolic of Cajun identity in some circles.)

Various institutions and clubs also reinforce ethnic boundaries. The Cajun system of fetes des benefices is one such institution. If money or services are needed for some cause, not necessarily an urgent or indispensable one, the community assembles. Money is gathered in a variety of ways, some of which are peculiar to the Cajun group.

The fete de benefice held in Catahoula (participant observation, 15-16 September 1979) was named the St. Rita's Church Fair because the money collected at this annual affair is donated to the church. It should be mentioned that not all of this money was not intended for St. Rita's Church exclusively. Informants explained that it was an offering to the entire Catholic diocese, world missions, and the Pope himself, and that the people of Catahoula did not expect the money to be used within the community. The money was collected through the sale of beer, gaspergoo courtboullion and various other foods and beverages. A pirogue race, a volleyball tournament, and bingo games also brought in money. A benefit auction was held in which hand-made pirogue paddles, elaborately decorated cakes, and other donated items were bought, redonated, and bought again. All of this was accomplished to the tunes of a Cajun accordian band who donated their services tout gratis. As a social institution, fetes des benefices represent a peculiarly Cajun system of wealth redistribution. When any urgent need arises within the community; i.e., individuals faced with high hospital or doctor bills, houses lost by fire, etc., this system of redistribution funnels money, goods, or services into the hands of the needy. When the Bayou Benoit residents were evicted from their levee homes (King 1977), the residents of Catahoula held a benefit to help them resettle.

A similar institution was not observed among Anglo-Americans, although mutual benefit functions are integral. A Baptist preacher from Belle River explained that the Anglo system of helping the needy was very different from the Cajuns'. Among his congregation, a tithe of ten percent of each family's income is donated to the church. Careful records of these donations are kept and financial reports are regularly distributed among members. At times of need the money is forthcoming from the Church treasury. This system undoubtedly does not extend to all of the various denominational entities found among the Anglo-Americans, but further research is needed to discover other similar institutions. Community reaction to the tragedies that befall members often comes in the form of behavior which solidifies ethnic groups.

Anglo-Americans certainly do have institutions which contribute to their ethnic solidarity. One of these, the Accelerated Christian

Education (A.C.E.) schools, are found in Bayou Sorrel and, surprisingly enough, in Pierre Part as well. These schools are fundamental Baptist reactions against the public school system, particularly the teaching of evolution. Bible passages are the "textbooks" for grades kindergarten through twelfth. This school system personifies the characteristics of independence held by many of the Anglo-American residents of the basin area.

An assortment of other institutions probably important to ethnic identity are found throughout the Atchafalaya vicinity. Blacks from Maringouin belong to a segregated society, called the Knights of Peter Claver. The Secret Order of the Odd Fellows, and their complementary women's organization, the Household of Ruth, were once popular around Charenton. Both Black and white lodges of Masons and their sister groups, Eastern Star, are active in the Lower Teche region. We have heard mention of benefit societies connected with black protestant churches. The Jaycees seem to be extremely powerful among the Cajuns of Catahoula. There are many others. More work is needed to properly evaluate these institutions in the light of ethnicity.

The Vietnamese, Italians, and Jews also have peculiar cultural traits which figure in the maintenance of their ethnic identity. Unfortunately, the present limited field work did not produce any new data relevant to these groups.

Ethnic Groups Identified

The present research in the Atchafalaya Basin has resulted in the identification of eight separate ethnic units: 1) the Chitimacha, 2) Cajuns, 3) black Creoles, 4) Anglo-Americans, 5) Afro-Americans, 6) Italians, 7) Vietnamese, and 8) Jews. Various combinations of ethnically pertinent attributes distinguish these groups from each other. Considerable difficulty plagued attempts to divide the French-speakers of the Atchafalaya region in ethnic constituents. These populations have been classified into two ethnic units, the Cajuns and the black Creoles. Some researchers would see the Cajun group as a polyethnic unit, and members of this group certainly do represent various ancestral origins. The "white" French-speakers encountered

by the survey team, however, seem to function as a single unit. The black Creoles were classified separately from the Cajuns mainly because of the importance of perceived racial characteristics. Race is a factor in group organization in the communities examined during the survey of the Atchafalaya edges. Hispanic groups, the Islenos and others, have not been classified as ethnic groups because in no case were descendents of this ancestral stock seen to constitute groups separate from other ethnic groups. As is the case of the descendents of the original German immigrants, assimilation has resulted in the loss of ethnic identity.

FOLK CULTURES

Definitions and Approach

As defined by Robert Redfield (1947:298), culture is "an organization or integration of conventional understandings", and folk culture is the culture which characterizes a folk society. Redfield's concept of the folk society, forwarded in numerous works published during the 1930s and 1940s, was an attempt to conceptualize the evolutionary development of mankind from primitive savagery to civilization (Wolf 1964:58-61). In 1947, Redfield defined the characteristics of the ideal folk society. He considered this ideal type to be a "mental construction" to be used in classifying real societies according to their position along a continuum between ideal rural and urban developmental phases (Redfield 1947:294). It is clear from his writings that Redfield's folk society is a complete sociocultural unit that operates apart from other folk or urban societies; an isolated whole.

Such a concept has been used to describe Cajun culture. Gibson and Del Sesto (1975:4-9) found that Redfield's folk culture model seems to accommodate a range of sociocultural Cajun attributes. The Cajuns constitute a folk culture because they exhibit some degree of isolation, strong family and religious bonds, occupations well integrated with their environment, many traditional customs and social institutions, and a sense of group homogeneity and solidarity. Though Gibson and DelSesto point to modernizing changes which threaten to transform the

"Cajun folk into just Cajuns", they nevertheless maintain that the folk designation is still analytically useful to the understanding of Cajun culture.

But since Redfield's formulation of the folk society model, conceptions of folk culture have considerably changed. In 1953, for instance, George Foster insisted that folk societies are not self-contained, isolated groups. Foster claimed that folk societies cannot exist apart from their urban counterpart. To Foster, the folk society is a "half society", a part of a larger social unit, usually a nation (Foster 1953:163). In many small rural villages, according to Foster, a folk society exists as a discrete unit. On the other hand, he points to urban classes which are characterized by folk culture but who do not constitute a folk society. Though folk societies cannot exist apart from folk culture, folk culture can exist outside of the folk society.

The existence of folk culture outside of any discrete folk society is implied in Malcolm Comeaux's (1972) work, Atchafalaya Swamp Life: Settlement and Folk Occupations. According to Comeaux (1972:3), his work is "a study of settlement and economic folk practices", with special concern for the "methods by which these folks adapted" to a swamp environment. Comeaux relates how various groups of people entered the swamp for a variety of reasons, and how their way of life evolved as increasingly severe floods changed the economic potential of the basin. He discusses the evolution of techniques of folk industries such as fishing, crabbing, frogging, and trapping, and how these industries were woven into the annual cycle of activities of swamp dwellers. Atchafalaya swamp dwellers and exploiters, however, do not belong to the same folk society. Cajuns, Anglo-Americans, and Indians all share the folk occupations and technology and the subsistence and economic strategies characteristic of the Atchafalaya basin, but they do not generally exhibit family or religious bonds, nor group homogeneity and solidarity. Implicit in Comeaux's description of folk practices is the fact that folk culture is not limited to the boundaries of a folk society.

Still, Foster's concept of folk culture is overly limiting in comparison to contemporary views. While Foster reported that folk culture exists in Latin American urban communities, he maintained

that true folk cultures do not exist "in countries like the United States, Canada, England, and Germany", because of widespread industrialization (Foster 1953:171). To Foster, industrialization, not urbanization, results in the disappearance of folk culture.

Today, folk culture is considered to exist in an urban-industrial environment as well as in nonindustrial rural communities (Burrison 1978:24). The term "folk" can refer to any group of people who share at least one factor (Dundes 1965:2). Office workers, college graduates, and baseball players can all participate in their own shared folk culture. Furthermore, the previous emphasis on traditional understandings as a demarcation of folk culture must be amended. In discussing folklore in Acadiana, Patricia Rickles (1978:245) points out that Cajun folk culture is thriving, vigorous, and dynamic. Folk cultures change; some traditions are lost in the process and new conventions are added.

Conceptions of the environmental setting of folk cultures, the folk themselves, and the processes by which folk cultures flourish or die out have changed over the years, but Redfield's basic definition of culture (1947:258) has not been improved upon; it can still be used to construct a definition of folk culture. If culture is "an organization or integration of conventional understandings", then folk culture is the shared conventional understandings of a particular folk. Folk culture, then, is intangible; we do not see folk culture, rather it exists in the cognition of each member of the folk.

It is through tangible expressions of folk culture, commonly referred to as folklore, that folk culture can be best understood. As Henry Glassie notes in a forthcoming paper, the homemade banjo as well as the songs played on the banjo are expressions of folk culture; material objects and verbal and non-verbal behavior are important to the folklorist. Furthermore, folklore must be studied in whatever setting it is found, whether that be on an isolated houseboat tied to the bank of Bloody Bayou or in the construction yard of offshore oil derricks. Folklore, as defined here, is any expressive form through which shared conventional folk understandings may be analyzed.

At the same time, there are important differences between the folklore found among members of a folk society and that found among modern industrial workers,for instance. As Foster noted, folk societies

do not exist apart from folk culture. Shared conventional understandings permeate the entire sociocultural existence of the folk society; they relate to subsistance activities, religious beliefs and behaviors, and mores and customs. They are transmitted from generation to generation. As Bascom (1965:297) has noted, folklore has the essential function of maintaining culture, and in reference to the folk society, the terms culture and folk culture are synonymous.

This need not be the case, however, when folklore emanates from a folk culture articulated upon a set of limited conventions. Take the folklore shared by derrickmen for example. Derrickmen belong to an occupational class, and as such they share a set of conventional understandings. Folklore shared by derrickmen may include a complex system of hand signals which coordinate drilling activities through the deafening roar of diesel engines, or it may include a set of obscene jokes passed around during lunch breaks. But when these derrickmen leave the oil rig at the end of their shift, or when they take a vacation, or when they are fired or resign, they leave that particular folk culture. The folk culture of a derrickman need not enter any other aspect of his culture. Derrickman folklore still functions to maintain a certain folk culture, but it may have minor importance to the culture of the derrickman.

The function of folklore changes according to the societal setting in which it is found. In the folk society, folklore maintains culture; in the urban-industrial society, folklore maintains only a subset of culture. In order to distinguish between these two functional settings, the following discussion will be divided into two parts: folk culture in the folk society and folk culture outside of the folk society. The first part will concern the relationship between folk culture in the Atchafalaya basin area and traditional definitions of the folk society (Redfield 1947; Foster 1953). This approach will illustrate the expanded function folklore maintains within rural society. The present analysis of folklore outside of the folk society will touch upon folk cultures which articulate upon specific and limited sociocultural factors.

Folk Culture in the Folk Society

Redfield (1947:295) argued that the folk society is small; that "there are no more people in it than can come to know each other well". As such, a folk society may be limited to a single community. In a later publication, Redfield (1973) did offer the concept of the "little community" as an analytical unit which corresponds closely to many of his definitions of the folk society. These little communities abound throughout the Atchafalaya area. Communities such as Henderson, Catahoula, Bayou Sorrel, and Bayou Pigeon may vary somewhat in size, but most of the members of these communities are on familiar terms with one another. Even the residents of a bayou line settlement (cf. Newton 1972:84) such as Pierre Part, which stretches for miles along either bank of Bayou Pierre Part, generally know or know of each other.

But a folk society need not be limited to the boundaries of a single community. Before the flood of 1927, when the nomadic lifestyle of swamp dwellers was enabled by means of the highly mobile house boat (Abbey 1979:4-5), swamp dwellers developed extensive systems of acquaintances. After the swamp became a spillway and swamp dwellers resettled in nonmobile communities along the fringe of the basin, these acquaintances were maintained. It is common to find members from one community who have friends or relatives living in other communities, often kilometers away on the opposite side of the basin.

Isolation is another feature that Redfield considered characteristic of the folk society, and it is very tempting to try to explain Atchafalaya basin folk culture in terms of isolation. Earlier this century, many communities existed in the heart of the Atchafalaya swamp. An old-time swamper from Krotz Springs supplied the survey team with a description of one of these seemingly isolated communities. Happy Town was a community which stretched for over two kilometers along the west bank of the Atchafalaya between Krotz Springs and Butte la Rose. According to this informant, the community consisted of six large families and two other camps of men, whose livelihoods depended upon fishing. Fish boats from Krotz Springs or Atchafalaya Station went regularly to the community to trade a few outside goods for surplus fish. These people had relatively few contacts with the outside world. There was

no television, no movie theatre, no school, and no land routes to other communities. Throughout the first half of the twentieth century, this community existed with very little change until the early 1950s when the people started moving out.

Though Happy Town and communities like it were relatively isolated, there were always important contacts with the outside world. For at least a century, these seemingly isolated fishing villagers, for instance, responded to the market demands of a modern industrial society. Comeaux (1972:40) quotes an article in the Morgan City Review (May 2, 1908), which discusses the possibility of a strike by fishermen from Happy Town and other communities "unless the price of fish is maintained at five cents per pound". Many of the very techniques used in fishing the Atchafalaya swamp were introduced by migrating fishermen from the more northern parts of the Mississippi Valley (Comeaux 1972: 20). Although overland roads connecting basin communities were nonexistent or scarce, water transportation allowed access to or from the outside. As noted previously, a number of distinct ethnic groups inhabit the basin area; cultural contact among these various groups reduced the role of isolation in the lives of the swamp dwellers.

Today, of course, the vast majority of residents inhabiting the fringe of the basin have televisions, radios, tape and record players, and Citizens Band radios, etc. Highly powered boats, on- and off-road vehicles of all types and interlacing land and water routes allow rapid transportation to most points inside or outside the Atchafalaya basin. Yet relative isolation still occurs. Figure 6.2 shows a houseboat near Bayou Sorrel inhabited by an elderly woman. This woman does not have electricity or land tranaportation. Figure 6.3 shows the residence of an elderly couple located within the basin on Bloody Bayou. An occasional trip by boat to Bayou Sorrel for supplies and rare visitors to their swamp home constitutes the only contact this couple has with the outside world. Though there are few permanent residents of the interior of the basin (cf. Rudloe and Rudloe 1979), there are some who remain. Relative isolation can also be said to occur among monolingual French-speakers no matter where they live around the basin. One elderly man encountered by the survey team on the levee at Henderson, for instance, could watch the evening news



FIGURE 6.1. Shrine to the Virgin Mary, Pierre Part.



FIGURE 6.2. Inhabited Houseboat near Bayou Sorrel.

for the rest of his life and still not be appreciably informed about the outside world; language barriers, not adequately breached by the media, do contribute to isolation. But, generally speaking, isolation does not seem to be a major defining characteristic of Atchafalaya basin folk societies as they exist today.

Redfield (1947:296) also defined the folk society as one in which the members share intimate communication. All types of expressive forms are used to communicate, but perhaps the most common form is verbal. The realm of verbal communication dichotomizes folk societies in the Atchafalaya basin. As discussed in the section dealing with ethnicity and language, not all of the swamp dwellers and exploiters living in the basin area speak the same language. It has been noted that this condition is changing rapidly and, sometime in the future, all residents of the area will likely have at least the competency to communicate verbally. For the time being, however, it seems justified not to view monolingual French- and English-speakers as members of the same folk society.

Members of a folk society are also illiterate; they have "no access to the thoughts and experiences of the past whether of other peoples or of their own ancestors, such as books provide" (Redfield 1947:296). This is certainly true of a relatively large number of Atchafalaya basin residents. This fact became especially evident during discussions with many Cajuns about their ancestral origins. Other groups in the basin probably have high illiteracy rates as well. However, educational facilities, private and public, such as the Bayou Pigeon Library (Figure 6.4), are modifying this picture. Literacy has made inroads, however subtle, into all folk societies in the basin area. Depending upon the success of educational facilities, we can expect this definitional criterion of illiteracy to become less applicable in the future.

A set of homogenous customs are shared by members of a folk society (Redfield 1947:297). This factor is somewhat comparable to shared culture previously discussed in reference to ethnic groups. But folk societies may vary from ethnic groups in the way in which customs are transmitted. In the folk society, folklore is the vehicle by which customs are homogenously extended to all members. Music,



FIGURE 6.3. Residence of Elderly Couple Located on Bloody Bayou.

for example, is one folk custom important to the Cajuns. On the western fringe of the basin, Cajun music featuring the French accordian is very common. This music is indigenous to southwest Louisiana yet it retains elements of French folk music brought to the New World by the Acadians over 300 years ago. On the eastern fringe of the basin, French music is also common, though the accordian, a nineteenth century introduction to the southwestern Louisiana prairies, is rarely heard. Cajun music has never been affected by classical influences, and with few exceptions (cf. Whitfield 1969), the music has never been written in musical notation. Cajun music is learned "by ear". Shown in Figure 6.5 is a Cajun band playing at St. Rita's Church Fair in Catahoula (15 September 1979), fronted by a group of young boys who are "studying" the music.

Cajun music is dance music, and the dance is another element of folklore. This folk custom is transmitted from one generation to the next in the manner shown in Figure 6.6. Particularly noticeable is the wide range of age groups represented on the dance floor. In many Cajun dance halls, the state law forbidding entrance to persons under



Bayou Pigeon Library.



Boys "Studying" Cajun Music, Cataloul..

18 years of age is ignored. To the Cajuns, dancing is not exclusively an adult activity. As one dance hall proprietor explained, "how do you expect the kids to continue our ways if they can't see how we do?".

This comment points out another important element of the folk society, the importance of family relationships. Clyde V. Collard (1975:111-118), in reviewing literature which describes the Cajun family, commented upon what he calls the typical Cajun family "as it existed in pre-modern times". Collard emphasizes the importance of the extended family as a primary structural element in a broad range of group activities. He also discusses the woman as the traditional carrier of culture and the man as the dominant head of the household. But Collard considers these traditional characteristics as no longer applicable to the Cajun family, which has been greatly changed through contact with contemporary American culture. Admittedly, there is much truth in Collard's comments when they are applied to Cajun culture in general, but along the fringe of the Atchafalaya basin, the survey found "pre-modern" Cajun familial attributes largely intact. Perhaps the young Cajun wife brought up in Lafayette alters the internal structure of her home by feeding her family hamburgers, frozen prepared dishes and instant meals, but the art of cleaning and carefully preparing a soft shell turtle is not lost among young wives residing in fishing villages along the fringe of the basin. In contrast to the urban realities of large cities, villages surrounding the basin are largely composed of extended family networks which still structure group activity. Also contrary to modern trends (cf. Rickels 1977: 70-71), the observations of the survey team indicate that women still tend to marry and bear children at a young age in both Cajun and non-Cajun communities. More fieldwork in the Atchafalaya basin area is necessary to adequately gauge the extent to which the family bond has been weakened by modernization, but it seems evident that the strong family ties characteristic of the folk societies still exist.

According to Redfield (1947:303-304), the folk society is a sacred society. Ritual and ceremony tend to be sacred instead of secular, and sacred objects are commonplace. Just as religion is an important factor influencing ethnicity in the basin area, so is it integral to folk societies. But the sacred nature of the folk society need not be

limited to structured religious activities. Rushton (1979:10) is convinced, for instance, that Catholicism among the Cajuns consists of a thin veneer covering more important inner convictions that "have been generously interlaced with ritual holdovers from pagan rural areas of seventeenth-century France". In fact, Rushton (1979:7) defines Cajunism as "a form of North American neo-paganism" with strong Celtic influences. He points to pre-Christian attitudes toward dead babies that survive in the Cajun belief that if babies die before they are baptized they become couchemals, or evil spirits. He correlates the Cajun use of palm fronds blessed at Palm Sunday in various weather-control rites. His views linking a pagan belief system with the "totem of the Virgin Mary" have been previously mentioned.

Though it seems fallacious to refer to devout Catholics as pagan, such evidence does seem strong. A Cajun woman from Catahoula informed the survey team of the ritual of Pie Day. Pie Day occurs on Good Friday, one of the "holiest" of Catholic holy days. The informant explained that for years the residents of the Atchafalaya swamp had very little formal training in catechism. They knew that Good Friday was an important day, but they did not know how it should be observed. Not knowing whether to fast or feast, the Cajuns instituted what to them was an appropriate ritual. On the morning of Good Friday the community would rise early to attend the Stations of the Cross. No food or beverage, "not even coffee", was consumed in the morning. After the Stations of the Cross, however, the group assembled at a local residence and began a period of feasting. All present were expected to bring enough pies to insure that the feasting would continue for the balance of the day. Cajun music and alcoholic beverages were also important elements of the ritual. The informant's remark, "do what you have to do first, then let loose!", quite astutely captured the Cajun essence of this ritual.

It is well known by historians that some trees, particularly but not exclusively oaks, were considered dieties by the Celts (Powell 1960:155-156). Is it mere coincidence that the people of Catahoula decided to attach their Stations of the Cross to oak trees along an 11km stretch between St. Martinville and Catahoula (Figure 6.7)? Surely she was speaking figuratively when the "Pie Day" informant

remarked that, "I just worship oak trees."! When this informant and her husband built an addition to their home, a large pecan tree stood in the way. Instead of cutting the tree down and removing the stump, allowances were made in the design of the floor and roof so that it could become a permanent fixture of the house (Figure 6.8).

One of the highlights of the St. Rita's Church Fair in Catahoula was the "sacrificing of a maiden". The ceremony supposedly reenacted a ritual sacrifice practiced years ago by Indians who believed Catahoula Lake to be sacred. Dressed in Indian costume, the young Cajun girl was carried by pirogue to a platform stationed in the middle of the lake, whereupon she ceremoniously plunged into the waters and hid under the platform. The observers on the bank were left mumbling in French that surely she had drowned. Hopefully, this author is not merely belabouring the point when it will be recalled that a real sacrifice of a maiden to a sacred spring was once a common Celtic ritual (Cunliffe 1979:80).

Rushton (1979:11-14) also notes what he calls "the witch-doctor role in Cajunism", a practice which he believes to be a syncretism of pre-Christian European, North American Indian, and African pagan belief systems. During the brief span of fieldwork, the survey team encountered four treaters, three traiteuses, and one traiteur. The traiteur is the same resident of Catahoula mentioned in a recent National Geographic article (Rudloe and Rudloe 1979:383). This man describes himself thusly (Rudloe and Rudloe 1979:383):

> People that has visited me . . . they find a snake skin or chicken head in their pillow, crossed nails or crossed matches. I have certain prayers I say for their success to overcome the evil that follows them. I overshadow whatever that person walked in . . . that's what I am--a traiteur.

A French anthropologist studying folk practices in Louisiana claims that members of the black Creole community of Parks visit this traiteur in order to have voodoo spells removed (Sylvie Marchand, personal communication, 1980).

Two of the women treaters the survey team encountered are Cajuns, one is from Catahoula, the other from Bayou Pigeon; the third is an Indian woman from the Chitimacha reservation. The Cajun woman from

Catahoula and the Indian woman rely upon Indian prayers, herbs and ritual behavior to cure. The former reported that she received her training from an Indian man who lived on Bayou Sauvage many years before. She said that the sacred knowledge can be transmitted only to a younger member of the opposite sex. The Indian woman said that her knowledge would never be transmitted to a non-Indian. The Cajun woman from Bayou Pigeon uses a Spanish healing prayer she received from her mother. The Sign of the Cross performed before and after the prayer is important to the success of her method. These examples confirm Rushton's proposition that a syncretism of various non-Christian and Christian belief systems has occurred in South Louisiana. Future studies of folk culture in the basin area may proceed with the conviction that strong currents of nonorthodox spirituality do exist among Atchafalaya folk societies.

Other definitional qualities of the folk society have to do with technoeconomic simplicity. Redfield (1947:297) stated, for instance, that members of folk societies make few secondary tools and that "there is no making of artifacts by multiple, rapid, machine manufacture; there is little or no use of natural power". Figure 6.9 shows a craftsman from the Catahoula community. He constructs small toy pirogues which are usually given away as presents. His tools consist of a hand saw, hatchet and hand plane. When this craftsman fashions a full-sized pirogue or pirogue paddle, the same basic tools are used. Simple tools and techniques are commonly used in the handcrafting of many artifacts used for swamp exploitation. Crawfish traps (Figure 6.10), for instance, are hand-fashioned from chicken wire (called crawfish wire in the basin) and tie wire; a pair of pliers is the only hand tool needed. Crab traps (Figure 6.11) are similar contraptions made out of heavier wire mesh. Fishing gear may be somewhat more complex but the only tool required in the knitting of the fisherman's hoop net is the universally used shuttle (Comeaux 1972:50).

It would be grossly misleading, however, to conclude that folk societies in the Atchafalaya area use only simple technology. Figure 6.12 illustrates a type of boat commonly used by the modern crawfisherman. Sheet aluminum is used in the construction of this boat. The aluminum is fastened by application of a highly technical heliarc



FIGURE 6.6 Young Girls Learning Cajun Dance Steps, Catahoula



FIGURE 6.7. One of the Stations of the Cross Attached to an Oak Tree near Catahoula.



FIGURE 6.8. Pecan Tree Growing through Floor of a House near Catahoula.



FIGURE 6.9. Catahoula Craftsman and Tools.

welding process developed for industrial purposes. The boat is propelled by an outboard motor, manufactured by a national firm. The motor runs on fuel refined by complex technology from a crude resource extracted by some of the most sophisticated technology in the world. The same fuel powers the four-wheel drive, mud-slinging Chevy that pulls the crawfisherman's boat from its resting spot in front of an all-electric brick home to the landing, which has been built by heavy construction machinery, themselves products of complex technology. The level of technology available to and used by residents of the basin area is not characteristic of traditionally perceived folk societies.

Members of Redfield's (1947) ideal folk society are economically independent; their economic activities are not inspired by commercial gain. High degrees of economic independence are exhibited by many residents of the Atchafalaya area. Take for example the subsistence strategies of Eddy B_____ from Charenton. This informant makes his own hoop nets and crab and crawfish traps. He catches enough seafood in the basin to easily satisfy his family's needs. He does his fishing from two, eight horsepower, Lockwood-Ashe inboard motorized bateaux, the first type of motorized boat ever used in the basin (Figure 6.13). He has three of the simple and economical "putt-putt" engines for spares in case of trouble. Naturally, he does all of his own mechanic work.

Eddy B_____ produces almost everything else he needs on the several acres of land where he resides. When the survey team visited him on 4 October 1979, large mirlitons (vegetable pears) were hanging from vines which had climbed to the top of his 12-feet high fig tree. His large summer garden was still producing more than a dozen different kinds of vegetables. Behind his house were some 40 orange trees, all heavily laden with ripening fruit. On one side of the orange grove were 14 bee hives, each with a brood chamber and two honey producing "supers". Adjoining his workshop, where Eddy B_____ does his wood- and metal-working, was the water cistern. Eddy B_____ has never accepted the public water supply offered to residents of Charenton.

The Atchafalaya basin and the fertile levee of Bayou Teche furnishes this man with the needed resources for a relatively independent existence, but not an independence of the commercial world which surrounds him. He not only produces or procures oranges, figs, honey, vegetables, crawfish,

crabs, and fish, but he sells all of these as well, as well as anything else of value. The independent economic strategies of this informant are similar to those of many in the Atchafalaya region; but while economic independence is highly valued, so is a shrewd business sense.

On a larger social scale, it is impossible to describe any particular folk society of the basin as economically independent or lacking in commercial motivation. Many members of any group residing in the area hold wage-earning jobs in the oil fields, salt mines, or various other industries unrelated to swampland exploitation. And although there are individuals who use basin resources for strictly subsistence purposes, swamp exploitation is generally commercial. In the spring of each year, many residents living on the periphery of the basin give up good-paying jobs to participate in the crawfish harvest. Depending upon the aggressiveness of the individual crawfisherman and the bounty of the harvest, this activity can be more lucrative than any other job available in the area. In communities surrounding the basin, large crawfish processing and transporting facilities (Figure 6.14) have sprung up to take advantage of commercial opportunities. Similar facilities exist for handling the commercial fish, crab, turtle, and frog catch as well.

In summary, several important sociocultural and technoeconomic realities of the Atchafalaya area do not conform to the ideal folk society. While some individuals choose to live in remote settings, for instance, no social unit can truly be described as isolated. Illiteracy is a common condition among individuals, but the term cannot be applied to any social group. Nineteenth and twentieth century contact with industrial America has insured a level of technological complexity which presumably neither Redfield (1947) nor Foster (1953) would accept as characteristic of a folk society. And, while swamp exploitation is integrated into the independent lifestyle of many locals, profit cannot be underestimated as a prime motivator. In short, the folk industries described by Comeaux (1972) do not generally fit traditional conceptions of the folk society.

Other characteristics of social groups in the swamp area, however, suggest that folk societies do exist. Relatively small communities of



FIGURE 6.10. Crawfish Trap found on Berm of West Protection Levee near Bayou Benoit. Melvin Cousins points toward opening.



FIGURE 6.11. Crab Trap Fabricated by Informant from Charenton.

individuals who share intimate communications through daily face-to-face relationships are found along the fringes of the basin. In many cases, these communities are populated by individuals who share a set of generally homogenous customs. Some of the societies, particularly those composed of Cajuns, black Creoles, and Chitimacha Indians, do have powerful sacred components which seem to touch nearly every aspect of social life.

In as much as some communities are linked to, or separated from, others on ethnic grounds, there appears to be more than one folk society. In fact, the concept of the folk society corresponds quite well with that of the ethnic group. Both are biologically self-sustaining groups whose members fill all of the necessary social roles. Members of both types of groups generally speak the same language and share a homogenous set of customs and values. No segregation occurs among members of the same ethnic group or folk society based upon racial perceptions.

On a conceptual basis, however, there seems to be one important factor which separates the folk society from the ethnic group--the manner by which group cohesion is maintained. Cohen (1974) describes the economic elites that dominate the city of London as members of one ethnic group. He states that "they are related to one another not only by a common style of life and friendship, but also by kinship and affinal relationships" (Cohen 1974:xx). Members of this ethnic group, according to Cohen (1974:xix), are the products of a public school system that socializes or trains pupils in specific patterns of social behavior including accent, manner of speech, style of joking, etiquette, etc. But if ethnic group cohesion can be fostered and maintained by formal education, the cohesion of folk societies cannot. The traditions and customs which bind the folk society are transmitted by way of folklore. Folklore may occur in a variety of forms including verbal and nonverbal behavior, as well as material objects which embody important stylistic conventions, but there is no room in the folk society for formal socialization.

In the Atchafalaya basin region, ethnic groups and folk societies cannot be distinguished from one another in terms of socialization. Though public education is offered in the area, the body of conventional

understandings that contribute to group cohesion is not taught in the classroom. To the contrary, formal education tends to socialize the student to standard American norms which threaten to replace the distinctiveness of both ethnicity and folk culture. But for the time being, despite the onslaught of modernization, we are still able to identify folk societies. These groups do not perfectly correspond to Redfield's ideal construction of the folk society, but neither do they approach the ideal type which occupies the opposite end of the rural-urban continuum.

Folk Culture Outside of the Folk Society

As mentioned, folk culture articulated upon exploitation of swamp resources cannot be ascribed to any particular social group. Anglo-Americans, Cajuns, Indians, and members of other social units share a more or less homogenous set of adaptive strategies pertaining to swamp exploitation. Some of these folk activities are described in the following pages. The narrative borrows extensively from a recent unpublished work by the author (Brassieur 1979).

Wetland Lumber Industry

The first lumber operations in the basin began well before the Civil War and relied upon folk techniques (Comeaux 1972:19). Early lumbermen adapted to the seasonal vacillation of the swamp environment. In the fall, trees were "ringed" with an axe in order to remove the sap. During the spring flood, these deadened trees were cut and floated to the sawmill. This technique was particularly developed for the gathering of "natural floaters" like the cypress and tupelo gum which existed in virgin profusion throughout the basin.

As the wetland environment increased, subsequent to the removal of the raft, this technique began to be profitable on a large scale. By 1870, large crews of lumbermen, some local inhabitants, some northern lumberjacks, and a great many Blacks from the surrounding agricultural lands began to harvest the great forests (Comeaux 1972:19).

Technological advances in the last half of the nineteenth and early twentieth century boosted the lumbering industry into a highly

efficient, if somewhat devastating, operation. The overhead skidder and the pull boat allowed millions of board feet of lumber to be rapidly extracted from the basin (Marionneaux and Marionneaux 1979: oral history interview; Abbey 1979:9-12). Rapid transportation of felled timbers was provided first by steam-powered boats (e.g., exhibits and photographs at Schwing Memorial Library in Plaquemine) and later by gasoline powered boats and an extensive railway system (Abbey 1978:X5). The move from passe partout (two man cross-cut saw) to power driven chain saw was another significant advancement to lumber industry which occurred during the 1930s (Marionneaux and Marionneaux 1979). By 1927, the great red cypress forests were depleted (Angers 1971:25). Although other species such as oak, cottonwood, willow, and gum continued to be logged on a smaller scale, the days of the great lumber businesses were over.

According to a long-time lumberman presently working in the upper Atchafalaya basin area, the increased sedimentation which has occurred following the completion of levee projects and dredging operations has seriously damaged the lumber business, killing entire stands of trees. The ongoing increase in bottomland areas at the expense of the wetlands has also changed logging technique. The old method of floating the logs out during the spring flood is not used anymore. Instead, roads are built through the forest, and trucks are used to haul the cut timber.

Trailing Sinkers

A number of informants described an interesting "cleaning up" industry that developed after the great cypress boom was over. The method used to extract logs from the swamp environment relied heavily upon seasonal changes in water level. The purpose of ringing the trees with an axe in the fall was to allow the sap to drain out. When the spring floods arrived, the deadened trees could be cut down and floated to the mills. Quite often, however, a lumberman would fell a tree during the spring flood only to find that enough sap had not escaped from the tree to permit buoyancy. These trees would sink into the flood waters and be impossible to move to the mill. Whenever the loggers realized that they had cut a "sinker," they would attempt

to connect it to a raft made of good "floaters". Occasionally, much to the disappointment of the loggers, the entire raft would be dragged under by the sinker. As siltation increased in the basin, these sinkers were covered with sediment making their retrieval too costly for the lumber companies to pursue.

Crafty folk, mainly Cajuns living on the fringe of the basin, soon developed methods of retrieving these sinkers. A group of men would "trail" through the swamp during low water looking for likely rises in the terrain. A hole was then dug to verify the location of the sinkers. Next, a trench was placed across the rise wide enough to permit the seven foot passe partout to be lowered onto the logs. Once the log was cut, a team of mules would be hitched to the log which was then pulled to the sawmill.

A variation of this technique developed using the spring floods to facilitate removal of the sinkers. After the sinkers had been freed from the earth, they were rafted together and tied to a set of pontoons made of good floaters. When the yearly flood came, they were then dragged to the mill by a small motor boat.

As one could imagine, trailing sinkers was a tremendously hard job. It was accomplished by poor swampers who could not afford the price of lumber. To have these sinkers cut into usable planks, swampers often had to give half of the milled lumber to the sawmill. Yet, despite difficulties, many of the framed cypress houses on the fringe of the basin today were built entirely of cypress heartwood extracted from the basin in this manner.

The survey team encountered three brothers from Krotz Springs who continue to trail sinkers. Their method , however, have been considerably modernized. These young men inquire of the older swampers as to where float roads were once located. Then, with the help of diving equipment and probes, they search these locations. After locating a sinker much of the overlying sediment is removed by air probe and compressor, or by wheel wash from the propeller of a large motor boat.

A metal barge is then sunk on top of the log. Members of the salvage team then chain the log to the sunken barge and, as air is pumped into the barge, its buoyancy dislodges the log from its resting place. The log is then pulled to shore by motor boat and loaded onto a

a large gooseneck trailer by means of a heavy duty electric winch. The cypress logs recovered by this process were once living parts of the great virgin forests which covered the basin area. The oldest, and usually the largest, logs often still bear the oak pegs once used to raft cut timbers early during the lumber industry (Figure 6.15). More recently cut logs often bear metal "chain dogs" which replaced the oaken pegs and splices as rafting devices (Figure 6.16; cf. Mancil 1972 for a more comprehensive discussion of wetland cypress lumbering).

Fishing

Fishing in the Atchafalaya Basin is an extremely old folk activity having been important as a means of subsistence to the Indians of the region (Swanton 1946:819). As Europeans began to move into the swamp during the early 1800s, fishing for local consumption continued to be significant (Brackenridge 1814:172). Removal of the raft and subsequent increasing severity of floods throughout the mid-1800s, significantly contributed to a swamper's lifestyle which depended on fishing (Comeaux 1978:151).

By 1873 (Everman 1899:299), commercial fishing had begun in the basin. The development of the tow-car, a large flat-bottomed skiff that permitted free circulation of water through the hull, allowed live fish to be transported out of the basin (Comeaux 1972:31-34). The establishment of the Southern Pacific Railroad and the Opelousas Railroad in Louisiana, coupled with the invention of ice making machines led to peak development of the commercial fishing industry late in the nineteenth century (Abbey 1979:13). Since that time, commercial fishing has been an important enterprise in the Atchafalaya Basin.

A variety of fish are caught in the basin by commercial and sport fishermen. The catfish is the most avidly sought by most commercial fishermen. This delectable catch is sold as a specialty in restaurants throughout the South. Presently the major type caught is the eel catfish (Ictalurus punctatus, Comeaux 1972:36). This fish is commonly known as the "channel cat" by English-speakers, or barbu or barbotte by the French speakers. The yellow catfish, called goujon or machoir-ronde by the French, as well as the blue and

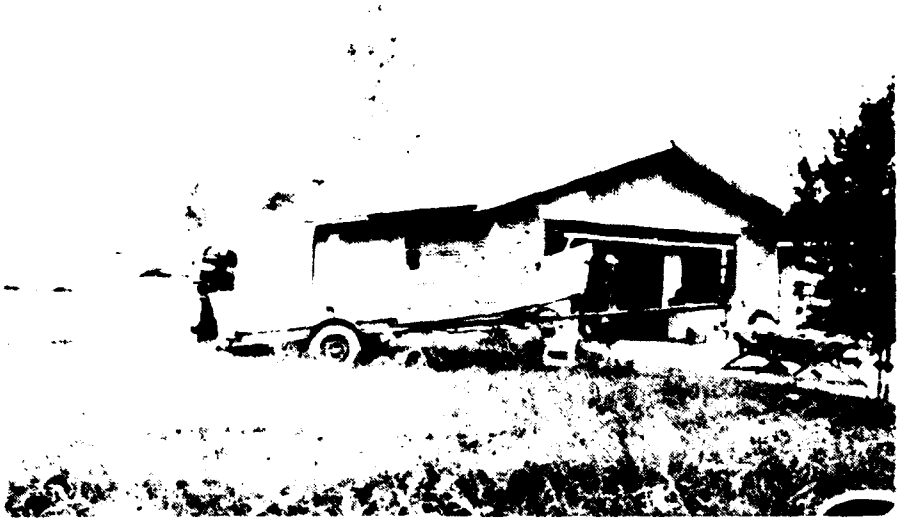


FIGURE 6.12. Modern Crawfisherman's Boat.

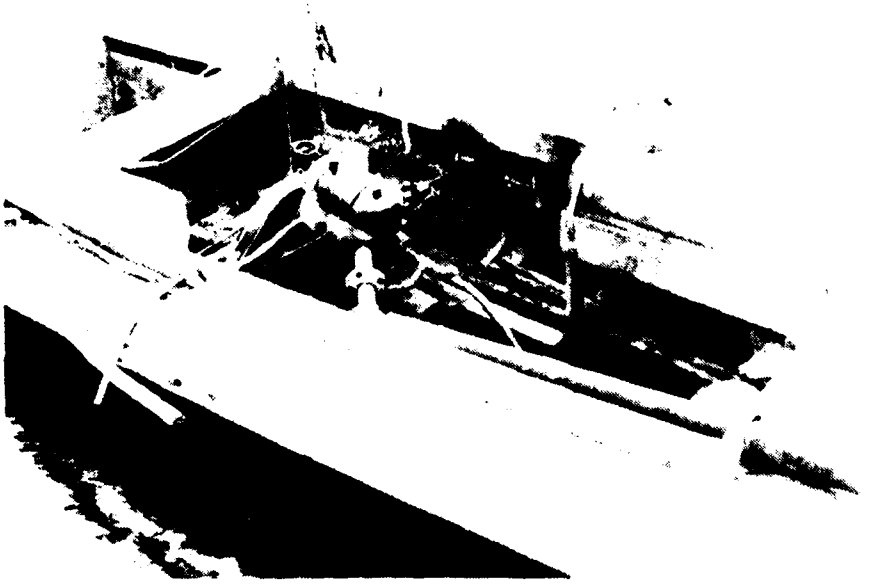


FIGURE 6.13. Eight Horsepower, Lockwood-Ashe Inboard Motorized Bateau.

Opelousas catfish are also prized by commercial fishermen. While not avidly fished by sports fishermen, the catfish are also prized by locals for personal consumption.

The buffalo fish (particularly Ictiobus cyprinellus) is also important to the commercial fish industry of the basin. Unlike the catfish, buffalo fish are usually exported outside of the state. Rarely, if ever, are buffalo fish advertised as a specialty at local restaurants. The fish is, however, highly sought after by locals as a main ingredient in fish stew, locally called courtboullion.

Another fish important to the commercial market is the gaspergou (Aplodinotus grunniens), or casse burgot to local French-speakers. Like catfish, there is a local market for the gaspergou. In Henderson, for instance, a town known for its seafood restaurants, gaspergou courtboullion is offered on the menu. At the St. Rita's Church Fair in Catahoula, gaspergou courtboullion was the main attraction. After tasting the dish, one wonders why many white English-speakers consider this fish to be fit only for low-class consumption.

Besides the gaspergou, there are other fish caught in the basin which have acquired a low-grade reputation among many white English-speakers. The gar (family Lepisosteidae), which has enjoyed limited importance in the commercial fish market, is considered by many to be of low quality. Local inhabitants, mostly Cajuns and Blacks, consider the gar cooked in courtboullion, barbequed, baked, or rolled into gar-fish balls, a great delicacy. The choupique, or bowfin (Amia calva), is another fish thought to be unsavory by many but is nevertheless enthusiastically caught and eaten by the so-called lower class.

Sport fishermen usually seek different catches than the ones mentioned above. The most popular fish taken for sport are the large-mouth bass and other species of the Micropterus genus. Although this fish is extremely popular as a game fish, it is rarely offered as a specialty in restaurants bordering the basin, nor is it sold commercially to any great extent. Another very popular fish with the sportsmen is the sacalait, or white crappie (Poxomis annularis Raf.), probably because of the schooling behavior they exhibit. Other popular schooling fish are the various brim, sunfish, and perch (genus Lepomis), which the French call patasas.

The variety of fishing techniques used in the basin were largely introduced into the Atchafalaya Swamp by commercial fishermen drifting into the area from the upper Mississippi system (Comeaux 1978:152). One very old technique brought into this region involves the use of a hook and line. Two broad categories of bait, "cut-bait" and "live bait" are used in conjunction with the hook and line. Cut-bait is usually made by cutting larger fish into pieces. Live bait consists of smaller fish, such as shad or shiners, as well as small crawfish and river shrimp.

The most common hook and line technique used by commercial fishermen is the trotline. Trotlines are lines from which hooks are hung at close intervals by means of thinner short lines called "stagings". A variety of specialized terms are used for trotlines depending upon the particular manner in which they are employed. Anchor lines, string lines, float lines, and buoy lines are a few of the variations (Comeaux 1972:47-49). These lines may be set across a river, bayou, or lake; or they may be strung up in the woods during flood season. Since the invention of nylon twine, which lasts much longer than the original cotton twine, fishermen often leave their trotlines in place year round. Catfish and gaspergou are the commercial fish most often caught on trotlines.

Hoop nets are also commonly used in the Atchafalaya Basin. They are long cylindrical net traps with one or more funnel-shaped openings sewn onto a framework of rigid hoops (Figure 6.17). A fish that enters the large end of the funnel and swims through the construction in the net is unable to escape.

Two categories of hoop nets are generally used, large and small. The smaller nets are knotted into one to two inch diamond meshes and are used primarily to catch channel catfish. The larger nets, utilizing four inch mesh, are used to catch blue catfish, buffalo fish, and gaspergou, while allowing smaller fish to escape.

During the spring flood, hoop nets are used in conjunction with a lead net. The lead net, a heavy-lined net which is as high as the diameter of the largest hoop, is attached between two hoop nets. These nets are placed perpendicular to the water current in "roads" cut by



FIGURE 6.14. Crawfish Processing and Transporting Facility.

the fishermen during low water. As moving fish hit this lead net, they are directed to the hoop nets at either end (Comeaux 1972:54).

Other fishing techniques are used by commercial fishermen in the basin. Two general types of seines, the "haul" seine, which is pulled to shore; and the "roundup" seine, which is used in the middle of lakes, are used in the basin (Comeaux 1972:55-58). The gill net, made of a single mesh large enough to permit only the head of the fish to penetrate up to the gills is fairly popular in some areas of the basin, as is the trammel net which utilizes three meshes of netting to entrap the fish (Comeaux 1972:58-62).

Swamp fishing methods have in the past and continue today to change at a rapid pace. Twentieth century inventions, such as the outboard motor and nylon twine have made fishing much easier than ever before. Artificial waterways, new channel cutoffs, pipeline canals, borrow pit canals, etc., allow fishermen to reach parts of the basin that were difficult or impossible to reach before.

Twentieth century changes are not without costs. Erratic control of the water level in parts of the basin often cause fish to suffocate

from a loss of oxygen. Chemicals washing into the basin waters from surrounding agricultural land result in frequent fish kills. Waste from oil drilling wells extract an incalculable toll from the fish industry. Most dangerous of all is the progressing siltation of the basin. As the basin gradually fills with sediment, commercial fishermen are forced south toward Morgan City to pursue their occupation (Abbey 1979:14). If this drying trend continues, one of the world's most productive fishing grounds will be lost--along with the folk culture of the swamp fishermen.

Crawfishing

Though crawfish have been eaten in Louisiana since before European arrival, the crawfish industry in the Atchafalaya Basin did not start until the 1930s (Comeaux 1972:66). This late start resulted from insufficient means of storing crawfish. Before the invention of the ice box and rapid transportation, crawfish was a seasonal delicacy enjoyed only by the swamp dwellers.

Since the 1930s, however, crawfishing has become one of the most profitable industries in the basin. The estimated average annual commercial harvest of Atchafalaya basin crawfish is 22 million pounds (U.S. Fish and Wildlife Service 1978:7).

A variety of specialized gear has been developed by the basin crawfishermen. The boat he uses is most often flat-bottomed with a pointed bow and a blunt stern. This pointed bow allows the crawfisherman to go through water hyacinths as well as navigate easier in heavily wooded swamps. The steering mechanism of these boats is often placed in the bow section to allow easier swamp navigation. Although wooden boats are still common, aluminum is rapidly becoming the typical material used for crawfish boats.

The typical crawfish trap is cylindrical with a funnel on one end and a clasp on the other which releases the bottom and allows the catch to be removed (Figure 6.10). These traps are made locally of chicken wire and are usually baited with shad. Several hundred of these traps may be used by a single crawfisherman.

The modern crawfisherman has adapted his technique to special conditions offered by the spillway environment. The annual flood

within the spillway provides the necessary biological requirements for crawfish better than any other area of the state. When the spring water begins to rise in the basin, the crawfisherman launches his boat from a ramp built on the side of the artificial flood protection levee. Occasionally boats are left on the interior berm of the levee which offers easy launching during flood season.

Crabbing

The crab industry in the basin began commercially in the Morgan City area around 1920 (Abbey 1978:13). The most effective technique used by crabbers employs a baited trotline often a mile or more in length. As the crabber runs his boat along the trot line, the line passes over a roller mounted to the boat by an outrigger. This roller lifts the line out of the water, allowing the crabber to scoop the crabs off the baited line with a shallow net while operating the boat with his other hand. Cylindrical or square heavy-wire traps are also used (Figure 6.11), although they are not as efficient as the trotline method.

Both crabbing and processing are still concentrated around Morgan City. The crabs are transported to a processing facility where they are cooked, peeled, and packaged for distribution. Large crab processing plants have recently opened in the Henderson area. Some crabs are trucked north to Henderson where the processing is accomplished by newly immigrated Vietnamese.

The crab industry has been damaged to some degree by physiographic changes taking place in the basin. When the flood protection levees were originally built, during the 1930s, many good crabbing areas were destroyed. Catahoula Lake, Lake Fausse Point, Lake Verret, and Pierre Part Bay are a few spots outside of the flood levees that were adversely affected. Now, as the great swamp lakes fill with sediment, crab production is lessening within the spillway confines.

Frogging

The Louisiana Bullfrog (Rana catesbeiana) and the Southern Bullfrog (Rana grylio), both called ouaouaron by French-speakers of

Louisiana, are gathered in great numbers from the basin. The commercial frog industry developed during the late 1800s and was centered in Morgan City at the head of the Southern Pacific Rail line (Abbey 1978:515). In recent years, frog production has declined in the state because of the destruction of suitable habitats by drainage, flood control measures, and other human activities (Comeaux 1972:77). These activities have adversely affected frog production in the basin also, although the spillway presently offers the best remaining environment for the propagation of frogs in the state. Frogs are generally taken at night with the aid of some type of artificial light. The light renders the frogs' eyes luminous and immobilizes the creatures, making their capture possible. Often the frogger makes his catch by hand, while wading in the water near the bank or while riding in a boat. A variety of gigs and nets are also employed. The spear gig, once a popular frogging device, is now outlawed in Louisiana. The "grab gig", a device which allows frogs to be taken alive (theoretically at least) is often used (see Comeaux 1972:Plate 17). A small net, or carrelet, attached to the end of a long pole is occasionally used with success.

Trapping

Exploitation of fur-bearing animals has been an important industry within the basin since the advent of European habitation (Comeaux 1972: 88). Before the 1950s, the muskrat (Ondatra zibethicus rivalicius) was the most numerous catch. Since that time, the newly introduced nutria (Myocastor coypus), pronounced "neutral" by many swamp and marsh inhabitants, has become most important. Mink (Mustela vison vilgivaga), raccoon (Procyon lotor lotor), otter (Lutra canadensis), beaver (Castor Canadensis), striped skunk (Mephitis mephitis), opossum (Didelphis virginiana), red fox (Vulpes fulva), gray fox (Urocyon cinereoargenteus), and coyote (Canis latrans) are all exploited for their fur (cf. Lowery 1974).

Human modification of the basin has affected the trapping industry. Because of the large number of man-made canals, most trapping today is done from a boat along shorelines, whereas placing traps along a walked line was once the only way to exploit many areas (Comeaux 1972:88). The extreme variation in spillway water level is not ideal for fur production.

For this reason, trapping in the basin does not match the significance of the fur industry of the coastal marshes.

Turtle Industry

A commercial turtle industry began in the basin around 1900. The common snapping turtle (Chelydra serpentina serpentina) and the alligator snapping turtle (Macrochelys temminckii) are both commercially exploited today (Comeaux 1972:89).

Turtles are taken in various ways, depending upon the season. During the summer, they are sometimes caught on baited line but the most common method employs the hoop net. Hoop nets are baited with fresh meat and placed along the shore with at least part of the net above water. If the net is placed completely under the water, the entrapped turtle will drown or break the net trying to get oxygen. During the winter, while turtles are hibernating beneath the ground surface,swampers locate them by probing with a heavy iron rod. The rod has a large hook which allows the turtle to be pulled out once it is located (Comeaux 1972:89).

Along with the two types of snapping turtles, the softshell turtle (Trionyx muticus) is also locally prized for its meat. Many restaurants around the Atchafalaya Basin, especially those near Pierre Part, specialize in turtle dishes.

Alligator Hunting

The alligator (Alligator mississippiensis) has been prized by many swamp dwellers since before European contact for various reasons. The Indians (and later many other swampers) took alligators for their edible flesh and oil which could be used for medicinal purposes (Comeaux 1972:91). The oil has also been used in the processing of indigo and as a lubricant for early steam engines.

The most important product obtained from alligators, however, has always been hides. Various fads which required alligator hides for shoes, boots, belts, hatbands, etc., resulted in great slaughter of these animals. As a result of these depredations, alligator populations declined drastically, and extinction of the species seemed eminent.

It was not until the 1960s that alligators became legally protected in Louisiana. But since that time, the population has increased greatly, in fact, they have become nuisances in some regions. For this reason, a limited hunting season is opened occasionally as a population management measure.

An open season on alligators began, for instance, on 7 September 1979. Only a certain number of alligator tags were issued, however, and the season was opened for only one month. During this month, the alligators were hunted mainly for their skin. Often the meat of the skinned alligator was thrown away. Toward the end of the season, however, hunters began to better realize the value of their catch and began selling the meat locally for $0.50 to $3.00 per pound.

Most of the alligators taken during the 1979 season were caught on a baited line. Rotted meat was attached to a large hook, often a treble hook, then suspended above the water surface from a pole secured to the bank. Another way of hunting these reptiles was to shoot them at night. The nocturnal alligator is easily hunted with an artificial light which serves to temporarily immobilze them.

Hunting

Though it has not been commercially important since the 1900s (Comeaux 1972:93), hunting has always been an important activity in the basin. A variety of game resides in this great expanse of semi-wilderness, and traditions that pre-date European arrival urge hunters to take advantage of it.

The White-tailed deer (Odocoileus virginianus) hunting is a favorite of many. The deer is hunted in a variety of manners, some of which are legal. Perhaps the most effective way, though quite illegal, involves shooting the deer at night from a boat or car. The deer are also effectively hunted from a still-stand placed in a tree (Figure 6.18). These tree-stands often overlook artificial deer-runs, such as pipeline crossings, power line rights-of-way, and roads cut through the thick brush. Others overlook dried-up natural stream beds which usually serve as deer runs.

A variety of small-game hunting is also done. The eastern cottontail (Sylvilagus floridanus) and the swamp rabbit (Sylvilagus

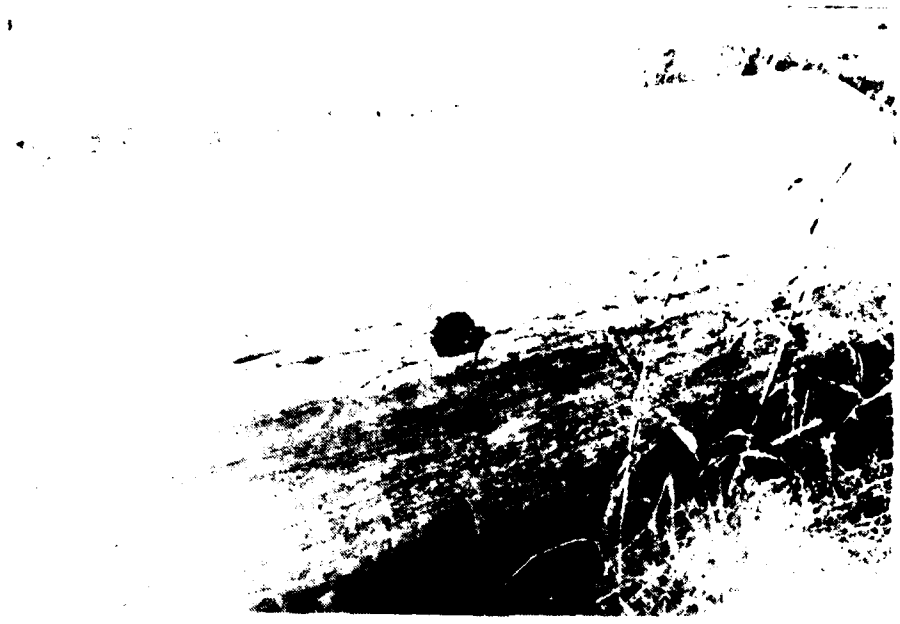


FIGURE 6.15. Retrieved Sinker Bearing Hole Drilled for Oak Peg Used in Rafting Logs.

aquaticus), both referred to as lapin by French hunters, are regularly sought. The grey squirrel (Sciurus carolinensis) and the fox squirrel (Sciurus riger) are also popular game. These small game are often hunted with dogs, occasionally taken illegally at night, and otherwise hunted according to the special features offered by the particular hunting grounds

Bird hunting, especially waterfowl, is another important activity. A variety of migratory fowl, ducks (particularly wood ducks and mallards) and several varieites of geese, are hunted in their particular habitats (cf. Brazda 1978:81-116).

Wading waterfowl are also hunted, though illegally. Locally called bec-croche and gros-bec by the French inhabitants, the white ibis (Eudocimus albus) and the night heron (Nycticorax nicticorax) are prized for their tasty flesh. These birds are also considered competitors by many locals because of their insatiable appetite for crawfish.

Upland game birds such as the snipe, quail, dove, woodcock, and occasionally even robin and blackbird, are also hunted, both with and without the help of dogs.

Hunters in the Atchafalaya Basin fall into one of two categories. The first is a very select group that either owns land in the spillway or has the connections and/or money to lease basin lands. These hunters may or may not live near the basin, but are usually well-endowed financially. In some spots, as around the Pierre Part-Bayou Pigeon area, local inhabitants have organized to form exclusive hunting clubs in order to protect their hunting privileges from outsiders.

The second category of basin hunters is composed of poachers. These are usually local inhabitants of the basin fringe who know the area well. They go in and out of the swamp, not always during hunting season, without detection. Many feel that their access to hunting areas should at least be equal to the large land owners and wealthy outsiders. Many poachers do not have the financial resources or political connections to hunt legally, but this does not prevent them from exploiting the abundant wild game of the basin.

Physiographic changes in the basin have resulted in both good and bad effects on hunting. One informant explained that the rapid sedimentation in the basin has produced good squirrel hunting where hoop nets were once set. But, as sedimentation increases, the swamp habitat is increasing at the expense of the natural levee habitats that once existed (Gagliano and Van Beak 1975:58). This natural levee habitat, complete with edible herbs, vegetables, young shoots, ripening weeds and grass seeds, acorns, nuts, and various fruits, supports one of the richest biotic communities in the basin (Brazda 1978:112). With a reduction of optimal habitats, the production of game can only decline.

Bee Industry

By the turn of the twentieth century, beekeeping had developed in several areas within the basin (Comeaux 1972:92). Before the flood protection levees were constructed, hives were kept on platforms raised above the water by posts, or on floating honey barges (Abbey 1978:V1).

Since the building of the levees, most of the hives have been removed from the interior of the spillway. A thriving apiary industry

presently uses the protection levees for hive location. This location was originally selected by mutual agreement between local beekeepers and the U. S. Corps of Engineers. When the levees were first built, the bees were needed to help pollinate the newly planted clover, placed there to prevent erosion of levee material. The beekeepers, needing a dry place to put their hives, consented to locating on the artificial levee. Since then, the willow swamps on the interior of the artificial levees have become an ample collecting ground for bees.

Moss Industry

Commercial gathering of Spanish moss began in the basin sometime during the latter part of the nineteenth century (Comeaux 1972:1979). Moss was used, in its cured form, for anything that needed stuffing: mattresses, chairs, saddles, horse collars, etc.

Moss production hit a peak in the decade of the 1930s. The gathering of moss was the only way of earning a living available to many swampers of those Depression years. It was during this decade that the older methods of hand curing and ginning moss gave way to more modern, efficient methods, some of which were derived from the cotton industries (Abbey 1978:W10).

After the Depression, moss production declined gradually until it ceased altogether in 1961 (Comeaux 1972:79). The development of substitutes for moss, particularly foam rubber, contributed to the decline of the industry.

A few years ago, the industry began to experience a minor revival. A growing demand for moss by the fish hatchery industry, which uses moss as a host for the deposition of roe, has led to this upsurgence (Comeaux 1972:79).

But factors of the basin ecological system now threaten to permanently exterminate the moss industry. When Comeaux wrote his excellent treatise of the Atchafalaya Basin, about 10 years ago, he remarked that, "moss today is abundant because of the lack of recent exploitation" (Comeaux 1972:81). This is no longer true. Within the last decade, Spanish moss has become increasingly harder to find. Informants from many areas of the basin attest, often with great emotion, to a

rapid decline or total disappearance of the once common epiphyte. Informants offer two hypotheses concerning this recent perdition: either air pollution from surrounding industrial complexes has killed the moss, or the aerial spraying of herbicides over surrounding agricultural lands has been the cause. Unless the causal factors are identified and arrested soon, the familiar moss-covered landscape of the Atchafalaya Basin will be reduced to a memory.

Boat Types

A variety of boats are used for swamp exploitation. The pirogue is the oldest and is still an important type. In times past, these boats were fashioned from the trunks of large trees, usually cypress (Knipmeyer 1976:108). These small dugout craft are rarely seen today because of the disappearance of sizeable cypress trees. A newer version, patterned in form from the dugout pirogues, are now usually built of planks or plywood (Figure 6.19). Keeping pace with the times, this very popular boat is even occasionally built of aluminum. The pirogue is propelled by paddle, usually operated by a single individual. They are used for their ability to travel in shallow and stump infested waters.

Another boat once popular in the Atchafalaya region is the skiff, or esquif. This boat is wide with a pointed bow, blunt stern, and a flat bottom. The skiff is characteristically rowed, most often from the standing position. The joug, a device which elevates the oars and extends the fulcrum beyond the side of the boat, allows for easy rowing in the standing position. It is still possible to see these boats in operation on small bayous throughout the basin, though the site is rare (Figure 6.20).

The development of gasoline engines resulted in the replacement of the skiff by a large flat bottomed boat with a blunt bow and stern called a bateau. The first of these, called "putt-putts", were powered by an inboard single cylinder internal combusion engine (Abbey 1978:8; Figure 6.18).

A rise in popularity of the outboard motors in the 1950s led to the rapid decline of the bateau (Comeaux 1972:42). Boats operated by an outboard motor are capable of much greater speeds than the original

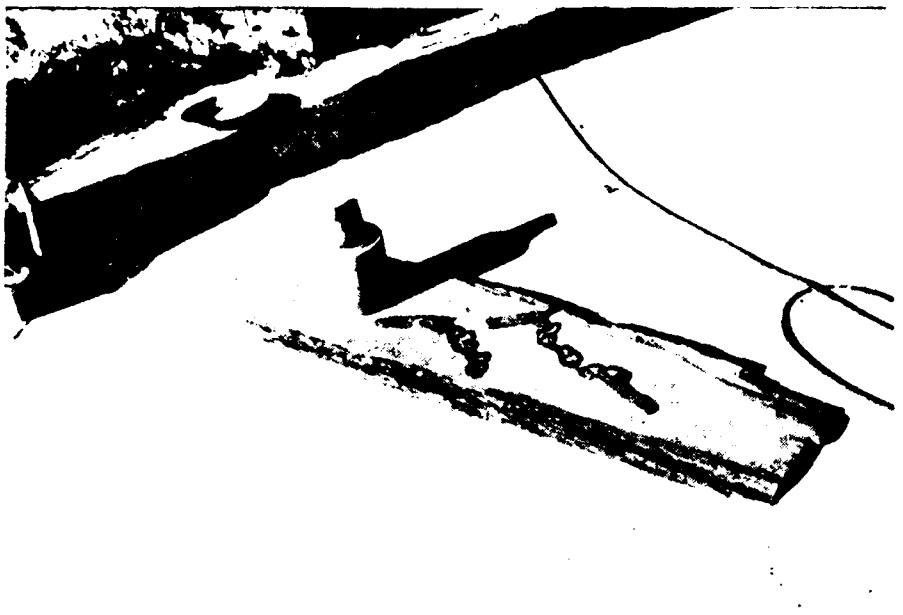


FIGURE 6.16. Chain Dogs and Whiskey Jug Retrieved during Sinker Salvation Operations.



FIGURE 6.17. Charenton Informant with One of His Hoop Nets.

bateau. The "flatboat", flat-bottomed with blunt stern and bow, replaced the bateau.

Modifications of boat types now proceed at a rapid pace. The use of aluminum is perhaps the most noticeable of the changes. Aluminum allows for a much greater strength/weight ratio than the wooden boats. The shapes are changing also. Most fishermen are selecting a style with a pointed bow. This bow allows the boat to cut through the water hyacinths which presently choke many of the water routes through the basin. A trend toward larger boats powered by larger outboard motors is also recognizable. The fiberglass bass boat in its various designs is another boat type common to the basin. Fiberglass construction is also used in ski boat construction, for the same reason -- speed.

Conclusions

The term "folk culture" has been defined as shared conventional folk understandings. In reviewing traditional concepts of the folk society, it has been seen that folk culture exists both within particular folk societies and outside of their boundaries as well. But whether folk culture occurs within a societal whole, or within a specific societal segment, such as an occupational group, it is maintained and transmitted by folklore. Folklore, which embodies verbal or nonverbal behavioral or material forms, is the analytical unit which puts the researcher in touch with folk culture. The study of folk culture is necessarily a study of folklore.

In the preceeding section, various elements of Atchafalaya folklore have been reviewed. Folk music, the dance, ceremonial and ritual behavior, subsistence activities, folk industries, and the artifacts that represent, and themselves transmit, conventional folk styles have been touched upon. Yet, only a bare modicum of Atchafalaya basin folklore has been treated.

Within this century, the Atchafalaya Basin has changed from a watery cypress wilderness to a semi-wild spillway rapidly on course to total mastery by a dominant industrial civilization. In 1980, there are still living, culture bearers of a way of life that adapted to the great swamp in its pristine condition. One can still hear stories of

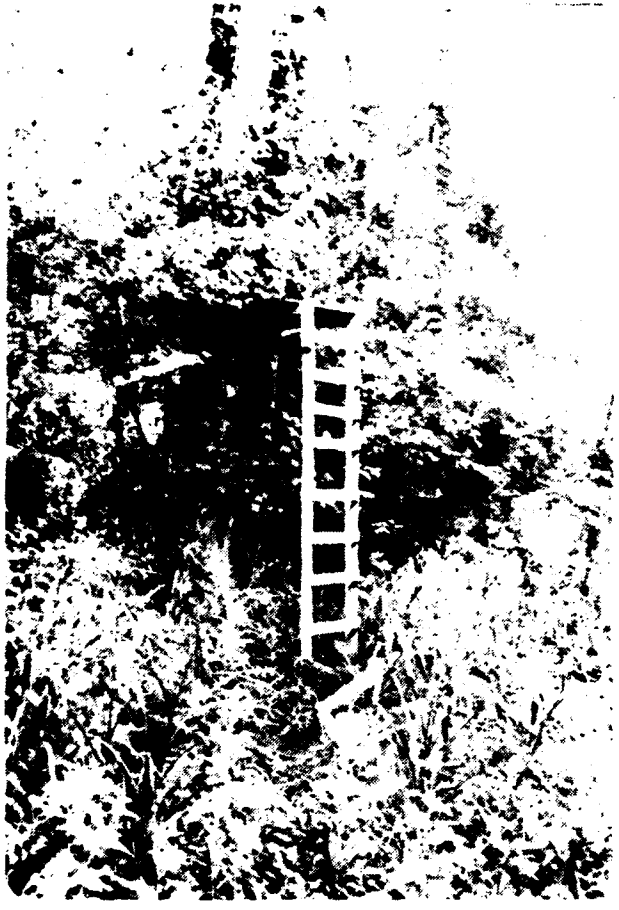


FIGURE 6.18. Deer Stand Overlooking Dried-up Bayou.

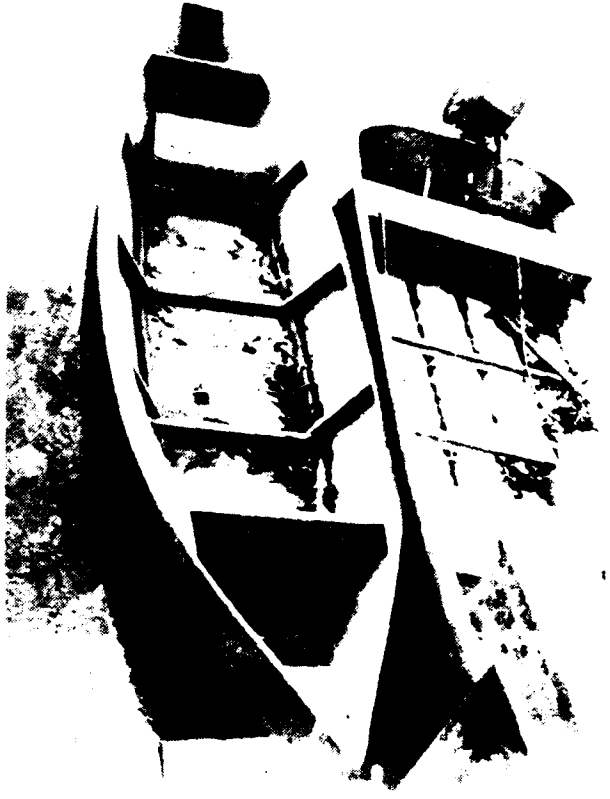


FIGURE 6.19. Pirogue to the Left of Motorized Flat Boat.



FIGURE 6.20. Man Rowing a Skiff on Bayou Pierre Part.



FIGURE 6.21. Old Abandoned Dance Hall at Sherburne.

cypress stands that defy comparison to anything presently growing in the basin; of catfish longer and heavier than the fisherman who dragged them out of the swamp; of panthers that could swim faster than a pirogue; of entire fishing communities built on piers in the middle of the swamp; of great floods of 1882, 1912, and 1927; and of steamboats that plied Atchafalaya and Bayou Teche waters. In the all-too-near future, the bearers of these folk memories will no longer be around to share the understandings of a landscape and cultural adaptation that is doomed to extinction. As significant cultural resources, folklore and the bearers of Atchafalaya basin folk culture deserve considered attention.

CULTURALLY DISTINCT LIFEWAYS

Up to this point, the present chapter has dealt extensively with culturally distinct lifeways. Although Barth (1969a) has argued that cultural content is not particularly important to ethnic boundary maintenance, we have offered a number of examples concerning languages, customs and culturally perceived notions of race that indicate the importance of cultural distinctiveness as a factor in ethnic dichotomization. The elements of cultural distinctiveness that occur in the Atchafalaya basin area gain particular significance when compared to standard American norms. The Cajun and Louisiana Creole forms of French, for instance, are unique to Louisiana. These language forms are important cultural resources to a nation beginning to realize the significance of its plural linguistic heritage.

Elements of cultural distinctiveness have also been discussed in reference to folk cultures in the Atchafalaya region. As industrialization and modernization continue to affect a rapidly urbanizing nation, the social units in this region of Louisiana that approach Redfield's (1947) folk society model stand as islands of cultural distinctiveness. As Redfield (1973:6) pointed out, the small, distinct, homogenous community which structures the folk society, "ceases to be". The "little communities" that still exist in the Atchafalaya basin could themselves be considered nonrenewable cultural resources. Other characteristics of Atchafalaya Basin folk societies such as strong extended family

bonds, their sacred nature, and high degrees of economic independence, must be considered culturally distinct from present national behavioral norms.

The folk culture that adapted to exploitation of a swamp environment is certainly culturally distinct. In very few areas of the nation, if any, are lifeways involving hunting, fishing, crawfishing, crabbing, trapping, and frogging found so integrated into everyday life. The hunting of alligators, for instance, is an activity that occurs nowhere else in the world outside of Louisiana.

Yet, we have barely touched upon the topic of culturally distinct lifeways. A complete treatise addressing the manner in which hunting, fishing and trapping techniques are specifically applied to the modern basin environment is yet to be compiled. Other topics such as plant and animal husbandry, wild plant use, infant care, child-rearing, baptismal, marriage, and funeral practices, home furnishing and arrangement of living space, kitchen customs and culinary practices, religious and secular seasonal activities, festival forms, ritual and ceremonial behavior, have been less-than-adequately considered or ignored altogether. Nor have we discussed the distinct lifeways and occupational activities of oil field personnel, tug-, crew boat-, and helicopter-pilots, boat, ship, and oil rig fabricators, sugar industry employees, salt miners, etc. that are distinct to the Louisiana gulf coast if not the Atchafalaya basin itself. It is plainly evident that future ethnographic work is required in the basin area to fully describe the range of cultural distinctiveness found there. We may conclude with confidence, however, that lifeways extant in the basin area are as distinct as any found in the United States.

HISTORIC AREAS

In addressing the topic of cultural resource management, David E. Stuart (1977:75) stated: "One goal for the anthropologist . . . is to identify in a project area the parameters of human-land relationships that have operated throughout its' history of human utilization". Stuart (1977:73-78) suggests the essential value of ethnography as a tool by which this good may be realized. In a project area limited to

yet another. According to Swanton (1911:344), an important Chitimacha dance house, named "Pond Lily Worship House", was located on Grand Lake. Chitimacha Indians still remember this spot by the Louisiana French name for the freshwater lotus (Nelumba lutea), Graine a Volee. This is enough information to warrant consideration of Graine a Volee Cove as a significant historic area. But, by piecing together the testimonies of several informants, we can begin to understand the historical significance of this area in the light of changing land use patterns.

A Chitimacha dance house had several sacred functions. At these locations, New Moon and Busk ceremonies were held, boys received religious training and were initiated into manhood, and the dance house also functioned as a charnal house (Gregory 1979:243). Swanton (1911: 353) notes that Benjamin Paul's great uncle was the last Indian buried at Graine a Volee Cove, and Gregory (1979:232) suggests that this dance house-cemetery was the last one in use.

It is undetermined how long the sacred significance of this place was maintained, perhaps it is still important to some Chitimacha, but during the first few decades of this century non-Indians were residing in this area. One Cajun from Charenton claimed that, during the early 1930s, he and his wife lived there on a houseboat. Another Charenton informant remembered the name of one family who lived there, Marcotte, and also recalled a beautiful camp boat owned by a certain Joe Cobb. Yet another informant recalled the settlement at Graine a Volee Cove as dispersed along the shores of Grand Lake. He remembered that the settlers raised cattle and hogs and fished for catfish, buffalo, and gaspergoo. Fishermen from the community would place their catches in a live box while waiting on a trading boat from Morgan City. The trading boat would deliver mail and supply groceries in exchange for fish; no currency changed hands.

According to informants, late in 1933, Lake Long Pass was dug by the Corps of Engineers. Fishing declined drastically. Soon thereafter, families began to move out of the area and, by 1947, when the levee was completed, most if not all of the residents of Graine a Volee Cove had resettled outside of the spillway confines. The understanding of

examples of the importance of ethnographic field work in determining the significance of historic areas. An understanding of the shifts in land use patterns is necessary to adequately address the importance of such areas. Since out-migration of the Atchafalaya basin occurred subsequent to the establishment of a levee-bounded spillway, dozens of significant historic areas have been abandoned. Information concerning swamp communities such as Happy Town, Sherburne, Graine a Volee Cove, Bayou Chene, Bayou Crook Chene, Atchafalaya Station, Pelba, Starvation Town, Big Pass, and many others, can only be found within the memories of local informants. A comprehensive study of changing land use patterns and settlement strategies within the basin cannot be accomplished without the use of ethnographic methods. As informants whose memories include pre-spillway phenomena grow older, the opportunities for such a comprehensive study decreases.

Perhaps the entire Atchafalaya basin should be considered as an area of historic significance. Physiographically it is certainly unique to the United States and the world. It contains information concerning the problems of human adaptation to a landscape that is rapidly changing and which quite possibly may disappear altogether during our lifetime.

CHAPTER 7

AN EVALUATORY HISTORY OF ARCHEOLOGICAL INVESTIGATIONS IN AND NEAR THE ATCHAFALAYA BASIN

INTRODUCTION

The record of archeological investigations in the Atchafalaya Basin began shortly after the Louisiana Purchase in 1803 and has continued interruptedly until the present. The record is a microcosmic capsule of changes in a growing discipline, changes that have pervaded nearly every aspect of American archeology from techniques to philosophies. Yet archeology in the Atchafalaya Basin has not simply mirrored the development of North American archeology in general. Atchafalaya Basin archeology has a certain uniqueness, a specialness born of place and personalities. Atchafalaya Basin archeology is the archeology of a great swamp, a swamp that not only influenced the shape and direction of the cultures which it harbored, but one which has conditioned the contemporary study of those cultures.

The dominating influence of the swamp can be seen in the archeological methods and techniques which have had to be adapted to its watery nature. It can be seen in an emergent school of thought which permeates most recent interpretations of Atchafalaya prehistory, the so-called man and land approach. It can also be detected in the attitudes of virtually everyone who has worked in the region.

Any review of archeological investigations in the Atchafalaya Basin would be less than adequate if it did not consider previous work in light of trends in North American archeology in general. It would also be amiss if it did not take into account dominant personalities of record and their influences on the practice of archeology. The history of archeology in the Atchafalaya Basin is a history of certain issues and of archeologists who have worked toward their resolution. It is

also a chronicle of phases of government support for archeological programs.

This review will deviate from most discussions of previous investigations which normally subscribe to an emphatic historical orientation. Rather than set forth archeological investigations as simple events in a time framework, as is customary, this review will attempt to identify the various issues and problems which have guided archeological research. In this way, archeological investigations can be viewed in context and the contexts in relation to archeological growth in general.

ISSUES AND PROBLEMS IN ATCHAFALAYA ARCHEOLOGY

The Mound-Builder Debate

Archeology in the Atchafalaya Basin did not entirely escape the mound-builder controversy raging in the eastern United States during the 1800s. The myth of the mound-builders centered on the belief that the innumerable mounds and other earthworks of the area had been built by a superior race of people who preceded the Indians and who had become extinct by the time of European contact. There are several variations on this general theme, and the identity of this mysterious race has been attributed to several different nationalities from several continents, including Europe, Asia, Africa, and South America as well as Atlantis and Mu (Stoddard 1812; Silverberg 1970; Wauchope 1962).

In hindsight, the popularity of the myth seems to have been a direct outgrowth of Native American-Euro-American relations. Earliest contacts between Indians and whites were not always amicable to say the least. Indians were variously viewed by non-Indians as dangerous animals fit only for extermination or slavery, or as noble savages, "children of the forests," suitable subjects for romantic fantasizing. These perceptions shaped expansionist policies and conditioned reactions of Euro-American citizenry. The western flood of migrants from the Atlantic Coast resulted in continual conflicts between the groups, conflicts of a military nature and of opposing world-views. Reduced in numbers and stripped of their homelands, Indians were removed to reservations where

they became wards of the government, dependent on its whims for their sustenance. Those who avoided removal were socially demoted by their white neighbors to a level only slightly higher than black slaves (cf. Hudson 1971; Willis 1971). The prejudices attendant on this thrust into the basal levels of the rigid social hierarchy of the Old South were sufficient cause to practically eliminate any thoughts that Indians could have been the architects of the earthworks. One consequence of these conditions was that the mound-builder myth was born (Silverberg 1970).

The Atchafalaya Basin did not become a hot-bed of the mound-builder controversy though its seeds did germinate in the region. Reasons for a more moderate approach seem to derive from the fact that the great Atchafalaya swamp was relatively inaccessible and infrequently penetrated by outsiders. When interested observers did enter the swamp, they noted only small mounds and shell middens, not the grandiose earthworks, like Grave Creek, Cakohia, Etowah, and hundreds of others throughout the eastern United States. Thus, the infrequency of travel and the unimposing appearance of Atchafalaya mounds resulted in a diminution of the passionate mound-builder fever, and only attenuated versions of the issue appear in the early literature of the region.

As a matter of note, the early Louisiana colonists steered clear of the swamp, mainly because of its hostile environs and hostile natives. The French were at war with the Chitimacha over the assassination of St. Cosme, a Jesuit missionary, until the calumet was sung in 1718 (DuPratz 1774:77). The rich, though unspectacular, archeological remains in the Atchafalaya Basin lay unreported until the colonial struggle over the Lower Mississippi Valley drew to a close with the Louisiana Purchase in 1803.

In 1808, the famous naturalist, William Darby, recorded several "mounts" on Bayou Fuselier, a small distributary of Bayou Teche flanking the western edge of the Atchafalaya Basin (Darby 1816:116-118). To my knowledge, this is the first record of archeological remains near the basin. Darby clearly favored an Indian origin for the mounds. Speculating on their function, he proposed that the mounds were tombs for Indian warriors filled in some long-forgotten battle in the Louisiana swamps (Darby 1816:118). He seems to have given no credibility to pronouncements of his contemporaries (Stoddard 1812; Rafinisque 1824)

that the Indians themselves and earthworks originated from an earlier, superior race.

In 1819, the United States Navy sent James Leander Cathcart into the Atchafalaya Basin to appraise its timber resources for potential use in ship construction. Cathcart noted mounds at the Pierre Moreaux and Rice Berwick places near present-day Morgan City (Prichard, Kniffen, and Brown 1945:57, 61-63) and Indian villages on Bayou Plaquemine and Reeds Island (Prichard, Kniffen, and Brown 1945: 49-50). Cathcart seems to have been particularly impressed by the mounds on the Berwick place, and his description, speculations, and recommendations are surprisingly sophisticated considering they were written in 1819 (Prichard, Kniffen, and Brown 1945:61-63). On their origin, Cathcart speculated that the mounds were built by the Attakapas Indians at some remote period as refuges from annual flooding. Ash strata in the intervening plaza were attributed to Chitimacha council fires, which burned long after the mounds had been constructed; the remaining Chitimacha in the area disavowed any knowledge of the original architects of the mounds (Prichard, Kniffen, and Brown 1945:61-62). The attribution of these mounds to local Indian tribes clearly shows that Cathcart did not subscribe to the non-Indian, mound-builder theory.

After Cathcart, an anonymous local historian or historians entered the controversy in the mid-1800s. A mound on Bayou Pigeon commanded attention because of its suspected great antiquity, its advanced age determined from the presence of huge live oaks on the summit and the deteriorated state of bones and shells (Anonymous 1847:351). Influenced by living Indians' lack of knowledge of the mound builders and mound functions, this author concluded that it was erected by an extinct, masterful race which had preceded the local tribes--an emphatic bow to the mound-builder myth (Anonymous 1847:351).

Another clearly prejudiced article appeared in the Louisiana Historical Quarterly in 1851. Dealing with the mounds along bayous Grand Caillou, Petit Caillou, Terrebonne, and Black in Terrebonne Parish, and especially a mound at Tigerville (i.e.,Morgan City, perhaps the Pierre Moreaux place mentioned by Cathcart), this anonymous writer dismissed earlier speculations that the mounds were built for burial or high water refuge and instead proposed that they were altars for sun worship (Anonymous 1851: 601-603). It is ironic that this author's opinion was based on an aware-

ness of the Natchez and Choctaw sun religions because the entire tone of the article is to show the lack of relationship between the 19th century natives and the mound-builders. He concludes that the mound-builders were overwhelmed by warlike savages, who swept ". . . away the vestiges of civilization, blended with the conquered race, and by degrees emerged from barbarism and ignorance. . ." (Anonymous 1851:602).

The latter part of the 19th century saw the wide-ranging activities of George E. Beyer, a locally renowned expert on archeology and professor at Tulane University. It is unknown if Beyer conducted investigations in the Atchafalaya Basin proper, though he did visit shell middens on Bayou Couba and Lake Salvador which lie just east of the Lafourche Ridge, the eastern boundary of the Lower Archafalaya Basin. However, Beyer's work was quite influential at the time and has had considerable bearing on the growth of archeology throughout the area and on the mound-builder issue.

Beyer's work is somewhat anachronistic. Contemporaries throughout the Southeastern United States (e.g.,C.C. Jones, J.J. Jones, John Wesley Powell, and Cyrus Thomas) had, through meticulous investigations, essentially destroyed the credibility of the mound-builder myth (Stoltman 1973:122-128). Their demonstrations left little question that prehistoric Indians were the mound-builders. Yet for some reason, Beyer never quite abandoned the idea of an earlier, superior, mound-builder race, and it permeates nearly all of his writings.

In spite of this adherence to an erroneous concept, Beyer's work marked a significant departure from the simple observational and relic-collecting activities of his predecessors. He not only visited archeological sites throughout Louisiana, he conducted excavations in many of them. His activities resulted in some sweeping generalizations about shell middens and earthen mounds throughout the area. Some of these conclusions are recounted here because of their pertinence to subsequent issues and problems in Atchafalaya archeology.

Concerning shell middens, Beyer (1899:21-23) concluded: a) shell mounds were not built for special purposes such as burial, signaling, or overflow refuges, but were ". . . simply the result of successive and periodic accumulations of shells thrown into promiscuous heaps by tribes . . ."; and b) shell mounds and earth mounds were built by different peoples, and the shell mounds were earlier than earth mounds.

Of earth mounds in general, Beyer (1898:27) wrote:

> 1. That the primary object of construction was for habitation, and that their use for worship, burial, and signaling was not only subsequent but incidental.
> 2. That they increased in dimensions as necessity required it.
> 3. That the primary motif of their erection was certainly not one of burial.
> 4. That the original construction of mounds by far antedates the discovery of this continent by Columbus, and
> 5. That our gulf coast mound builders were originally represented by two types, one of which was eventually superseded and crowded out by the ancestors of our later Indian tribes.

In addition to these ideas, Beyer may be credited as one of the first investigators to recognize and describe mound and midden stratigraphy although he failed to perceive its chronological implications. He also realized that sites in the coastal area were often buried by alluviation, but he never developed this awareness beyond its supposed relevance to some then-existent theory about coastal inundation (Beyer 1899:22).

Beyer pioneered the ideas about the pre-Columbian age of mounds, the distinctive origins of shell vis-a-vis earth mounds, and the incidental nature of shell mounds. Yet Beyer's steadfastness to the mound-builder myth marks his work. His ignorance or unacceptance of the anti-mound-builder sentiment sweeping the country during the turn of the century is matched only by his apparent unawareness of ethnological documentation (Gatschet 1883:8) bearing on the fact that mound building for burial purposes was done by the local Chitimacha Indians possibly into the early 19th century. It is quite obvious that the Houma Indians, who resided in the lower reaches of the Atchafalaya region, would have had scant knowledge of the mounds because they were recent emigrants. But most enlightening in understanding Beyer's position and that of the mound-builder sympathizers in the area is the obvious racial prejudice toward the Indians. The low social status ascribed to the Indians by their white neighbors effectively precluded recognition of the fact that the Indians, not some intellectually superior race, had built the mounds which so commanded their attention and interest.

The Living Indians: Issues in Identification, Recording Traditional Culture and Language, and Government Recognition

Information about living Indians in and around the Atchafalaya Basin had been slowly accumulating since the days of colonial Louisiana. However, most of this information pertained to records of historical import--episodes of white-Indian encounters and little to the native way of life (cf. DuPratz 1774, LaHarpe in Conrad 1971; Iberville and D'Abbadie in Brasseaux 1979). With the establishment of the various government agencies such as the Bureau of American Ethnology and the Bureau of Indian Affairs in the late 1800s, ethnographers began to study the remnant Indian groups of the Atchafalaya region. Government designs underlay this research. Particularly important were questions pertaining to tribal identification and legitimacy of land claims and their bearing on the formulation of government policies toward those Indians who had somehow avoided the removals of the earlier part of the century. One consequence of these ethnographic activities, which were sandwiched around the early investigations of archeological sites, was the production of valuable data on traditional native cultures. This information would later prove to be an immeasurable source of comparative details for interpreting archeological remains. But its usefulness for that purpose had to await the growth of an explicit archeological methodology and cognition of issues and problems which transcended the mound-builder question. Its relevance was also contingent on the closer joining of archeology and ethnology into a more unified field of anthropology, and that development would have little effect on Louisiana archeology until the late 1920s and later.

In 1881, Albert Gatschet visited the Chitimacha Indians at Charenton, Louisiana. His account is particularly instructive because it detailed the Chitimacha culture only two years after the abandonment of tribal organization, given up because of the death of their traditional chief (Alexander Dardin) and while at least half of the residual population still retained the old language (Gatschet 1883:1-2). Gatschet's trip was designed to collect surviving linguistic data and to record details on the old ways and traditions. He was not very interested in the con-

temporary Chitimacha, dismissing their current status as exactly like the French Creoles (Cajuns) surrounding them (Gatschet 1883:1). Yet his notes on traditional culture, particularly the locations of old villages, subsistence, and ceremonies (including the mortuary and reburial), have proved very instructive to modern archeological reconstructions and recognition issues.

In 1907, the eminent ethnologist, John R. Swanton, was sent into Louisiana to identify the remaining Indian groups in order to assist the government in formulating policy with respect to various financial aid programs. In the Atchafalaya Basin, Swanton spent most of his time with the Houma and Chitimacha groups. Swanton's comprehensive ethnohistorical documentation on these groups is laudable. His recording of vocabulary, folklore, and details of surviving traditional culture has provided the basic starting point for virtually every subsequent study on these peoples (Swanton 1911, 1946). But in spite of his official charge to identify Indian groups, Swanton seems to have been so overly swayed by his emphasis on traditional considerations (i.e.,how much of the old way of life remains) that impartial assessments of Indian identity were prevented.

Swanton did recognize the Chitimacha group living at Charenton on Bayou Teche. Although the Chitimacha were not at that time officially recognized by the U.S. government, the group did possess unopposed title to some 505 acres (204 ha) of land in this small bayou town (Hoover 1976: 45). Legal maneuvering by two rival factions in 1903 resulted in a split of this acrage and non-Indian claims to the lands were filed against the Chitimacha in 1905 and 1915 (Hoover 1976:49-52). While most of the consequences of these legal struggles cannot be considered beneficial to the Chitimacha, there was one bright spot in them. The judicial system of the government recognized they were dealing with Indians. The road to formal recognition was virtually predetermined, though it was not without pitfalls. Thus these legal battles, along with a philanthropic gesture by Sarah McIlhenney in assigning a title judgement to the government on behalf of the Chitimacha (Hoover 1976:50-52), left little doubt that Swanton's recommendation for formal recognition would be positively considered. Had it not been for these legal precedents, however, one wonders how much stock the government might have put in Swanton's recommendation since his claims were based on the degree of retention of traditional Indian ways, and the Chitimacha, as Gatschet had even noted, were earning their living

exactly like the surrounding Cajuns. In a somewhat facetious sense, this may have boiled down largely to the beautiful baskets made for sale to the surrounding non-Indians.

The Houma of the bayous and marshes of southern Terrebonne Parish did not fare nearly as well under Swanton's scrutiny. Swanton was quick to recognize the native origins of the peoples living in this cul de sac, but questions of racial purity, lack of governmental organization, settlement dispersement, and questionable land ownership seem to have colored his judgement more than the fact of origins. The issue of "racial" purity was a long-standing one, as the Houma throughout the 1700s seem to have assimilated a number of tribal remnants into their midst (Swanton 1911). While this ethnohistoric fact may not have diluted their "Indian-ness," it does seem to have compromised their tribal status as purely Houma. In addition, their frequent migrations during this period, in face of colonial expansion, seem to have created the idea that the people were wandering vagabonds without a homeland. Long, established residence in a geographic locality is an important criterion for government recognition. Furthermore, their mode of adaptation to their new homeland in coastal Terrebonne Parish, where they moved around 1795, resulted in linear dispersion of settlement and seasonal transhumance following extractive economic pursuits (Swanton 1911; Speck 1943; Stanton 1979; Fischer 1968). Such a readjustment was certainly not conducive to maintaining a strong, centralized form of tribal government. And on top of all these factors was the specter of genetic "contamination" from Negro blood (Fischer 1968; Parenton and Pellegrin 1950; Curry 1979; Stanton 1979). In a region where even close geographic proximity has traditionally been cause for suspicions of racial mixture, the case for Houma recognition would seem to have been foreclosed. Swanton determined that the loss of traditional culture and biological purity removed any legitimate claim to government recognition (Stanton 1979:99).

Fortunately, the Houma have not rested on this determination. Investigations by Frank Speck (1943) and Ruth Underhill (cf. Stanton 1979), under Bureau of Indian Affairs auspices in the 1930s, raised numerous counterpoints to the government decision. Churches and schools were established among the Houma in the 1940s-1950s (Stanton 1979). Some corporate ventures have been instituted on a tribal basis (e.g., a

shrimping co-op) (Stanton 1979:105). These circumstances have fostered a more widespread attitude of Indian identity and common economic goals. And efforts to organize a pan-tribal government are underway by the Houma (Downs and Whitehead 1976). Amid all of these activities is the long-standing, self-imposed social segregation of the Terrebonne Indians from their white and black neighbors, the most certain indication of their continuing sense of Indian-ness and the most logical argument in favor of government recognition. Yet logic and bureaucracies are often incompatible.

Ethnology and archeology in the Atchafalaya Basin have been relatively independent. There has been little mutual stimulation or recognition of common issues and problems. Ethnological investigations have been almost totally restricted to compiling ethnohistorical notes and surviving details of Indian languages, mythology, and traditional culture, particularly of old economic patterns and crafts. The issue of federal recognition has guided most research, and resolution of the problem of Indian identity has largely centered on decisions of biological purity and traditional survivals. Only in the most recent efforts has this procedural method of assessing identity taken a back seat to within-the-group perceptions of group membership (Stanton 1979), a more realistic approach to such determinations (cf. Fitzgerald 1974). The Houma, for example, identify themselves as Indians and are so perceived by the surrounding whites and blacks, yet as Stanton (1979) notes, there is little feeling of Houma tribalism. The Chitimacha, on the other hand, who have lived always in the Atchafalaya, and who have preserved at least a semblance of tribal unity, exhibit a strong sense of being Chitimacha.

While the work of Gatschet, Swanton, Speck, and other ethnologists has been virtually untapped by archeologists, it does present a large corpus of comparative information. In it are sources for various kinds of descriptive and interpretative models. Most evident are settlement models given to confirmation of archeological sites as historical Indian villages, to explanation and prediction of settlement patterns as a function of certain economic and subsistence systems, and to evolutionary or longitudinal cultural change patterns as adaptive processes. Explication of archeological mortuary sites seems feasible given the information on Chitimacha burial ceremonies. Along with recorded mortuary practices, the unusual Chitimacha social organization based on clans, hierarchical ranking, and rank endogamy (cf. Swanton 1911) offers an

unparalleled opportunity for interpreting archeological materials and patterns. A host of other possibilities is evident. In fact, the usefulness of ethnographic data for archeological purposes would seem to be limited only by the imagination of the user.

Geographic Comparisons and Site Inventorying

Following the discreditation of the mound-builder myth around the turn of the century, there emerged in the eastern United States a new motivation for archeological studies. This new thrust has been called comparative geographic modeling (Stoltman 1973:130-136). It centered on the major issue of interregional and interareal comparisons of sites and their contents for purposes of defining "cultural areas." The adoption of this issue led to extensive surveys of various river valleys, states, and sometimes even broad physiographic provinces. Sites were inventoried, their contents described, and general comparisons among areas were made. Sometimes sweeping surveys covering large portions of the East were made by single individuals (e.g.,C.B. Moore, W.H. Holmes, Warren K. Moorehead, Henry B. Collins) but just as common were more restricted efforts by such individuals as Major W.S. Webb in Kentucky, Calvin Brown in Mississippi, M.R. Harrington in Arkansas, and many others (cf. Stoltman 1973).

Louisiana of the time had no native son comparable to the states mentioned above, although George Beyer continued his activities briefly into the period of geographic modeling. Yet Louisiana, and the Atchafalaya Basin, were surveyed by some well known visitors. Important strides were made under this guiding issue. Similarities across the entire southeastern United States were brought into clear focus; differences, too, were recognized. Out of these new perceptions of archeological data came new issues, new problems, and new approaches. Before turning to these novel developments, let us consider some of the contributions wrought by the geographic modeling approach and its proponents.

In spring 1913, Clarence Bloomfield Moore, a wealthy Philadelphia socialite, toured the Atchafalaya River and Bayou Teche aboard his steamer, digging sites which showed promise of burials and "spectacular" artifacts and by-passing those which did not with scarcely passing

mention (Moore 1913). Moore's activities had led him through virtually every major river system throughout the Southeast, so he brought with him a familiarity of the entire area unmatched by previous or subsequent investigators.

Moore's discoveries along Bayou Teche, the natural boundary of the Atchafalaya Basin, were quite disappointing for him (Moore 1913:19). From Morgan City to St. Martinville, Moore briefly mentioned four sites. He dug at two of the locations, Moro Plantation and Viguere Place (probably Charenton Beach), but was denied access to the mounds at Loreauville (i.e.Rerard Mounds) and found another mound (unidentified) too disturbed to warrant excavation. The two earth mounds at Moro Plantation produced only one superficial human burial and that had been disturbed by previous diggers. One of the five shell mounds on the Viguere Place was dug into but no mention was made of its contents or structure save a note that it had ". . . grown up under aboriginal occupancy and was composed largely of shells, Rangia cuneata, . . ." (Moore 1913:21). A potsherd bearing red pigment (probably Larto Red, var. Larto) was found in midden context at Viguere (Moore 1913:21).

Somewhat better success was had by Moore in his investigations along the Atchafalaya River. His survey included various segments of the Atchafalaya River (and some interconnected bayous) from its source to Morgan City, but did not include the lowermost river course from Morgan City to Atchafalaya Bay (Moore 1913:9). Fourteen sites were recorded, but only nine were excavated with varying degrees of completeness and success. These 14 sites included the Lake Verret mounds, Miller Place, Bonnet Bayou mounds, Little Pigeon Bayou, Sorrel Bayou mounds, Schwing mound, Pigeon Bayou, Lake LaRose mounds, Bayou LaRose mounds, Wilbert mound, Bayou Grosse Tete, Alabama Bayou, Cross Bayou Landing, and Dubuisson mound (Moore 1913:10-19). Burials were exhumed by Moore at five sites: Miller Place, Bonnet Bayou, Sorrel Bayou, Schwing mound, and Lake LaRose. The better preserved remains from Sorrel Bayou were sent to Ales Hrdlicka of the U.S. National Museum, and his osteological description accompanies Moore's report (Hrdlicka 1913). F.A. Lucas aided in the identification of animal bones from some of these sites, and W.H. Holmes was consulted for commentary on ceramics, particularly a type now known as Pontchartrain Check-Stamped (Moore 1913:11-12, Fig. 1). Using Swanton (1911) as a source, Moore noted that the burials from Bayou Sorrel

probably represented reburials after a custom practiced by the Chitimacha Indians who resided in the area during historic times (Moore 1913:14-15). Of considerable interest to later archeological issues was Moore's discovery of biconical and biconical grooved baked clay objects (later called Poverty Point objects) at the Miller Place and Schwing mound; the latter site produced a cluster of these objects coated with ash (identified by a Dr. Kellar) indicating their placement in a fire pit (Moore 1913:12, 15-16). Coupled with a tubular granite bead from one of the Lake LaRose mounds (Moore 1913:17), these artifacts would become hallmarks (i.e.,index artifacts) for identifying the yet-to-be formulated Poverty Point and Tchefuncte culture periods.

While Moore was guided by geographic issues, he attempted few specific comparisons himself. These he left almost entirely to his long list of colleagues and consultants. His survey efforts cannot be described as comprehensive although they were extensive. However, his excavations were relatively meticulous, as many archeologists following in his footsteps have recognized, much to their chagrin. He recorded important information on sites and dimensions and on stratigraphy (although he never recognized its chronological potential). Sometimes, his descriptions of artifacts (but more often his photographs and excellent watercolor plates) can be used by modern archeologists to classify the specimens he found. Moore's sweeping activities and numerous reports provided a solid basis of inter-regional comparisons and, at the time, furnished the most comprehensive source of information on Louisiana in general and the Atchafalaya Basin in particular.

After Moore came another archeologist to the Atchafalaya Basin. Henry B. Collins of the U.S. National Museum spent about two months during the spring of 1926 in a sweeping investigation across southern Mississippi and southern Louisiana for the Bureau of American Ethnology (Collins 1927). In Louisiana, Collins began his reconnaissance at Pointe a la Hache on the Mississippi River below New Orleans and visited middens across the coast to Grand Chenier in southwestern Louisiana (Collins 1927:200-202). In and near the Atchafalaya Basin, Collins investigated sites in Terrebonne Parish in company with Randolph Bazet, a local amateur archeologist. After 10 days in Terrebonne, he visited sites at Gibson, Lake Palourde, Bayou l'Ours, Berwick, Charenton, and Avery Island, before moving to Pecan Island where he conducted exca-

vations in the Morgan, Veasey, and Copell sites. After finishing the Pecan Island work, he returned to Gibson, Louisiana, in northern Terrebonne Parish and tested the Melancon site, a group of three mounds (Collins 1927:205).

Collins' work is noteworthy for it clearly distinguished the incidental nature of the shell middens ("mounds") from the intentionally constructed character of the earth mounds. He, however, was unable to separate the two forms of accumulations culturally (Collins 1927:206), an admission which this author takes to mean that both yielded similar kinds of artifacts. He noted evidences of stratification in mounds at Fairview Plantation (near Berwick) and at Melancon, but failed to develop the implications of stratigraphy. At Fairview, Collins discovered a stratum of burned earth about 6.0 feet below the summit of a large mound, a stratum containing seven fire pits (Collins 1927: Fig. 198). At Melancon, burials were encountered in one of the three stratified mounds, but this discovery did not disuade Collins from attributing the mounds to the class of habitation structures (Collins 1927: 205). In distinguishing "domestic" mounds from burial mounds, Collins (as well as his predecessor Moore) anticipated the dichotomy between "temple" and burial mounds which would assume far-reaching importance in subsequent cultural historical reconstructions.

Collins' familiarity with other parts of the country, as well as his ethnological background, produced some interesting conclusions about his South Louisiana work, conclusions which definitely foreshadowed some of the issues and problems which would challenge future archeologists in the area. He observed that the clearest similarities with the omnipresent "checker-board" (i.e.,Ponchartrain Check Stamped) and incised-punctated, enlarged rim potteries (probably French Fork Incised and other types) lay to the east along the Florida Gulf Coast and suggested tribal movements between these areas as the possible reasons for the similarities. Further, he suggested a direct linear connection between the mound-building Indians and the Chitimacha Tribe but denied a possible link between the culturally "deprived" Attakapas and earth mounds (Collins 1927:206). He suggested instead that the Attakapas may have been responsible for some of the shell middens. This is the first clear statement of direct connection between living Indians and archeological remains in the Atchafalaya Basin. (Moore also seems to have recognized

this probability but it is implicit in his writings.) This perspective led to the adoption of the direct historical approach subsequently used by James Ford and others in developing the first chronological sequence in Louisiana.

Constructing Archeological Culture Units and Chronology

The areal and regional surveys of Moore, Collins, and others engendered new perspectives of archeological data. Investigators began to see broad-based similarities, as well as dissimilarities, in archeological materials. Collins, it will be recalled, had specifically tied coastal Louisiana with the eastern Gulf Coast area. Later recognition of the relative cultural homogeniety of the Gulf Coast led to the formulation of the Gulf Tradition, probably the maximal archeological classifactory unit in use today (cf. Sears 1960; Caldwell 1958). The issues of geographic comparisons and site inventorying brought a significant change in the way archeological materials were looked at. Instead of merely being relics or antiquities, suitable for curation or museum exhibition, artifacts came to be regarded as data, bits and pieces of surviving material cultural remains that bore the potential to inform on tribal identification and group movements and affiliations.

This change in philosophy was a major step toward the growth of an incisive archeology in the Atchafalaya Basin and elsewhere. It produced new needs, defined new issues, and led to the recognition of new problems. It opened up new sources of information and new methods of retrieving information. Rid of the constraints of the mound-builder issue, cognizant of ethnographic information, and aware of geographic similarities and dissimilarities, investigators in the early 1930s turned their attention to the pressing problem of providing typological organization and chronological structure to archeological materials in the Lower Mississippi Valley. These efforts emerged simultaneously. Simple description could no longer suffice to handle the enormous quantities of materials being collected. Some means of simplifying, of categorizing, these artifacts had to be found in order to define content groupings (i.e.,assemblages or more realistically, pottery complexes) and their chronological relationships. These new issues became the primary thrust of archeologists working in the Lower

Mississippi Valley from the early 1930s forward. The present status of archeology in the Atchafalaya Basin finds these issues as strong and commanding as ever, though some current investigators visualize them as means to other cultural dimensions rather than as ends in themselves.

The beginnings of this novel approach to Lower Mississippi Valley archeology are identifiable in the work of Winslow M. Walker of the Bureau of American Ethnology and of Frank M. Setzler of the Smithsonian Institution.

In 1931, Walker investigated several sites in the Red River Valley, Marksville Prairie, and elsewhere. He did not venture into the Atchafalaya Basin, but his work had an important bearing on subsequent archeology in the Basin. His work was clearly given to the problem of equating archeological sites with ethnohistorically identified Indian villages. This represented the direct historical approach (cf. Steward 1942) in its finest form. While he had little success in finding the Adai, Yatasi, and Koasati villages from locational details supplied in the historical records, he did manage to confirm the location of the Petit Caddo village at Potter's Bluff on the north shore of Caddo Lake, as well as a Natchitoches village at the Fish Hatchery site (Walker 1932a, 1935).

In what was without doubt one of the most influential professional meetings ever held on Southeastern archeology--the Conference on Southern Pre-History in 1932--Walker (1932b) presented a state-of-the-art/future directions paper which touched on practically every major issue that would command archeological attention over the next several decades. Since Walker's (1932b) paper has never been properly recognized for its impact on the conduct of subsequent archeology in the Lower Mississippi Valley, this author would like to quote several statements from that paper which illustrate Walker's perceptive clarity of the directions that post-1930 archeology in the Lower Mississippi Valley would assume.

With regard to the problem of ethnohistoric identification of archeological sites, Walker (1932b:42-43) stated:

> In attempting to . . . demonstrate the relationship of the historic and pre-historic inhabitants, the archaeologist must work in close cooperation with the ethnologist.
>
> It is futile to attempt a classification of pre-historic mound cultures in the lower Mississippi Valley until we know more definitely whether or not they have any connection

> with the principal historic tribes found there: . . . Some of these Indians we know were builders of mounds, but just which ones, and through what stages of development they may have passed, are problems requiring further attention.

Walker (1932b:43-45) also recognized the need to identify pottery types, as well as other artifact types, as an aid to isolating cultural complexes and their geographical and temporal parameters. He envisioned that the key to this process lay in first specifying the material cultural remains of historically documented tribes. Thus, Walker (1932b:43) wrote:

> The Atakapa and Chitimacha were the principal historic tribes in this coastal region . . . . Yet as no one so far has investigated the village sites definitely attributable to either of these people, we cannot say for certain just what types of pottery and artifacts they possessed.

Further, Walker (1932b:44) related:

> Sub-types and variants of the general Natchesan pottery may be expected in subsequent identification of the pottery of the Taensa, Koroa, Avoyelles, and Houma.

On the relation of prehistoric Lower Valley ceramics to external regions, Walker (1932b:44-45) noted on the basis of his excavations at the Troyville site and Seltzer's work at Marksville that evidences of midwestern Hopewellian culture were present and that this should open possibilities for tracing the origin of mound-building cultures that must have sprung from northern roots.

Walker (1932b:45) also had some definite ideas on archeological methods, ideas which were to chart untried waters throughout the ensuing decade. Walker (1932b:45) penned:

> It is not permissible to assume that all such objects /artifacts other than pottery/ are the products of the same makers, merely because they happen to be found in the same mound or village site. Unless the method of excavation employed is such that the exact vertical as well as horizontal position of all the artifacts can be determined, it is useless to attempt further classification based on typology alone /emphases provided by this author/.

Walker also offered sage advice for future archeology. He predicted that dendrochronology would be of little use in the Lower Mississippi Valley because of the inconsistency of annular ring accretion (Walker 1932b:46-47). Save for the promise of bald cypress

(cf. Bowers 1975), Walker has been proved correct. He also suspected that river channel changes might become a useful method in determining the relative age of sites (Walker 1932b:47). While geomorphic dating has not lived up to its promise (cf. Saucier 1977), it certainly commanded a great deal of archeological attention over the next several decades. Walker was also intimately aware of the rampant destruction of archeological sites in the area, destruction caused not only by treasure hunters but by public works agencies. He called for public outcry to stop the pot-hunter and for cooperative arrangements between agencies and scientific institutions to curb the damage wrought by public projects (Walker 1932b:47). This plea, along with others from the archeological community across the country, finally resulted in the enactment of federal antiquities and cultural resources legislation. Walker (1932b:48) recommended the enlistment of aid from amateur archeologists in performing a state-wide, parish by parish, survey and inventory of archeological sites. Such a program has never been fully operationalized though several starts have been made and abandoned.

It might truly be said that historically orientated archeology arrived in the Lower Mississippi Valley with Winslow Walker. Walker's reports on the Fish Hatchery Site (Walker 1935) and on the Troyville site (Walker 1936) are the earliest classic examples of site reports given to this approach. Yet Walker's work in Louisiana was temporary, the data produced was limited, but Walker's influence was not. Listening to Walker's (1932b) review of Louisiana archeology at the Conference on Southern Pre-History in 1932 were two figures whose subsequent rise to prominence in Louisiana archeology was nothing short of meteoric.

These young scholars were James Alfred Ford and Fred Bowerman Kniffen. Ford, a 21 year old youngster had previously worked with Henry Collins in Alaska in 1930-1931 and with Frank M. Setzler in excavations at the Marksville site in 1933 and had already developed a strong historical orientation (cf. Willey 1969:62-63). In fact, Ford's participation in the Marksville excavations brought him into first-hand contact with Setzler's ideas about the similarities of Marksvillian ceramics with those of mid-western Hopewell (Setzler 1933a, 1933b), similarities so strong that they led to the postulation of rather direct connections between these areas. From Setzler, Ford not only assimilated the conception of cultural origins via migration or diffusion that would underlie nearly all of his subse-

quent writings, but he also gained a feeling for the sort of detailed comparisons essential to convincing a general audience that diffusion had indeed occurred. This no doubt was the beginning of Ford's preoccupation with pottery as the most abundant and most sensitive indicator of interareal relationships and temporal change. Ford was also well acquainted with the Lower Mississippi Valley. A native of Water Valley, Mississippi, he had worked with the Mississippi Department of Archives and History upon graduation from high school, and had even received a National Research Council grant to conduct an archeological survey in Mississippi and Louisiana prior to his work with Setzler at Marksville (Willey 1969:62-63). Thus, Walker's strong words and plotted future courses for archeology fell on receptive ears and were almost immediately transformed into action.

Fred Kniffen, a transplanted midwesterner by way of the University of California at Berkeley, brought to the incipient beginnings of historical archeology in Louisiana a decided cultural geographic thrust with a liberal sprinkling of ethnological and archeological experience (Haag 1976). Kniffen, a geography professor at Louisiana State University, assumed the responsibility for administering the jointly sponsored, Louisiana State University-Federal Emergency Relief archeological program in Louisiana. In 1934, Ford joined the program staff and also became a student at LSU (Willey 1969:63; Moresi 1935:viii). The joining of Kniffen and Ford, and the support provided by federal and state sources was the beginning of the most concerted and vigorous attack on historical archeological problems that the Lower Mississippi Valley has ever witnessed.

The Ford-Kniffen joint venture produced the first chronological sequence in Louisiana archeology. Ford routinely employed stratigraphic testing and large scale excavations at selected sites to build the sequence. Kniffen used modal pottery analyses and logical arguments to refine the sequence in surface collections from South Louisiana sites. While the most intensive excavations were conducted at mounds, much like the preceding generations, there was a decided shift in emphasis to mundane village middens. The omnipresent potsherd became the primary focus of attention. This preoccupation with pottery grew out of its abundance and the fact that its peculiarities of decoration and fabric qualities were sortable into "types," which commonly segregated as

"assemblages," or complexes, in stratigraphic columns. Thus stratigraphy, used in the Southwestern United States as early as 1914 for chronological ends, came to underlie the Lower Mississippi Valley chronological sequence. Ford and Kniffen tried new and inventive means of classifying pottery with the end result of a ceramic chronology that has withstood the test of time to this day.

Since Ford was the principal architect of the ceramic chronology, the bases of his approach will be described first. Ford's basic presupposition on sequencing lay in his concept of culture, a view of the medium of human existence on this planet which remained virtually unchanged from his earliest writings to his latest. Ford's first statement on culture contained in a popular article in the Louisiana Conservation Review is cited (Ford 1935a:9):

> It should be understood that by "culture" is meant the component of the customs and styles of languages, handicrafts, arts and ceremonials practiced by any particular group of people at any one time. Culture is really a set of ideas as to how things should be done and made. It is in a continuous state of evolutionary change since it is constantly influenced by both inventions from within and the introduction of new ideas from without the group. . . . All of these man-made things were subject to the principle of constant change, hence those on any one site are more or less peculiar to the time that produced them.
>
> It is apparent that if the different forms of the various implements, houses, mounds, etc., used during the time covered by one of these ancient cultures can be arranged in the sequence in which they occurred, it is possible to determine the relative ages of the various old towns, not in the accurate term of years but in relation to one another. The origins, migrations, developments and final disposition of the different groups of people by this means are made apparent. . . . Such an arrangement of cultural elements, called a chronology, is one of the primary purposes of archeological research.

Although Ford never acknowledged the source of his view of culture and it is possible that it emerged from his unique dialectical background, it was remarkably congruent with that of Lewis Henry Morgan and Leslie White, proponents of unilineal evolution and of culture as a holistic medium of human experience. It is probable that this particular concept of culture was one of the major reasons that drew Ford to the University of Michigan in 1937 for graduate studies with Leslie White. The other reason was James Griffin, renowned expert on Southeastern culture history.

Ford's concerted attack on chronological sequencing was spawned from an explicit methodological approach (Ford 1935a, 1935b, 1936a, 1936b). Using information collected from his and Chambers' surveys in Mississippi in 1927-1929, from Chambers' subsequent work in 1930-1935, Ford's NRC-sponsored survey in central and northern Louisiana in 1933, and his LSU-Emergency Relief Administration-aided investigations in 1935, Ford pieced together a three period chronology of the Lower Mississippi Valley. Period I, the oldest, was called Marksville; Period II was comprised of Deasonville and Coles Creek, two cultures with presumably overlapping time spans and generally separate geographic distributions; and Period III, the Historic groups, Caddo, Tunica, Natchez, and Choctaw (Ford 1935b: Fig.2; 1936b: Fig. 50). The methods by which these cultures and their relative temporal relationships were defined were described by Ford (1935a:8-11; 1936a:103-104; 1936b:6).

First, archeological sites had to be linked with village locations mentioned in historical records (Ford 1936a:103). Ford (1936a:103) related: "This connects these sites with a definite time period, and gives a starting point for the projection of the chronology back into the prehistoric."

Then intersite comparisons of ceramic collections had to be made in order to reveal which groups of art styles (i.e., pottery decoration types) showed inter-influence as well as those which did not (Ford 1936a: 103). Under this premise, if style groups showed certain influences (i.e., similarities), indicating gradual stylistic change (cf. Ford 1936b:262-268), then the pottery complexes must have been relatively close in time, and may have been successionally related. On the other hand, if type groups from the same geographic area could not be shown to illustrate strong similarities, then they were presumed to represent time periods separated by long spans of time. This comparative method was employed to handle the vast quantities of surface potteries and eventually gave rise to Ford's more sophisticated visual, or graphic, seriation approach (Ford 1952).

Thirdly, Ford (1936a:103) used stratigraphic testing to reveal the correct successional order of pottery complexes. Ford (1936a:103) stated: "This method constitutes the best basis for the relating of time changes." His earliest test application of vertical stratigraphy in purely prehistoric deposits was at the Peck site on Sicily Island (Ford 1935b).

Lastly, Ford (1936a:103-104) employed geomorphic changes to detect the relative ages of sites. Along the Louisiana coast, he noted that the degree of subsidence might be a useful means of assessing relative chronology, a probability which also guided the work of Kniffen and geology colleagues, Richard Russell and Henry Howe in South Louisiana. In inland regions where old river channel succession was more evident, Ford used meander scar topographic associations to date the ages of various sites (cf. Ford 1936b:238-240, Fig. 45).

It is safe to say that Ford's recommended approach to deriving cultural chronology has remained as the primary method of chronological sequencing to this day. Even radiocarbon dating, first used in Louisiana about the mid-1950s, gave only embellishment and refinement to the culture chronology produced by Ford and his associates using the tried and "proven," four-part strategy of attack described above.

The artifactual medium on which all these methods focused was decorated pottery. In the ceramic art were qualities which submitted extremely well to description and categorization. Categorization, or classification, was central to chronological ends because of the need to recognize complexes, unique to the time and place, as major building blocks of the chronological sequence. Simplification of the vast array of stylistic diversity was also necessary before arguments and demonstrations of cultural succession could gain much headway. Thus the goal of pottery classification virtually became one with deriving cultural chronology; there is no really logical way to separate them.

Ford tried several ingenious ways of classification before adopting the familiar, binomial historic type system in use in surrounding areas. The first of the systems set up and abandoned by Ford was a numerical index classification (Ford 1935b:8-18). From his early survey work in Louisiana and Mississippi, Ford recognized "distinctive" decorations of sufficient numerical quantities and broad regional representation to warrant establishment as types (Ford 1935b:8). Each of these distinctive decorations was identified by a number, and each recurrent variation on this central decorative theme was given a letter. He also described form and fabric qualities which tended to associate closely with each kind of decoration. In this initial stage of classification, Ford (1935b:8) admitted that these "types" ". . . were used only for the most apparent relationships and were intended to have no cultural or absolute typo-

logical significance; they served mostly to facilitate filing and reference. . . ."

Shortly after using the index scheme on the Peck site material, Ford gave up the approach because, in his words (Ford 1936b:18):

> The "index" method, dependent as it must be on the classifier's acquaintance with the material, was not suitable for presentation. It was only semi-systematic, was nonanalytical, was meaningless unless memorized in detail, and was not capable of logical expansion.

Ford's admitted reasons for shelving the index plan seem to cover up what appears to be a significant change in his thinking. Ford may not always have been the staunch advocate of the artificiality of pottery types which is so evident in his later writings (Ford 1951, 1952; 1954a, 1954c). Ford's replacement classification scheme, which might be termed the analytical formula plan (Ford 1936b:18-23), hints of a belief that the ingredients which together formed ceramic decorations might, if correctly identified and correlated (i.e., "analyzed"), show the real "genetic" (cultural and temporal) relationships for which he was apparently searching. Philosophically, this is no different from the position taken by Albert Spaulding (1953a) some years later, a position which resulted in a running controversy with Ford. Spaulding, however, did recommend the use of elementary statistics in "identifying" pottery types, while Ford's analytical scheme never progressed beyond the stage of gross, visual, observational associations (e.g., experiential "feel," often described by Ford as subjectivity). That Ford's reasons for abandoning the index system (later resurrected and called the binomial historic type system) were not altogether accurate is illustrated by the direct incorporating of the index types into analytical types without primary reclassification of the sherds (Ford 1936b: 18).

The analytical formula system, developed by Ford (1936b:19-23), may have been the most sensitive and rigorous classification scheme to be used in the Lower Mississippi Valley. It incorporated three major categories of observations on ceramic decoration: motifs, elements, and arrangement (Ford 1936b:19-23). The basic units of observation in each of these categories were attributes and modes--elemental and observationally irreducible units of characteristics. Attributes and modes in the different categories were assigned numbers, and the numbers included in

each of the three categories were accorded place-holding positions in the resultant formula-like expression of each type; designations for motif attributes appeared first, followed successively by those for decoration elements and then arrangements. Semi-colons were used to separate the place positions in the formula, and diagonal slashes were used to record the presence of more than one attribute in any particular category. If sherds or vessels portrayed more than one kind of decoration (e.g., combination of motif, elements, and arrangement), the dominant decoration was separated from the less dominant one by a line. A typical type might thusly have been expressed by the formula, 31; 23/73; 2. This type would be identified today as Churupa Punctated. If the Churupa Punctated decoration had been restricted to the upper walls on a vessel which bore another decoration, say cord-marking on the lower part, the type formula would have been written as follows:

$$\frac{31;\ 23/73;\ 2}{11;\ 81;\ 7}$$

The analytical formula was capable of unlimited expansion, and perhaps best of all, it was uncontaminated by notions, suspected or stratigraphically demonstrated, of chronological order or cultural relationships. However, these very features which make the scheme so attractive today were the ones which led to its abandonment. Ford had identified the principal goal of his research as developing a chronological sequence for the Lower Mississippi Valley. The analytical formula scheme proved to be too precise, too detailed, and too clumsy for graphic presentation to make that task simpler. Thus Ford also gave up this system and with it a great deal of classifactory objectivity, an objectivity based on direct observations of pottery decorations uninhibited by impressions or facts of temporal or geographic distributions. This is not a criticism; it merely illustrates that classifactory schemes, no matter how precise or imprecise must be goal-sensitive and methodologically manageable to be useful and maintained. Ford's analytical formula types were simply too detailed for ease in revealing the rather broad culture period or culture complexes which he conceived as the end points of chronological research. Had Ford sought to formulate smaller time and space units, such as phases, he might well have continued with his index system. A reactivated version of the index system indeed did reappear as the type-variety scheme years later as these smaller historical units became a goal of classification

(cf. Phillips 1958, 1970). If Ford had attempted to describe or explain the cultural variability no doubt represented by pottery decorations, he might well have found the analytical formulas quite suitable for that purpose.

Ford's (1936b) major report on his early surveys does not include a single site from the Atchafalaya Basin and only five from South Louisiana in general. He may have visited sites in the Basin, for his Louisiana Conservation Review article contains three photographs of the mounds at Lake LaRose (Ford 1935a:8-9). Ford seems to have left South Louisiana, in particular the coastal sections, to his friend and colleague, Fred Kniffen. Yet Ford's chronological and ceramic typological constructs, developed from regions surrounding the Basin to the north, were to have a great deal of influence on sequencing in coastal Louisiana.

While Kniffen's archeological activities are best known for their bearing on a unique kind of cultural ecological approach--man and the land--he did contribute significantly to cultural chronological ends in coastal Louisiana. In conjunction with a geological study of the Lower Mississippi River delta (Russell et al. 1936), Kniffen conducted a comprehensive survey of certain areas in Plaquemines and St. Bernard Parishes in the early 1930s (Kniffen 1936:407-422). This investigation was carried on about the same time as Ford's NRC- and LSU-sponsored activities in central and northern Louisiana. Although the Plaquemines-St. Bernard survey lay east of the Lower Atchafalaya Basin some 150 km distant, it had important bearing on subsequent cultural historical archeology in the Basin and in coastal Louisiana in general. Kniffen (1936:410-414) recognized two distinctive pottery complexes, which he called Bayou Cutler and Bayou Petre, and argued that these two complexes fit in the middle span of a time sequence which began with an Earth Mound period and terminated with a late Prehistoric period. The earliest and latest periods in his deltaic chronology were included, not because of positive evidences of age but, in the case of earth mounds, because of a lack of association with Bayou Cutler or Bayou Petre potteries and, in the case of the Late Prehistoric period, because of ethnohistoric documentation that the area had been tenanted by several small Muskhogean tribes at white contact times (Kniffen 1936:415-416).

Chronological positioning of the two distinctive ceramic complexes

was achieved by a logical argument based on comparisons of the two complexes with each other and with similar complexes from nearby regions and by temporal evidences supplied by geomorphic subsidence, developmental soil profiles, and changes in the ecological implications of the various salt- and fresh-water shellfish used for food (Kniffen 1936:413-417). It is in developing the latter kinds of chronological indicators that Kniffen had greatest impact on cultural historical archeology in coastal Louisiana. His pioneering efforts in tying geomorphic and ecological considerations to cultural chronology provided a sound basis, sometimes the only basis, for sequencing in the coastal marshes.

Shortly after the Plaquemines-St. Bernard survey, Kniffen extended his efforts to Iberville Parish and contiguous areas within the Atchafalaya Basin (Kniffen 1938:189-207). He recorded 63 prehistoric and historic aboriginal sites of which only 12 produced large enough sherd collections to submit to chronological sequencing (Kniffen 1938:198-203, Fig. 22). By this time, Kniffen had adopted Ford's three period chronology, except that he continued to use his formulation, Bayou Cutler. This usage is instructive. On the relation between Coles Creek and Bayou Cutler, Kniffen (1938:199) stated:

> The Bayou Cutler complex appears to be roughly the age equivalent of the Coles Creek complex, with the strong possibility that it is more precisely contemporaneous with the upper and younger Coles Creek phase. The difference between the two complexes, then, is one of space rather than one of time.

The major differences in ceramics between the two complexes was the heavy dominance of check-stamped decorations (Pontchartrain Check Stamped) and the paucity of the "overhanging line," or "clapboard" mode in the Bayou Cutler complex (Kniffen 1936:413). Other modes and attributes, e.g., lugs, decorated lugs, lines in vessel lips, straight line decorations on vessel bodies, were shared. By maintaining a clear distinction between Coles Creek and Bayou Cutler complexes, Kniffen was, in effect, saying that a grossly homogeneous ceramic complex tended to segregate into two major components primarily on the basis of geography. Thus all the ingredients used for culture historical unit definition--content, time, and space--were used to maintain the distinction between the complexes, and it is apparent that Kniffen considered the differences sufficiently strong to effect a distinction on the culture period level of classification. This useful separation was subsequently lost in Lower Valley chronology

as Bayou Cutler was overwhelmed b the growing usage of the term Coles Creek. Nearly 35 years later, Phillips (1970:920-922) brought Bayou Cutler out of mothballs but only as a phase, a unit of archeological classification of a less extensive magnitude than a culture period (cf. Willey and Phillips 1958:22).

Kniffen's Iberville survey produced evidences of aboriginal occupation during four arbitrarily delimited periods: Marksville/Bayou Cutler, Bayou Cutler, Bayou Cutler-Historic, and Historic (Kniffen 1938: 200-202). The two Historic sites--Peter Hill and Rosedale on Bayou Grosse Tete--produced ceramic markers of Natchez and Tunica types (Kniffen 1938: Fig. 23); the Historic-Bayou Cutler sites (Livonia, Big Bayou Pigeon, and Big Bayou Pigeon Canal) produced the historic markers in conjunction with Bayou Cutler types; Bayou Cutler sites (Reed, Little Goddel Bayou, Bayou Sorrel, and Miller) produced characteristic Cutler ceramics along with Coles Creek types (Kniffen 1938: Fig. 23). The inclusion of Coles Creek markers along with Bayou Cutler diagnostic types in both the Historic-Bayou Cutler and Bayou Cutler periods is a very interesting admission, as is the inclusion of a column (Kniffen 1938: Fig. 23) showing types common to both Coles Creek and Bayou Cutler complexes. This implies that Kniffen, or perhaps Kniffen and Ford, had established some definite ideas about which pottery types "belonged" with each culture period. Unfortunately, neither Kniffen nor Ford ever published a "trait list," or similar device, detailing these marker types. This is no doubt a result of the fact that the ceramic typology then in vogue (Ford's analytic formula system) simply did not submit to ease of presentation. With the abandonment of this system shortly thereafter in favor of the binomial typology went the sensitivity and ability to distinguish the complexes. The combination of attributes and modes that comprised the "types" in the analytical system were the elemental bases for identifying these complexes. By Kniffen's own admission, the only type not common to both complexes was check-stamped ware. The primary differences between Coles Creek and Bayou Cutler complexes lay in the peculiar details of decoration motifs, elements, and arrangements. When these became subsumed under a more generalized classification scheme, so did the distinction between Coles Creek and Bayou Cutler.

The earliest period in the Iberville section of the Atchafalaya

Basin was the Marksville-Bayou Cutler period, represented at Grand Bayou, Kleinpeter, and Goddel Ridge (Kniffen 1938: Fig. 23). Except for Grand Bayou (Springer 1973, 1976), the ceramic assemblages have never been reexamined, but it is highly likely, based on Kniffen's (1938: Fig. 23) marker type lists which include Bayou Cutler, Coles Creek, Deasonville, and Marksville types, that the Marksville complex identified here is the latest Marksville period, also commonly referred to as Troyville (cf. Ford 1951). This is definitely the case at Grand Bayou (also known as Bruly St. Martin, Springer 1973). It should be kept in mind that the temporal distinctiveness of Marksville, Issaquena (Greengo 1964), and Troyville, or Baytown, had not been recognized in 1938. In effect, then, Kniffen's cultural chronological outline for Iberville Parish was the initial presentation of what might be considered as a modern local sequence for the Atchafalaya Basin.

In 1938, James Ford instituted a large scale, problem-orientated attack on chronological problems under the auspices of the Works Progress Administration (Willey 1969; Lyon 1976). An impressive staff was assembled: Gordon Willey, Robert S. Neitzel, William T. Mulloy, Edwin B. Doran, Arden King, Andrew Albrecht, and subsequently, George I. Quimby, Carlyle S. Smith, and Preston Holder (Lyon 1976:50-51). The research design was simple--expand and refine the chronological sequence for the Lower Mississippi Valley. The strategy was simple--excavate selected sites that showed greatest promise in providing chronological data. The administration and coordination of these efforts was far from simple. Large numbers of unskilled and skilled men from the ranks of the unemployed had to be welded into efficient field and laboratory crews. Bureaucratic red-tape often seemed to stand in the way of these efforts, and forms and manpower reports far outnumber the published professional contributions that grew out of this work. But the WPA program produced an enormous volume of historical information, an assembly of data without precedent and without subsequent compeer.

While none of the WPA excavations took place within the Atchafalaya Basin itself (some, however, were on the immediate peripheries), they had tremendous influence on cultural chronology within the Basin, as well as throughout the Lower Mississippi Valley. The program started with large-scale excavations at Greenhouse and Crooks in 1938-1939 (Ford 1951; Ford and Willey 1940). Later in 1939 and in 1941, work transpired

at several Tchefuncte sites near Lake Pontchartrain and at the Lafayette Mounds on the Vermilion River (Ford and Quimby 1945). In 1939-1940, the Medora site was excavated (Quimby 1951); in 1940-1941, it was the Bayou Goula site (Quimby 1957), both sites near Baton Rouge on the eastern edge of the Atchafalaya Basin. Driven from the Greenhouse site by high waters, Neitzel and crew conducted excavations at the Marksville, Baptiste, and Nick sites atop the Marksville Prairie (cf. Toth 1974; Vesculius 1957). The WPA program was concluded with a survey of southwestern Louisiana by Doran in 1941 (Lyon 1976: 51).

When the dust had settled from WPA field activities, Ford and associates had added three more culture periods to his earlier tripartite chronology. The Tchefuncte period was placed at the early end of the sequence as the initial pottery-making manifestation in the Lower Mississippi Valley (Ford and Willey 1940: Fig. 2; Ford and Quimby 1945). The Marksville culture period was redefined and chronologically limited to the interval between the end of Tchefuncte and the beginning of the Troyville period (Ford and Willey 1940), the period when midwestern Hopewellian interchanges and/or influences were presumably at their zenith. Troyville, a new and controversial culture period was inserted between Marksville and Coles Creek periods (Ford and Willey 1940: Fig. 2; Ford 1951). It was constituted largely of ceramic types that had been formerly classified as Marksville and Coles Creek and was liberally sprinkled with Deasonville types (e.g., cord-marked and red-painted wares). Deasonville was dropped as a chronological unit in the Lower Mississippi Valley (in the so-called Red River Mouth sequence). As a result of the Greenhouse, Medora, and Bayou Goula work, another culture period, Plaquemine, was squeezed into the sequence between the Coles Creek and Historic periods (Ford 1951; Quimby 1951, 1957).

Neither Troyville nor Plaquemine, especially Troyville, gained immediate widespread acceptance (cf. Jennings 1952; Phillips 1970). These culture periods were transitional units. They had been carved out of ceramic complexes that had formerly been classified as something else. This confounded opponents who simply could not see how some cultural types could be Marksville or Coles Creek one day and Troyville or Plaquemine the next. These individuals apparently did not

share Ford's view of culture as a gradually changing flow of ideas, with any one archeological site encapsulating those elements which comprised a limited span of an unbroken continuum (cf. Ford 1938a, 1951, 1952, 1954a). To Ford, every archeological site represented a limited cross-section of a developmental sequence which was smooth and gradual and lacked realistic partitioning. Ford (1954a, 1954b, 1954c) believed that all cultural typologies, or attempts to segment the continuum, were artificial constructs imposed on the data by the classifier and, as such, were purely a product of the peculiar historical segments represented by the sites which happened to be chosen for excavation. Typologies were artifices and no more. They were happenstance consequences of investigative decisions ruled by excavation methods and historical accident. Ford's concept of culture and of classifactory practicality were unacceptable to many archeologists who felt there were real discontinuities in cultural developments, discontinuities which could be "discovered" by perceptive investigators using intelligent observation or sophisticated statistical measurements (cf. Spaulding 1953a, 1953b). Ford's (1954b:109) reply to these visionaries and statisticians is classic:

> I am somewhat more uncertain than Spaulding that nature has provided us with a world filled with packaged facts and truths that may be discovered and digested like Easter eggs hidden on a lawn. . . .

Whether or not one agrees with Ford's philosophical position on the reality or artificiality of cultural chronological units is really beside the point, for, with but one exception, the cultural historical framework produced by Ford and associates in the 1930s and early 1940s has remained the chronological yardstick for Lower Valley ceramic complexes to this day. It is a lasting tribute to the dedication, intelligence, and sense of direction of a man who might be called "the father of modern historical archeology in the Lower Mississippi Valley."

Several methodological shifts occurred during, or as a result of, the WPA work that revised the march toward chronological goals. The first was the adoption of a new pottery classification system; the second was a fine honing of a particular means of ceramic comparison.

Ford gave up his earlier index and analytical formula classification schemes in favor of a biological taxonomic system similar to that developing in the Southwestern United States (Gladwin and Gladwin 1931;

Colton and Hargrave 1937). In effect, various kinds of decorative treatments became the "genera" and names of sites or geographic localities became the "species." For example, a type labeled 14d in the index system and 31;23/73;2 in the analytical system came to be distinguished as Churupa Punctated (cf. Haag 1939; Ford 1951); punctating representing the dominant decorative treatment, Churupa deriving from Churupa Plantation in Concordia Parish. Ford (1938b) set forth the tenets of this new typological scheme in a report on the first Southeastern Archeological Conference which he helped to organize. Ford (1938b) conceived of these binomial types not merely as descriptive categories, but as chronological indicators. In fact, Ford recommended that types not be formalized unless there were historical (time or space variability) criteria underlying them (Ford 1938a). With this, historical types (cf. Krieger 1944) were born in the southeastern United States. Historical criteria are still basic to type recognition in the area today.

Ford's pre-WPA manner of chronological unit (i.e., culture period, or ceramic complex) definition was based on a comparative method called "occurrence similiary seriation" (Willey and Sabloff 1980:99). In other words, one prehistoric ceramic complex, say Coles Creek, shared some pottery types with post-European complexes (e.g., Natchez, Tunica, and Caddo). Coles Creek and Deasonville, another recognizable prehistoric complex, shared some types and were found intermingled in stratigraphic excavations, but Deasonville and the historic complexes did not share pottery types. Marksville did not exhibit any types common to either Deasonville or Coles Creek, although threads of design motif and application continuity were recognized. Thus, historic complexes tied specifically to documentary records or containing artifacts of European manufacture were the master keys to chronological placement. Coles Creek was demonstrably earlier, though typological similarities occasioned the belief that the complex was tied directly to the historic horizon. The typological overlap between Coles Creek and Deasonville showed that the two complexes were at least partly contemporaneous, but that Deasonville had disappeared before Coles Creek and had not consequently contributed to the ceramic complexes of the historic period. Since Marksville did not share any types with the other complexes, it had to be the earliest of the then recognized complexes.

Thus the arguments for chronological sequencing were based on presence or absence, or occurrence similiary seriation (Willey and Sabloff 1980:99).

The fine honing of Lower Mississippi Valley chronology was accomplished by a more detailed kind of ceramic comparison using type frequences (frequency similiary seriation, cf. Willey and Sabloff 1980:95). In this comparative method, type percentages were determined from surface or excavation strata collections and were converted to bar graphs that, through visual manipulation, were arranged to form a series of "best fit," battleship-shaped popularity curves (Phillips, Ford, and Griffin 1951:219-236; Ford 1951, 1952). This procedure resulted in a sort of "life history" graph of various pottery types which presumably illustrated the beginnings, maximum popularity, and phasing out of each type. Where there was general coincidence of maximum popularity peaks of several types, these were bracketed by time lines and became the familiar culture periods.

Frequency similiary seriation of the Fordian graphic type was based on several assumptions (Ford in Phillips, Ford, and Griffin 1951:223): a) populations in any given culture area were stable; b) each site was occupied for only a short period of time; c) culture change was slow and gradual; d) pottery types will show a single peak curve of popularity but the shape of curves will vary by types; e) type curves will differ in each part of the area within any time horizon and will reveal a distinct patterning through time; and f) collecting procedures have produced a representative sample. However, as Springer (1976:126-127) has pointed out, there is really only one overriding presumption underlying seriation--culture changes and does so slowly and gradually. While Ford's (Phillips, Ford, and Griffin 1951; Ford 1951, 1952) seriations yielded widely used and accurate chronological sequences, his particular brand of frequency similiary seriation was widely distrusted and never inspired much confidence (cf. Ford 1952:313; Spaulding 1953a, 1953b, 1954c). Spaulding (1953b:589) denied that there could be any legitimacy to results produced by any method so fraught with errors and "methodological deficiencies." Spaulding was really speaking to Ford's philosophical outlook, rather than to Ford's resultant ceramic sequences which he admitted might ultimately prove to be correct (Spaulding 1953b:591). Spaulding (1953b:590), in fact, appears to have seriously undermined his entire critique by admitting, "Soundness of archaeological methodology and productivity can be gauged only in terms of additions to knowledge." Ford certainly appears to have added to know-

ledge via his seriational results. His results have withstood the test of time. For what they were intended, Ford's seriational graphs represent a broadly accurate picture of changing ceramic styles in the Lower Mississippi Valley.

Lyon (1976) in an insightful look at Louisiana's WPA program, found that archeologists could not be constrained by state boundaries, much to the chagrin of program administrators. Ford's own personal history (Willey 1969), as well as those of the team he had assembled, shows a much broader regional, even areal, orientation. Ford, in fact, stole time from his WPA duties to aid Philip Phillips and James Griffin in an extensive survey of the Yazoo Basin in Mississippi (cf. Phillips, Ford, and Griffin 1951). The outlooks generated by familiarity with other regions and their historical intermeshing gave added credibility to Ford's "Red River Mouth" chronology, and produced an appreciation of areal cultural succession without precedent in American archeology. Before the WPA disbanded, Ford and Willey (1941) published a first-of-a-kind synthesis of areal prehistory which integrated local and regional sequences across the Southeastern United States into a cogent pattern of stadial development. Not only did their scheme set forth a new terminology for developmental stages (i.e., /from oldest to youngest/ Archaic, Burial Mound I, Burial Mound II, Temple Mound I, Temple Mound II), but it speculated on diffusionary "dynamics," which were all thought to exhibit a general south-to-north movement in each of the stages (Ford and Willey 1941; Willey and Sabloff 1980:116). This scheme, along with a similar one by Griffin (1946), became the major frames of reference for nearly all subsequent chronological ordering activities in the eastern United States.

The WPA program and Ford's and Kniffen's earlier activities represent a most significant period in Louisiana archeology. Direction and structure replaced aimless amorphism. The culmination of the 1930s work produced detailed chronologies and other typologies. It brought Louisiana and the Lower Mississippi Valley in general into vivid perspective with the rest of the Southeast. It marked the beginnings of widespread cooperative efforts and information-sharing. It created, especially with the initiation of the Southeastern Archaeological Conference in 1938, a sort of brotherhood of southeastern archeologists. So dominating were the influences of the group of founding fathers that

they continue to dictate much archeological practice to this day.

The termination of the government-sponsored programs during the depression led not only to a disbandment of the Louisiana team, but also to a bleak period of inactivity that spanned a decade, even more in some areas such as the Atchafalaya Basin. The ensuing war effort engaged many of the principals, and subsequent resettlement prolonged publication of some of the WPA results. However, the long wait between data acquisition and publication made possible the integration of newly developed analytical methods and additional data from surrounding regions. It permitted refinement of culture periods and reassignments of pottery types (cf. Ford 1951:48). It allowed interregional correlations especially between the Lower Mississippi Valley and Caddoan and Floridian chronologies (Newell and Krieger 1949; Ford 1952; Willey 1949). Frequency similiary seriation, discussed above, came to be a widely used, if somewhat skeptical, technique, and Ford's methodological plan for "measuring" design developments across the Southeast was presented.

This lag period also assured a response by Ford (1952:317-319) to Walter Taylor's (1948) scathing critique of the status of American archeology and archeologists. Taylor's dissatisfaction with the historical orientation of American archeology was generally viewed as a caustic and unwarranted attack on the dominant personalities and as such its real contribution--the so-called conjunctive approach--was not appreciated at the time. Although Ford's work was among that openly reviewed by Taylor, he was one of the few who responded to the issues raised by Taylor rather than becoming embroiled with personal assaults. Taylor (1948) was merely asking archeologists to carry their researches beyond the naming of pottery types and the outlining of culture periods into a more exacting use of available data employing a fuller range of analytical devices and relevant concepts. Taylor's (1948) pioneering work has often been identified as the harbinger of a "new archeology" some decade or so after its appearance. But to Ford, Taylor's plea for a conjunctive approach was simply a means of refining ". . . the ancient curio and fact-collecting activities of our predecessors . . ." Lacking low and middle-range theory to link data with interpretations, Ford's assessment seems entirely warranted. However, it would be subsequent work in the conjunctive manner that would lead to the development of the essential theoretical underpinnings. Ford took a very pragmatic view of archeo-

logical goals. Perhaps, recalling his own divergent course begun some 20 years earlier, Ford (1952:317) noted that objectives were always in flux and that newer means of achieving those goals would rise and would, in turn, be superseded by still newer ones. In other words, Ford viewed neither his own manner of doing archeology nor Taylor's conjunctive approach as the final, ultimate method. Still, via this introspection, Ford (1952:318) showed some significant insights as to probable future directions which would make archeology more meaningful. Ford envisioned archeology as making eventual signal contributions in two primary areas (Ford 1952:318): first, providing the background (hence understanding) of contemporary cultures, and second, exposing the ". . . general principles, . . . causes, speed, inevitability, and quantitative aspects of culture change over long periods of time." Such goals, sometimes differently stated, indeed underlie some contemporary archeological research.

Before proceeding to other cultural historical activities, mention should be made of another time-ordering technique which came into widespread use in the Lower Mississippi Valley during the 1930-1940 period and which continues to be employed today. This was a particular form of geochronology based on successions of river channel and deltaic shifts. Walker (1932b) had initially pointed out the possible usefulness of this method in assessing the relative age of archeological sites. Ford (1935a, 1936a) also realized its potential and had actually applied it to sites in Concordia Parish (Ford 1936b:238-240). The same prospect, and the related geomorphic process of subsidence, influenced Kniffen's chronological constructions in St. Bernard and Plaquemines Parishes (Kniffen 1936) and in Iberville Parish in the Atchafalaya Basin itself (Kniffen 1938).

However, it was the appearance of Harold Fisk's (1944) grand tome on Lower Mississippi Valley geology that legitimized the approach and provided a temporal yardstick for river and delta changes, and hence archeological associations. Building on earlier parish studies (cf. Chawner 1936; Huner 1939; Howe et al. 1938; Russell et al. 1936), as well as his own research, Fisk (1944) reconstructed a sequence of Mississippi River meander belts. For the last 6000 years, Fisk recognized 10 early stages of unequal length and 20 subsequent stages of nearly equal length. He assigned letter designations to the early

stages, and numbers to the later ones (Fisk (1944); only the last four numbered stages were documented and mapped and the dates of diversions historically recorded. The link between river stages and archeological sites was enabled by a dogmatic assumption set forth by Kniffen (1938: 203):

> . . . Sites . . . were inhabited only when they lay on the natural levees of significant, active, perennial, freshwater streams.

Thus seemingly provided with an accurate time scale produced by independent means (geology), archeologists in the Lower Mississippi Valley jumped naively on the geochronological bandwagon and proceeded to develop channel associational models to augment and refine cultural succession based on more traditional means (cf. Ford and Willey 1940; Ford 1951; Phillips, Ford, and Griffin 1951). There seemed to be little awareness that Fisk's sequence was at least partly based on relative age determinations made by archeologists themselves and was really nothing more than a series of hypothetical models growing out of interpretations of maps and aerial photos and a woefully inadequate number of stratigraphic borings and profile sections. Roger Saucier (1977:90-91) has proferred an insightful review of this type of geochronological dating:

> In present perspective, it appears that Fisk unwittingly misled the great majority of his readers into believing that his numbered and lettered river channels represented finite periods documented or supported by absolute age determinations. Regrettably, this was not the case and largely is still not the case. . . . we are still a long way from developing an absolute chronology of Mississippi activity and history. It is also apparent that archaeological evidence will probably contribute more than geological evidence in making such a chronology possible.

Saucier's cautionary note, nay denial, is sufficient reason to doubt any specific correlations and chronological determinations based on Fisk's river channel chronology. But work on Mississippi River chronology is proceeding, largely due to Saucier's (1963, 1968, 1974; Saucier and Fleetwood 1970) own activities and that of others, particularly William McIntire (1958) and Sherwood Gagliano (1963, 1967; Gagliano, Weinstein, and Burden 1975; Gagliano et al. 1978; Weinstein et al. 1978; Wiseman et al. 1979). Gagliano's work is especially pertinent since his activities have been primarily concentrated in coastal Louisiana including the Atchafalaya

Basin, and his refinements are not only grounded in radiocarbon assessments but in much clearer perceptions of the timing of site founding in concert with developmental stages of the supportative landform. Kniffen's assumption, cited above, no longer guides associational pronouncements; rather microstratigraphic details and models of biological succession are employed to determine whether sites were positioned on actively developing or inactive landforms, and more precisely at what successional stage in the landform's history was it occupied or used.

It was, in fact, geochronological aims that guided the next work on archeological sites in the Atchafalaya Basin after Kniffen's pioneering activities in Iberville Parish. That work was done by William G. McIntire whose expressed goal was (McIntire 1958:1):

> . . . to learn more about prehistoric man in Coastal Louisiana, and to use his cultural remains as an aid in unravelling some of the geological history of the deltaic plain.

McIntire visited or recorded over 500 archeological sites in coastal Louisiana. By identifying the period of oldest occupation in sites via ceramic means, McIntire (1958) was able to present ages for the various river courses and delta lobes, and thereby construct a relative chronology for land development in South Louisiana.

While McIntire's chronology (based on Fisk's reconstructions) has now been superseded, there are two factors that render his work historically significant. McIntire (1958) was the first to explicitly note that Ford's ceramic sequence was not entirely applicable to coastal Louisiana data. In particular, the pottery types diagnostic of the Troyville and Coles Creek periods in inland Louisiana were either not represented or represented in very limited quantities along the coast. The types in question were Mulberry Creek Cord-Marked and Larto Red for Troyville, and the myriad varieties of Coles Creek Incised for Coles Creek. Lacking these more common types, McIntire (1958) used French Fork Incised and Yokena Incised as Troyville diagnostics and Pontchartrain Check Stamped as the Coles Creek marker. Thus, McIntire served to reinforce the fact that South Louisiana was ceramically, chronologically, and culturally divergent from inland regions of the Lower Mississippi Valley, at least during the Christian era.

The other major area in which McIntire's geological reconstructions had important bearing on culture history was in his use of radiocarbon

dating (McIntire 1958:102-103, Fig. 33). By 1955, he had obtained 29 radiocarbon ages, 16 of which were based on cultural materials from 11 different sites across coastal Louisiana (McIntire 1958:Fig. 33). The remaining ages were geological and lacked cultural associations. This represented the first concentrated effort to provide absolute chronological control for so broad a region and, with the exception of contemporary radiocarbon determinations from Jaketown and Poverty Point (cf. Ford and Webb 1956:Table 9), it was the first time that the promising new age assessing method had been used in the Lower Mississippi Valley.

This event--the discovery and application of radiocarbon dating--was a boon to archeology. Haag (1961:21), in fact, has proclaimed radiocarbon dating as the single greatest contribution of the quarter century ending with 1960, and it is likely that it may still be regarded as such by some archeologists today. Haag (1961:21) further pointed out the "tranquilizing effect" of the absolutism of radiocarbon dating in constructing chronologies. It replaced subjectivity with objectivity in assigning ages to various sites and culture periods, and it distilled, and perhaps unfortunately, suppressed traditional speculation and guessing of the kind epitomized by Phillips, Ford, and Griffin's (1951: 455) classic statement: "We stand before the threat of the atom in the form of C14 dating. This may be our last opportunity for old-fashioned uncontrolled guessing." Haag's (1961:22) prediction that the assembling of more radiocarbon dates would lessen the tendency to regard every date as a valid one has, unfortunately, not come to pass. There is still a tendency among Lower Valley archeologists to take every date at face value. Little cognizance is shown of the problems with radiocarbon dating and with the transformation of radiocarbon ages into calendrical dates (cf. Gibson 1979a).

With the exception of McIntire's work in coastal Louisiana during the early 1950s, very little archeology was done in the Louisiana segment of the Lower Mississippi Valley proper (including the Atchafalaya Basin) during the 1940s-1950s. Clarence Webb and associates were active in the Caddoan area of northwestern Louisiana, and the Lower Mississippi Survey (sponsored by Harvard University) was conducting some work in the Yazoo Basin of western Mississippi (Ford, Phillips, and Haag 1955). The American Museum of Natural History supported excavations at the Poverty Point site (Ford 1954d, 1955; Ford and Webb 1956), which led to the addition of the

Poverty Point period to the chronological sequence. While this represents the longest span of field inactivity in the history of archeological research in Lower Louisiana, it was nonetheless an eventful period of methodological and philosophical progress in American archeology in general. The fruits born of this period were soon applied to the Lower Mississippi region and gave rise to a new wave of taxonomic and cultural chronological constructions.

Perhaps the most influential work of this period was Gordon Willey and Philip Phillips' (1958), "Method and Theory in American Archaeology." This little book was not only a cogent statement on American archeology and its relationship to general anthropology at the time, but it was destined to become a veritable "procedural manual" on how to conceptualize and taxonomically organize prehistoric data. The main thrust of Willey and Phillips' statement centered on what they called culture-historical integration which they defined as: ". . . both the spatial and temporal scales and the content and relationships which they measure" (Willey and Phillips 1958:12).

Building on, yet qualifying, restricting, and, yes, standardizing, then current archeological nomenclature, Willey and Phillips (1958:18-43) proposed a clear and straight-forward separation of four major organizational concepts: spatial, temporal, basic, and integrative units. They recognized four spatial divisions; e.g., site, locality, region, and area, and defined each (Willey and Phillips 1958:18-21). They discussed two types of temporal series, local and regional sequences (Willey and Phillips 1958:24-29); two basic units--component and phase (Willey and Phillips 1958:21-24); and two integrative units, horizon and tradition (Willey and Phillips 1958:29-40); as well as how these units were to be welded together (Willey and Phillips 1958:40-43). These units took on a formality and a rigidity that would claim advocates of the culture-historical integration system until this day. There seems to have been little realization that Willey and Phillips acknowledged in the first sentence of the first chapter of their book (Willey and Phillips 1958:11) that their method, culture-historical integration, was ". . . the primary task of archaeology on the descriptive level of organization" (emphasis provided). Description was all the Willey and Phillips' system was ever designed for; it promised no more. That subsequent proponents of their system (cf. Griffin 1967; Toth 1974)

would attempt to equate socio-political realities with some of their classifactory units was through no inherency of the proposal. In fact, just such a possibility was dismissed by Willey and Phillips (1958:16-17) in response to a critique of their method by Albert Spaulding. The controversy centered on the "real or arbitrary" argument on culture types, previously aired in the discussion of the Spaulding-Ford debates.

The pervasiveness of the culture-historical integration method was so complete that practically all subsequent chronological reconstruction, indeed most subsequent archeological reconstruction in the Lower Mississippi Valley came to be dominated by it. Some minor disclaimers were heard, but none really sufficient to retard the proliferation of phases and local sequences that became the goals of archeological research in the Lower Mississippi Valley. Ford (1961), for example, found little to distinguish the principal recommended means of "phasing" (i.e., Phillips [1958] type-variety pottery classification method) from his own broader pottery type--occurrence and frequency similiary seriation methods used years before. Ford (1961:113-114) stated:

> So, the "type-variety" replaces the old working unit we used to call "type" and "type" is now elevated to the next higher level in the process of synthesis. Relieved from common drudgery, it has become an executive. It is hard to see what is new about this except the switch in terminology. I suspect this move has been motivated by a feeling that there is in culture history a naturally packaged unit to which the name "type" belongs.

The above quotation slightly has the "cart before the horse," so to speak, but it does serve to introduce a companion vehicle to the culture-historical integration methodology that came to guide archeological research in the Lower Mississippi Valley. The type-variety pottery classification method (cf. Wheat, Gifford, and Wasley 1958: Phillips 1958; Gifford 1969) was conceived as a principal means of refining existent typology by formalizing those variations in decoration or fabric types which showed temporal or geographic differences. Phillips (1970:23) elaborated:

> I do not believe potsherds are going to tell us very much about culture and social behavior. . . . If we differentiate a Mott variety from the established Coles Creek variety of Coles Creek Incised, it is not because we think it reflects differences in behavior, that the women who made Mott were departing from the customs of their grandmothers who made Coles Creek. What makes Mott worthy of a place in the classification is the fact that it was the granddaughters and not the grandmothers who made it.

Thus enamored with the culture-historical integration methodology and its principal means of implementation--the type-variety typology--Lower Mississippi archeologists proceeded with fervent abandon to create innumerable phases out of culture periods and a multitude of varieties out of types. All of this stepped-up taxonomic proliferation seems traceable to a conviction stated perhaps most eloquently by Phillips (1970:23):

> In the archaeology of the Lower Mississippi Valley most of the giant strides have been taken. If we are to go ahead it must be by smaller steps. . . .

Ford and colleagues had indeed set forth the complete sequence of culture periods by the early 1950s. In fact, Willey and Phillips (1958:27-28) labeled the sequence one of the firmest in North America. Only the earliest manifestation--Paleo-Indian--was lacking, and Ford, at one time, actively worked on that problem. By 1970, Phillips had carved 88 phases out of six culture periods and had added or modified 61 ceramic classification units by defining new types and demoting old types to variety status (Phillips 1970). This represents the most significant remaking of taxonomic units in the history of Lower Mississippi Valley archeology.

These are the "smaller steps" to which Phillips (1970:23) was referring. To carry the analogy further, Phillips' magnificent work set in motion a veritable troop of "feet-shufflers" who seemed content merely to divide and subdivide taxonomic units for no particular purpose other than that it seemed the appropriate thing to do. Such a characterization may be a trifle unfair as there appears to be a pervasive undercurrent that a more sensitive typology might show the way to "cultural and historical relationships" and perhaps to an "identification of prehistoric functioning social systems." In this reviewer's opinion, it would be only coincidental if a typology based on time and space criteria should reveal "functioning social systems," which are comprised and identified by criteria other than temporal and spatial ones. Putting aside philosophical matters for the moment, there is also a practical side to this disagreement. If the type-variety system was basic and sensitive enough to reveal social realities, and if this object was earnestly sought, where are the social and political realities it has exposed? This lacunae is a strong argument that the

system is either incapable of identifying social realities or such realities are not really the goals to which the system is directed. There is additionally another very basic problem with the type-variety classification system, or with any classification scheme for that matter. How is one to know when he has isolated a "functioning social system"? There is nothing inherent in a classification or a typology which permits this. This is a matter of verification, of scientific proof. To this reviewer's knowledge, no such demonstration of correspondence between taxonomic unit and social reality has been presented in Lower Mississippi Valley archeology to date.

The positing of small time-space units dominated the archeology of the Louisiana portion of the Lower Mississippi Valley during the 1960s and 1970s. From the Tensas Basin in the north (Williams 1964; Belmont 1967a; Hally 1967, 1972), through east-central Louisiana (Gibson 1968, 1977; Gregory 1969; Hunter 1970), into the coastal area (Gagliano 1963, 1967a, 1967b; Weinstein et al. 1978; Weinstein and Rivet 1978), archeological phases were added at a rapid rate. With the exception of the Tensas Basin work and Phillips' (1970) grand summary of the entire area, there have been few attempts to temporally, spatially, or contextually justify the construction of these phases. There seems to be an almost tacit assumption that if a component or group of nearby components falls within a physiographic province, this component or group of components constitutes a new phase. In some cases, these phases are simply presumed to correspond to the entirety of a culture period; in others, several phases are ranked in successional order within a single culture period. Most inter-locality comparisons for purposes of cross-dating use the occurrence similiary seriation with all its inherent pitfalls. There is a woefully inadequate radiocarbon series for both internal chronological sequencing and establishing of cross-locality contemporaniety. In fact, the Lower Mississippi Valley radiocarbon chronology is really not even adequate for assigning age brackets to the areal culture period scheme (cf. Gibson 1979a:146). In its present state, absolute chronology in the Lower Mississippi Valley not only fails as a precise time yardstick, but the taxonomic units it purports to measure are a variable lot composed of unequal portions of time, space, and content.

Adjunctive issues growing out of the culture-historical integration approach and the type-variety classification system have entailed

diffusionary studies. Building from Ford's (1952) means of tracing geographic movements of ceramic styles and traditions (which was itself based on the "age-area" concept), John Huner (1967, 1969) studied the distribution of varieties of French Fork Incised pottery across the Gulf Coast. By means of relative frequencies (ratios), Huner (1969) presumed to demonstrate that certain French Fork varieties diffused into coastal Louisiana from Panhandle Florida, were modified by local traditions particularly in the Belle River area of the Atchafalaya Basin, and subsequently spread by reflux diffusion back into the same areas they had previously moved through, leaving the Belle River area stagnant in terms of further French Fork evolution. Huner's study is interesting but lacks chronological support.

Using Ford's (1952, 1962) graphic, type frequency seriation method, Gibson (1968:107-114) projected an internal chronology for the Tchefuncte (i.e., Tchula) period. Realizing that the seriation chart showed a south-to-north distribution of components, a distribution which correlated perfectly with the presumed oldest-to-youngest chronological order, he postulated a spread of Tchefuncte ceramics upvalley and westward from an eastern, Lake Pontchartrain hearth.

Both Huner's and Gibson's hypotheses were naive and largely mechanical efforts at showing ceramic diffusion and by extrapolation internal chronology within culture periods. Neither questioned the reliability of sample sizes, which were often quite small, nor did they realize any of the major pitfalls shrouding both the diffusionary "age-area" concept and the seriation methodology itself. The principle of cultural continuity underlay both efforts, a concept being seriously questioned at the time. And finally, the disturbing influence of the Doppler effect(Deetz and Dethlefsen 1965:196-206), which entails sampling counter to the direction of diffusion, was not taken into account in either effort.

Unrelated to the culture-historical integration approach, but commanding some attention in the period following the late 1950s were reconstructions of sweeping, pan-Gulf cultural influences, reconstructions set up to embrace what appeared to be some general conformities in mound-building, artifacts, and ceramic styles across the Gulf Coast from Florida to Louisiana. Ford's (1951, 1952) and Willey's (1949) work created the enabling context for the positing of these large scale

cultural continuities, although they were not the first to appreciate the idea of some sort of interconnectedness (cf. Moore 1912, 1913; Collins 1927; Kniffen 1936, among others). Sears (1956, 1958, 1960, 1964) and Caldwell (1958, 1962) established a taxonomic unit, i.e., the Gulf Tradition, to embrace this presumed diffusion sphere. Although said to derive from Early Woodland (Tchefuncte-St. Johns) roots, the Gulf Tradition appellation as a descriptive device does not seem to work well until post-Hopewellian times (Phillips 1970:969-971). This would be the period identified in Louisiana as Troyville, in Alabama as Porter Marksville, and in Florida as Santa-Rosa-Swift Creek, or say, around A.D. 500-700. An early sweep of influences presumably resulted in a pan-Gulf sharing of zoned punctated and incised and painted pottery styles, while a later unity is presumably expressed by multiple line cursive incised and punctated ceramics on shell-tempered fabric. Both conical and truncated pyramidal mounds also figure into this picture of relative homogeneity.

Now, a much earlier version of the Gulf Tradition has been brought into focus. In Florida, Ripley Bullen (1972, 1974) had for years perceived a Gulf Coastal spread of early fiber-, sand-, and chalky-paste ceramics and certain other artifacts during the first and early second pre-Christian millennia. A number of regionally identified ceramic complexes are presumed to have been involved in this intra-areal diffusion during what has been called the Gulf Formational stage (Walthall and Jenkins 1976). James Ford (1969) devoted his final productive energy to a controversial reconstruction of the diffusionary mechanisms underlying the spread of these early potteries across the Gulf Coast. According to Ford (1966, 1969) the earliest wave of pottery emanated from the Atlantic Coast where colonies of immigrant Colombians had been established about 1800-1600 B.C. Slowly spreading westward from this point of origin, these early Colonial Formative ceramics were influenced by a subsequent wave of foreign ideas, these issuing forth from some Olmec or Olmec-like source on the Vera Cruz coast, which not only modified the ceramic complexes, but brought a new religion and a new subsistence base--agriculture--to certain population enclaves along the Gulf Coast (Webb 1968; Ford 1969). The projected cumulative effect of these hypothesized southerly influences on indigenous Late Archaic peoples was the development of complex theocratic socio-political systems, particularly Poverty Point (Ford and Webb 1956; Webb 1968; Gibson 1973) and Hopewell (cf. Brose and

Greber 1979).

Not only have pan-Gulf diffusion spheres been proposed, but lines of diffusion axially oriented with the Mississippi alluvial valley (i.e., north-south and vice versa) have also been suggested. Two of the more prominent issues have centered on the Hopewell-Marksville "connection" and to so-called Mississippian "expansion."

Similarities between certain Middle Woodland manifestations ranging between Louisiana and Illinois and Ohio had been recognized for a long time. With Fowke's (1927, 1928) and particularly Setzler's (1933a, 1933b) work at the Marksville site came the first clear suggestions that the Mississippi River served as an avenue of diffusion for burial mounds and associated mortuary complexes that now go by the name, Hopewell or some local version of it (Marksville in the Lower Valley). Setzler's initial suspicions of down-valley movement was soon replaced by Ford and Willey's (1940:141-142) suggestion of diffusion from south-to-north, i.e., from Gulf Coast to Midwest (Marksville to Hopewell). There has since been such a flux of north-south, south-north opinions of the direction of the supposed diffusion (cf. Ford and Quimby 1945; Ford and Webb 1956; Toth 1974, 1979), that it is hard to say which direction is preferred as of this moment. Radiocarbon ages have been of no assistance in elucidating presumed directions; for all practical purposes, the complexes in question in the Ohio and Illinois valleys and in the Lower Mississippi Valley appear to be contemporaneous, as are numbers of typologically related manifestations throughout the nuclear Southeast itself.

Actually the confusion and indecision shrouding the Hopewellian issue seems to derive mainly from a conceptual position rather than from any shortcoming or lack of information. Both Hopewell and Marksville have long been regarded as "cultures" that existed during a limited time period (ca. 100 B.C.-A.D. 200), i.e., the familiar culture periods. They were, in effect, conceptualized as temporally and geographically bounded ways of life adhered to by once-living, intercommunicating groups of people. Thus for such widely separated "cultures" (i.e., Marksville and Hopewell) to have shared as many aspects of material culture as seemed archeologically evident, they must have borne a direct, linear,"progeniture-decendant" relationship. This premise, which actually underpins most diffusionary issues, may not be an effectual

way to understand cultural "connections" at all. One thing is certain. Both Hopewell and Marksville "cultures" are typological constructs. They are products of archeological attempts at organizing data and reducing them to manageable (and manipulative) categories. This is not to say that archeological classification is black, bad, and banal. There is certainly not an Eastern archeologist around who is not immediately able to conjure up some kind of mental vision of Hopewell and/or Marksville when those names are mentioned. No, the point to be made here, and in all diffusionary issues, is that typological constructs used today to delimit certain material cultural units are not the same things as were spreading in the prehistoric past. The vehicles of diffusion have always been real people and ideas. Material cultural elements, so basic to archeology, were spread physically by people in contact or by cognitive ideas wafted along avenues of verbal communication. The mechanisms and contexts by and through which things and ideas spread were, and are, multifarious.

These admissions of the blatantly obvious are not intended to insult the reader but merely to draw attention to the fact that until such time as the contexts, manners, and processes of diffusion are clearly recognized, there can be no real progress toward understanding issues like the Hopewell-Marksville "connection." Chronological reconstruction and archeological taxonomies do not provide solutions for such problems. In fact, nonrealization of their real meaning can, and has, actually hampered elucidation of and progress toward understanding culture change and evolution.

A similar platform of conceptual disenchantment can be applied to the Mississippian "invasion" hypothesis. As early as C.B. Moore's work, there was cognition of artifactual similarities between late prehistoric manifestations in the lowermost Mississippi Valley and certain sites and site groups in the upvalley regions, as well as in the Eastern Gulf area. Fred Kniffen (1936) actually drew striking comparisons between his Bayou Petre complex and a site in the Mobile Bay area. McIntire (1958) and subsequently Saucier (1963) and Gagliano (1967a)described what they felt were influences from Alabama (Moundville) and western Florida in certain late ceramic complexes in eastern Louisiana. Phillips, Ford, and Griffin (1951) were searching earnestly for the hearth area of what is now called Mississippian in their survey of the Yazoo Basin and adjoining areas. Subsequently, Phillips (1970:954) proposed a "grand" (his word, but some-

what facetiously intended) diffusionary hypothesis to account for these Mississippian "traits" in deltaic Louisiana. Having previously characterized Mississippian presence in the inland region as a Drang nach Süden, Phillips was confronted with taxonomic difficulties in having "Fort Walton" and "Moundvillian" ceramics in geographic juxtaposition to "Delta Natchezan" potteries; all of which were of presumptive Mississippian origin (Phillips 1970:954), one source originating down-valley, the other emanating from the Eastern Gulf region. Thus Phillips (1970:954) proposed:

> Continuity from Plaquemine is perhaps the major element in its /Natchezan/ makeup in both structural and ceramic departments, but it has in the latter a strong Mississippian strain that it didn't get from Plaquemine. It is not so easy to derive it from the north, either. To me the most intriguing outcome of this study is the possible role of the Bayou Petre phase as mediator between Natchezan and the Fort Walton culture of the eastern Gulf Coast. If the latter in turn derived from Moundville, as commonly assumed, we have all the necessary elements for a grand hypothesis. Mississippian expansion blocked by a strong Plaquemine presence in the area between Natchez and Vicksburg finds another route via the Black Warrior-Tombigbee-Alabama system to the Gulf, westward to the Delta, and up the Mississippi to Natchez and beyond.

Brain (1978) has subscribed to some of the same elements of the Phillips hypothesis, but has recast them to deal only with the Delta Natchezan (cf. Phillips 1970:949-950) components, not the ones bearing Fort Walton-like ceramics, i.e., Bayou Petre. Brain (1978:362) suggests two waves of Mississippian expansion, an earlier one radiating from the Cakohia area downstream which transformed the local Coles Creek culture into Plaquemine and led to the physical settlement of northern Mississippian groups as far south as the Natchez vicinity. Below Natchez, the remodeled culture called Plaquemine thrived, subsequently unaffected, until a second wave of Mississippian or Mississippian-inspired groups moved into the area from the north during late prehistoric and historic times. According to Brain, it was this later resettlement, well documented in the historic literature (cf. Swanton 1911), that produced the Mississippian, Delta Natchezan complex.

Gagliano (1967b) and Brown and Brown (1978a:19, 1978b:8-9; 1979:1) have suggested that salt production and trade in the commodity may have been one of the motivations underlying the Mississippian expansion.

Brown and Brown (1979:1) have, in fact, drawn the most explicit conclusions that the shell-tempered Mississippian ceramics on Avery Island, a salt dome lying just west of the Atchafalaya Basin, were made by a group of salt-producers from the Yazoo Basin (i.e., the Wasp Lake phase, cf. Phillips 1970:565-567).

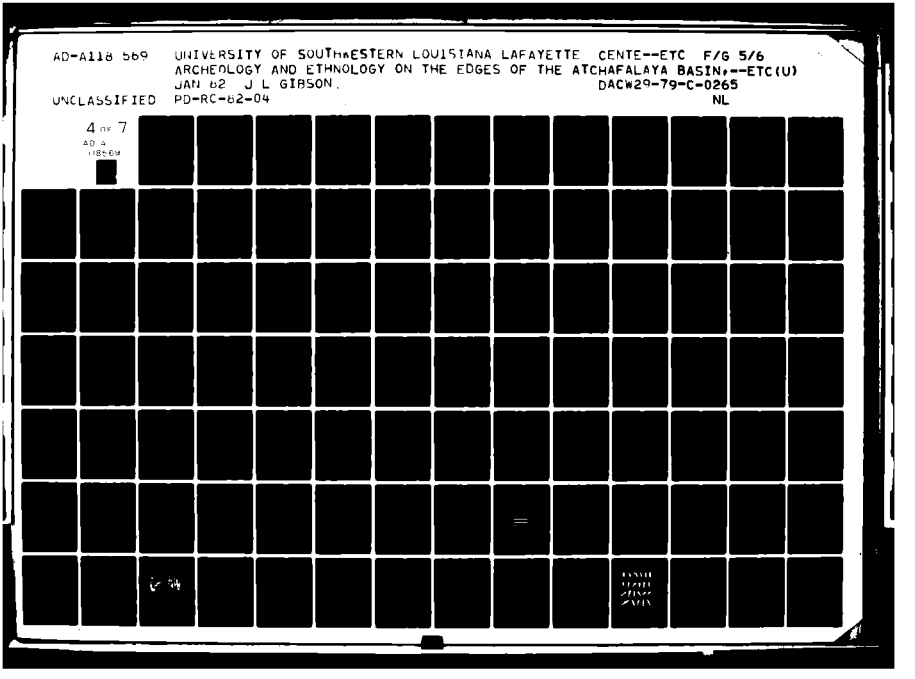
Through a seriational analysis, using Meighan's mathematical tripolar method, Jeffery Altschul (1978) isolated two separate groupings of late prehistoric ceramics from sites in Terrebonne Parish, an area lying in and immediately proximal to the lowermost Atchafalaya Basin. These groups were chronologically serial. Altschul used these analytical results to posit a clear version of the Mississippian replacement hypothesis; an earlier group of Plaquemine folks being forced out by a group of Mississippi immigrants (Altschul 1978:187-189). There are indeed locational, structural, and faunal exploitative differences between the two groups of sites. By bringing other kinds of data to bear on the results of ceramic seriation, Altschul has presented one of the most rigorous versions of the invasionary hypothesis to date. However, his interpretation is bound to result in disclaimers because the ceramic groupings have been carved out of a local Plaquemine complex and the few shell-tempered sherds from the area (the presumed index fossils of Mississippi culture) all seriate with the earlier (Plaquemine) grouping, not the later group proclaimed to be Mississippian.

These hypotheses (e.g., Phillips', Brain's, Brown and Brown's, Gagliano's, Altschul's) are clear and straight-forward. They deal not only with a presumed historical event but also with the nature of that event. They are all colored by the typology used and none really deal with assimilative or reactionary context of the culture contact itself except by implied operation of processes involving politically superior and inferior population groups. They all make the large jump from recognized ceramic groups to population groups which may or may not be warranted but which has never been proven one way or the other.

But whether or not one agrees that these statements reflect a real happening is a separate issue from the confusion resulting from Phillips' (1970) taxonomic remodeling of Lower Mississippi culture history, in which he dropped the useful term Plaquemine in favor of Mississippian as the label for the latest prehistoric cultural interval in the sequence. This seems a logical move on the basis of the situation in the Yazoo Basin

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ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN,--ETC(U)
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of western Mississippi, Phillips' geographical vantage point for viewing Lower Valley culture history all the way to the Gulf. This typological substitution, which not only dropped Plaquemine as a major culture period but completely legislated it out of existence as a cultural time-space unit of any magnitude, has so confused recent cultural historical interpretations that restoration of even typological clarity may be a long time in coming. The term Mississippian is so laden with notions of population expansion, militarism, superior socio-political systems, and intensive "hoe" agriculture--the same ingredients that form the bases for the historical hypotheses mentioned above--that the latest prehistoric groups in the lowermost Mississippi Valley, which by no stretch of the imagination could represent or have had anything at all to do with Mississippian invaders, are now called Mississippian. The almost mechanical attribution of late prehistoric components in South Louisiana to a Mississippian culture period, as done in some recent studies, if carried out to its logical conclusion, will connote the prospects of an empty region filled by northern invaders or a populated region occupied by nameless, culture-less folks who fled into further obscurity at the sight of northern armies and farmers.

In this reviewer's opinion, cultural historical reconstruction in the lowermost Mississippi Valley could be better served if the term Plaquemine were reinstated in place of Mississippian as the latest prehistoric culture period. This recommendation involves more than just a name change, for names are nothing but what they connote. The shift in typological labels should permit restoration of the concept of local prehistoric groups (i.e., groups of material culture traits) who lived, worked, and died a long geographically and culturally distant way from the Mississippian heartland; groups whose existence can be better understood in terms of their own peculiar nature than that of invasionary populations or ideas from the north.

In conclusion, issues of chronology and culture unit reconstruction have dominated archeological practice in the Lower Mississippi Valley and in the Atchafalaya Basin. Even this curt review of historical high-points should illustrate that cultural reconstruction has since the 1930s come a long way in providing a relatively adequate chronological framework for typological packages of material cultural

traits, especially pottery. Significant continuities and discontinuities have been recognized at two major levels of classifactory abstraction, culture periods and phases. These levels are composed of the same ingredients--content, time, and geographic space--but phases are finer scale versions of culture periods. The principal means of culture unit reconstruction has been the pottery type for culture periods and the pottery variety for phases. The manner of placing these culture units in chronological order has involved several techniques, e.g., stratigraphy, occurence and frequency similiary seriation, correlation of ethnohistory and archeological site occurrences, river channel association, subsidence, and lately, absolute dating.

Recently, questions have been asked about the methodological and conceptual adequacy of reconstructing culture historical units strictly on the basis of ceramic typology, to the exclusion of other archeologically recoverable data. Springer (1976:167) has emphatically stated:

> . . . I would like to suggest that Mississippi Valley archeology may have progressed as far as it can using the typological approach to ceramic chronology. . . . some sort of modal or attribute analysis is probably the best way of establishing a firmer and more sensitive chronology, and therewith a better documented sequence of culture change.

A similar view has been expressed by Davis and Giardino (1980):

> It was further suggested that the existing type-variety classification scheme does not currently permit any finer level of chronological assignment of later prehistoric delta assemblages than do these four broad modes /frequencies of shell-tempering, of straight-line vis-a-vis curvilinear incising, of deep-line brushing, and of check stamping/ (emphasis provided).

The same conclusion, arrived at from a strictly methodological angle, was voiced by Gibson (1979b), who noted a considerable amount of subjectivity in formulating types and varieties and a predilection for only formalizing those ceramic types and varieties which showed or promised to show historical (time and space) value. He suggested that a rigorous attribute analytical scheme might be one way to overcome subjectivity and historical bias and make for a typology which would be capable of responding to a variety of investigative issues and questions other than simple history.

Thus limitations in the historical means used to reconstruct culture history in the Lower Mississippi Valley are beginning to be recognized.

There seems to be a growing realization that cultural chronological units are heuristic devices for encapsulating various amounts of perceivable similarities in the archeological record, not necessarily segments of past realities nor packaged truths. It is similarly a sign of a progressing discipline that archeological reputations are no longer being built on who can define the most pottery types or name the most phases. There are even indications of a growing awareness that means of chronological ordering, even absolute ones, have resolute limitations which render direct calendrical correlations a matter of caution and interpretation.

Even some of the long-accepted principles of deriving chronology are being tempered with an awareness that chronology has no interpretive value of itself. It would seem to offer greatest promise when made relevant to issues of cultural change and evolution and as an aid to examining the nature of population groups or culture systems at any given time.

Lower Mississippi Valley archeology seems to have come a full circle. From no chronological order and no heuristic labels to facilitate communication, it has arrived at a point where archeologists speak in similar terms and appreciate a common sequence. It appears now that such a backdrop has been afforded, it is time to dismantle and begin again with novel systems of heuristic organization that respond more sensitively to the nature of culture and cultures grossly delimited by the existing framework. To reverse Phillips' (1970) characterization, it may be concluded that the small steps in Lower Valley archeology have been taken, and it is now time to proceed with the giant ones.

Man and Land Relationships

Issues involving the relationship between man and land have long been a source of attention in Coastal Louisiana, including the Atchafalaya Basin. Why such issues should have loomed important is not hard to understand in a region that even today is one of the most geologically active areas in the world. Harboring a great river whose seemingly fickle whims have carried it from one side of its alluvial valley to the other and whose spring freshlet, swollen waters have shown little respect for its natural or artificial confining levees, the Lower

Mississippi Valley has provided a dynamic environment, one which presented its inhabitants with living opportunities par excellance, as well as constraints without equal. Annual floods and backwaters had to be contended with. New land was constructed rapidly, and old was lost as quickly. In the coastal marshes, the transition between terrestrial and marine forces, cultures were obliged to adapt to changes in salinity that could have modified biota almost overnight, and to subsidence, which while not as rapid, was still a process to be reckoned with. Everywhere faunal and flora successions were constantly changing the distribution of natural resources. Here today, gone tomorrow is not too inappropriate a characterization for these changes. Yet the region was one which conjoined lowlands, uplands, and gulf within an area of about 5200km^2, providing on a grand scale the "edge effect" which has emerged as an important biological factor in human adaptation (cf. Odum 1971). And the floodplain itself has been characterized as a "naturally subsidized solar-powered ecosystem" (Odum 1975:18; Smith 1978:481), whose vitality is constantly "powered" by the flow of organic nutrients through the system. Thus these forces and processes which still today challenge our sophisticated technology have always played a paramount role in the livelihoods of the inhabitants. It seems only appropriate that students of past cultures should have looked to these sensitive interrelationships as a means of describing and understanding them. In spite of what appears to be, and is, an intricate and exceedingly complex web of interrelationships, man-land interactions in the region have been appreciated for a long time. William Darby, naturalist and traveler, was sensitized to these relationships when he noted the Indian mounds on Bayou Fuselier located in a cypress swamp subject to overflow (Darby 1816:117-118):

> Not even a village of savages could have existed throughout the year within several miles of this place. The spot where they are situated, is more dreary and sunken, than any other part of the swamp.

Such a perception even conditioned his explanation of the mounds, an explanation contrary to those being posed by his contemporaries. Darby (1816:118) wrote:

> There is much reason to doubt the correctness of the opinion, that those elevations were erected for either temples or dwellings; the probability is much greater, that they were cemeteries raised on the field of battle. . . .

During the many ensuing years when speculation was focused on the origin of Indian mounds, one finds a paramount and recurring theme--mounds were built as places of safety for flood refugees (Cathcart in Prichard, Kniffen, and Brown 1945; Beyer 1898).

Data emerging about the turn of the twentieth century would, however, lay the groundwork for a more sophisticated approach to man-land relationships. Beyer (1898) had even speculated that buried sites and sites whose bases lay beneath the ground surface must have been occupied prior to a widespread coastal inundation that covered them with alluvium. While Beyer was not aware of the process of subsidence, nor had geological reconstructions yet revealed the cyclical nature of land advance and retreat during the Pleistocene and Holocene epochs, Beyer's notations on buried sites were forerunners to a more exacting appreciation of geomorphic changes.

The same might be said of a short report on a shell midden on the northeastern flank of Belle Isle, a salt dome lying on the southwestern periphery of the Atchafalaya Basin (Veatch 1899:229). Veatch observed that the small site (40-60m in length and 1.0m thick) was covered by 0.3-1.0m of marsh deposit. Rangia, oyster, and some freshwater clams were, along with animal bones, the major constituents. Pottery was present but scarce, and Veatch's (1899:299) attention was captured by a number of small, baked clay objects of plain biconical, grooved biconical, and melon shapes. While he imagined that these objects were some sort of gaming devices, we know them now as the familiar Poverty Point objects, the heating elements for earth ovens. Veatch's report was purely descriptive, yet it would provide an important datum in the increasing realization that coastal Louisiana and its archeological sites were sinking and that subsidence was transpiring at a fairly rapid (perhaps quantifiable) pace.

It was Fred Kniffen who first explicitly set forth the tenets of the man-land approach in the Lower Mississippi Valley. It was he who formulated its methodology, and he who applied it to archeological sites in the Atchafalaya Basin and elsewhere in coastal Louisiana. This approach grew out of association with geology colleagues, Richard Russell and Henry Howe, and with archeologist, James Ford. The chronological

value of the man-land approach--degree of subsidence and association with river course sequences--has been previously mentioned, but its real contribution resided in visualization of patterns of human settlement of the landscape and their relationship with physiographic processes.

Three assumptions were basic to the approach (Kniffen 1938:203): a) archeological sites reveal the distributions of Indian populations; b) areas favorable for settlement were occupied (and attendant were two important corollaries: unfavorable areas were avoided, and occupied areas were abandoned upon deterioration or loss of habitable qualities); and c) substantial sites were occupied only when they lay on the natural levees of significant, active, perennial, freshwater streams. These assumptions operationalized one of Kniffen's major goals (Kniffen 1938: 207):

> . . . it /human geography/ deals with gradually emerging concepts as to the relationships between a primitive people and the area they inhabited. It points out preference as to site and food; it gives an idea of minimum and optimum habitats. It is this last lead, more than any other, that lends a thread of continuity between the almost forgotten mound builders of the prehistoric past and the modern inhabitants of the same region.

A comparison of Kniffen's approach with a then emerging field in ethnology might be appropriate. Except for different angles to a common objective, the man-land approach was quite similar to the field of cultural ecology which issued from Steward's (1938, 1955) work with the Shoshone Indians in the Great Basin. True, in the cultural ecological approach, the emphasis was on man, his organizations and his structures, as means of adaptation, and in the man-land approach, the emphasis was reversed and placed on the dynamism of the changing landscape as harbingers of settlement types and patterns and their changes through time. Nonetheless, the aim was the same--isolate and understand the interrelations between man and his natural habitat and set forth the "causes and laws," the determinants, of the human condition. This grand objective, clearly acknowledged by Kniffen (1938:207), rules a great deal of archeological activity today. Yet this objective was lost for a lengthy period in Lower Mississippi archeology. It was supressed by the zeal to produce cultural chronology and its spin-off, landscape chronology.

Another of Kniffen's objectives for archeology became the light that guided archeological studies in South Louisiana for several decades and

which still commands prominence today. That other objective was succinctly stated by Kniffen in his Iberville report (Kniffen 1938: 207):

> Archaeology may initially point to areas and streams as older or younger; geology may eventually reduce the cultural chronology to a reasonable basis in time units.

It was this latter goal that gave rise to the peculiar brand of geochronology--river channel and deltaic lobe association--practiced in Lower Louisiana by students and associates of Kniffen, Russell, and Howe. A brief review of river and delta geochronology has been presented previously. Fisk (1944), Ford (1951; Phillips, Ford, and Griffin 1951), McIntire (1958), Saucier (1963), and Gagliano (1967a) vigorously pursued the chronological aspect of the man-land approach, and even among these disciples, there was a dichotomy predicated on the source of their interests. Those given to a more emphatic geological orientation--Fisk, McIntire, and Saucier--sought to use archeology (i.e., initial site occupance) as a key to landform dating. Those more archeologically orientated--Ford and Gagliano--sought clues to cultural chronology. It took some years and a growing realization of the shortcomings of river and delta geochronology (cf. Saucier 1977) to bring landscape-orientated archeologists back to Kniffen's cultural ecological objective.

Recent geological studies by Saucier (1968, 1974, 1977, Saucier and Fleetwood 1970) and by Gagliano (Gagliano et al. 1975; Gagliano et al. 1976; Gagliano et al. 1978; Weinstein et al. 1978; Wiseman et al. 1979) have been especially instrumental in not only refining landscape chronology and landform growth, but in redirecting attention to the economical and inhabitable qualities of particular geographic locations during the developmental phases of their creation. One has but to recall Kniffen's (1938:207) reference to "minimal and optimum habitats" to find the source of this perception. Advances in understanding the processes of land formation and in ecological modeling of related biotic succession have brought to the man-land approach fertile prospects for characterizing and explaining man's interrelationships with the environment.

New paleogeographic models of river systems and delta complexes have permitted insightful perceptions of site distributions. Gagliano's recent studies have sought to portray phases of settlement during stages of development of meanderbelts and deltas. His work and that of his

associates (Weinstein et al. 1979; Wiseman et al. 1979; Springer 1972, 1973) is beginning to show, in the lowermost Valley at least, a tendency for initial occupation to be timed with deteriorating delta stages, a suspected economic pattern involving an inland to coast-marsh seasonal round, and a lack of ecological support for hypotheses of complex cultural development which depend on exchange across diverse environmental zones (cf. Wiseman et al. 1979:6-31-6-32). With few exceptions, these paleogeographic studies represent syntheses based on map data. They are only as sensitive as the site distribution maps are complete and as refined as the chronology. Thus, these reconstructions only represent the state of the art, and the art, in this reviewer's opinion, is in an elementary stage. They are important pioneering efforts and should certainly improve as the data pool broadens and becomes more complete. When joined with site catchment analyses (cf. Thomas and Campbell 1978) and a more thorough appreciation of site-specific artifact assemblages and ecofactual contents, the paleogeographic approach should lead to a higher plane of conceptualization, one that may begin to probe the very essence of culture in the Lower Mississippi Valley.

Not to be omitted from these more thorough conceptualizations should be a more humanistic form of ecological awareness that also grew out of Kniffen's man-land orientation. Perhaps best personified in the work of Hiram Gregory, this humanistic ecology was more acutely attuned to the biotic and human sensory aspects of man-environment relationships than to the geological-geomorphic elements per se. Both archeological and modern cultural adaptations came within Gregory's purview, and, in fact, there is little to distinguish them aside from the source of data (Gregory 1965, 1966, 1969). Gregory's conceptions of the environment are akin to those derived under site catchment models, but generally lack the methodological rigidity of that analytical technique. They embody awareness of resource use and biotic potential and quantity. They show an appreciation of the "mini-max" principles before that concept and terminology ever gained headway in Lower Valley archeology. And most basically, they are grounded in perceptions of the response-eliciting aspects of the environment in a true general systems framework that could only have emerged via participation in them. Participate in them he did, as a child and young man in his native Concordia Parish. He witnessed first-hand the mutual interrelationships of the swamp-lake environment and

a fishing-extractive folk (his extended family and friends) in east-central Louisiana. His characterization of the culturally important qualities of natural levees (Gregory 1969) has never been improved on. More than any of the other man-land proponents, Gregory's work integrates a more thorough and basic appreciation of the role of people and their forms of organization in the adaptive process. He shifted the emphasis from archeological sites and land-forming processes and stages which governed the purer geomorphic approach to people and their modes of interaction with the life-providing and -shaping qualities of inhabited environments. In this sense, Gregory's efforts more nearly resemble the cultural ecological work of Steward and of archeologist Joseph Caldwell (1958, 1962) than the work of geologists and geographers using the man-land approach.

Finally, Gregory's activities have employed ethnographic techniques--observation, participant-observation, and empathy--in the construction of adaptive models. His work has also made more in-depth use of ethnohistorical information in characterizing and interpreting prehistoric adaptive systems than has been commonly done in the more emphatic geomorphic orientation.

Since the early 1970s, there have been new investigative issues growing out of the man-land approach. These have by no means replaced the historical-chronological aims of the approach, which are still as strong as ever, but they have begun to produce significant results in the Lower Mississippi Valley. These issues concern prehistoric subsistence and relative site location.

The plant and animal foods that have fueled cultures have long been a source of interest. Some of the earliest descriptions of Native Americans in Lower Louisiana contain notes on wild and cultivated foods (cf. DuPratz 1774; Swanton 1911, 1946). Later ethnographic work also described traditional foods, as well as medicinal plants and other economically useful biotic products (cf. Swanton 1911; Speck 1943). Shellfish remains that tended to dominate (by volume) prehistoric middens in the coastal marshes were mentioned by most early archeological observers. In fact, C.B. Moore has been labeled as the harbinger of the interdisciplinary approach to Lower Valley archeology (Gibson 1979a:13) because of his enlistment of aid from various natural scientists--botanists, osteologists, malacologists, and faunal identification experts.

Moore was the first archeologist to produce specific information on the identity of biotic residue in aboriginal sites. Later archeologists followed suit (e.g., Walker 1936; Ford and Willey 1940; McIntire 1958), but these lists of biotic residue (ecofacts) were usually just that--lists. No real effort was expended to use these remains to reconstruct subsistence bases or procurement or production strategies. The failure to exploit (no pun intended) these data, while regrettable, is understandable. Chronology and taxonomies were sought, not subsistence. There is even a distinct impression that aboriginal subsistence was considered a given. No one really questioned that Lower Valley Native Americans were anything but full-fledged horticulturists who grew corn (and perhaps squash and possibly beans) around permanent or semi-permanent villages.

A seemingly inocuous statement by James Ford may be isolated, not only as an apt characterization of then existent perceptions of aboriginal subsistence, but as a powerful disuasion to future investigation. Ford (1936b:5) stated:

> It seems that most of the country was inhabited by a semi-sedentary population that derived at least half its subsistence from agriculture. Small village communities with outlying farmlands were the rule.

The implications of this innocent remark became so ingrained in the thinking of subsequent archeologists that they came to control perceptions of native subsistence, culture change, and numerous other historical aspects. With horticulture apparently a given, it could not be identified as an issue worthy of investigation. Thus, Lower Mississippi Valley archeology entered a long period when no one sought subsistence objectives and investigative economic issues were not even raised. Only after positive results from subsistence investigations in other parts of the country were realized would Lower Valley archeologists begin to identify and study subsistence problems.

Zooarcheology was one of the first techniques employed to get at subsistence bases. The study of animal remains from archeological sites still avoided the issue of horticulture and left unscathed the innumerable hypotheses and speculations that grew out of the presumption of horticulture. From pioneering efforts which were merely content to identify and list animal species (cf. Moore 1912, 1913; Walker 1936; Ford and Willey 1940; Byrd 1978a, 1978b; Weinstein et al. 1978), zooarcheology has developed to the point where faunal information now underlies reconstructions of pro-

curement strategies and selective exploitation (Byrd 1974, 1976a; Gibson 1978a;Altschul 1978), and food value (Byrd 1976b; Springer 1973, n.d.; Futch 1980). Two recent efforts of direct relevance to the Atchafalaya Basin have used detailed faunal information to portray the existence of two distinctive adaptive strategies that presumably related to a cultural conflict situation (Mississippian invasion of Plaquemine territory, Altschul 1978) and to reconstruct a long-standing mode of adaptation based on natural food exploitation in the coastal marshes, an adaptation used as an argument against the practice of maize horticulture (Gibson 1978a). Byrd and Neuman (1978) have recently reviewed zooarcheological activities in the Lower Mississippi Valley, and Gibson (1979a) has compiled and evaluated zooarcheological data, recovery techniques, and guiding precepts in another study of the Atchafalaya drainage basin.

Plant remains have been far more elusive than animal residues for a variety of reasons, not the least of which include simple unawareness and neglect, nonpreservation, failure to employ suitable recovery methods, and nonaccess to identification specialists. Yet plants have furnished the major portion of consumed floods for cultures of all ages and places and therefore have been a powerful determinant on aboriginal economies and culture cores. Because of their importance, it is hardly conceivable that a realistic picture of Lower Valley culture and cultures can be presented without first-hand knowledge of native plant foods. As someone once remarked, you are what you eat. This could be recast as cultures are what they consume. With the notion that all Lower Mississippi Valley cultures were horticultural now being seriously questioned, it is not surprising to see the emergence of several recent programs given to the recovery and interpretation of plant remains.

The use of dry and, particularly, wet screening and flotation techniques has begun to yield useful plant remains (Shea 1978; Springer n.d.; Byrd 1976b). The search for pollen is still infantile but has produced some positive results (Wiseman and Wiseman 1978). It might surprise some to know that palynology was used as early as the 1950s in the Lower Mississippi Valley in an effort to confirm the belief that maize horticulture underpinned Poverty Point subsistence (Ford and Webb 1956). No corn pollen that was definitely attributable to Poverty Point levels was identified, however, and more recent efforts

at Poverty Point have not only met with a similar absence (of both pollen and macrofloral maize remains) but have resulted in the conclusion that the great Poverty Point site was not a farming community (Thomas and Campbell 1979). The equation that cultural complexity equals horticulture, a concept that has long conditioned archeological thinking in the Lower Mississippi Valley, has begun to come under serious scrutiny.

In fact, if there is one thing to be said of all the recent floral studies in the region, it is that the long hoped for evidence of horticulture, particularly maize horticulture, has simply failed to materialize. While it is true that corn has been identified in South Louisiana archeological contexts, e.g., Berthoud-Fleming (Holley and DeMarcay 1978), Bayou Goula (Quimby 1957), these sites are all late prehistoric, possibly protohistoric manifestations. To judge from these indications, destructive cooking methods (Belmont 1967b) notwithstanding, it would appear that maize as a primary food source may have emerged very late in Lower Valley economies and in some (Gibson 1976a, 1978a) it may never have emerged at all.

There is greater but still highly limited evidence of other cultigens in valley and coastal sites as early as Tchefuncte times. Byrd (1976a: 73, Table 11) identified squash and bottle gourd at Weeks Island, a salt dome west of the Lower Atchafalaya Basin. Walker (1936:38-39) found squash at the Troyville site presumably but not conclusively in a Baytown-Troyville context. This is not terribly shocking for squash and gourds seem to have a much longer history of cultivation in the Eastern United States than either maize or beans. In fact, they seem to have been integrated early on, perhaps in Late Archaic times, with an exploited (possibly cultivated or propagated) complex of native heliotropic weeds as an integral facet of subsistence.

While extreme caution should be exercised in making too much of too little, either for or against pronouncements of horticultural subsistence bases, there is another danger in extrapolating from particular situations to general ones. Synchronically, there is the tendency to build out the presence of squash at Weeks Island a horticultural subsistence base for all contemporary and subsequent Lower Valley cultures (cf. Toth 1979). Such a view is hardly realistic in the diachronic contexts in which dispersed population aggregates actually operated. There is no law of culture that this reviewer is aware of which obliged one village to adopt a food source or means or production utilized in a neighboring one.

Similarly, there is no dictum in cultural evolution which commits descendants or subsequent peoples to adopt the subsistence base of their forerunners. Just because one (or more) Tchefuncte village(s) had grown squash does not automatically mean that all had or did. Neither does it mean that Marksville, Troyville, or any villages of subsequent periods were committed to horticulture. No, wish as wish might, 196 squash seeds and rind fragments from the Weeks Island Tchefuncte component (Byrd 1976a: Table 11) do not indicate a pervasive or long-continued total or even partial commitment to horticulture in the Lower Mississippi Valley before Coles Creek times.

Lest the reader be led astray by this reviewer's seemingly negative view of the role of cultigens and horticulture in Lower Valley native economies, let it be said that it is not the practice of horticulture per se that is being questioned, but the simplistic and sweeping generalizations constructed from so little evidence and from a conceptual position which fails to appreciate the largely autonomous (subsistence-wise) nature of population groups. This reviewer is basically maintaining that sweeping statements of subsistence sources and methods should result from site to site, region to region, time period to time period identifications and analyses of floral (and faunal) data that is specifically recovered and related to the individual ecology of each site environment in order to quantify the part played by horticulture, or any aspect of subsistence, in food provision.

At the present time, the weight of evidence heavily favors the exploitation of wild foods, rather than horticulture, as the bases of subsistence for most regional manifestations of all periods, except the very latest prehistoric and historic ones. There are also strong arguments, archeological and ethnohistorical, that some coastal and swamp dwellers in South Louisiana may have remained nonhorticultural or only marginally horticultural until their total submergence into European or Anglo-American culture. While the dangers voiced above with regard to extrapolations based on cultigens also apply to reconstructions from wild food products, the latter are certainly grounded in a much greater volume of information (cf. Gibson 1970, 1973).

While a return to hard data and a cognition of diachronic perceptions is advocated, this reviewer is not insisting that synchronic reconstructions and speculations (cf. Brain 1976) should cease. To the

contrary, such interpretations provide targets to contest, issues to investigate, and fuel for the advancement of Lower Valley archeology. Out of these issues and challenges in the subsistence aspect of man-land relationships should eventuate a more realistic understanding of culture, prehistoric, contemporary, and future, in the Lower Mississippi Valley.

Another recent trend in the man-land approach has centered on the determinants of siting, or relative site locations. This is a spin-off from more traditional settlement studies (cf. Phillips, Ford, and Griffin 1951; Williams 1956; Phillips 1970) which integrate stronger concerns for local ecological situations. The approach was anticipated by Kniffen (1938), put into incipient practice by Gregory (1969), but awaited the methodological mechanics set forth by the SARG group (Gumerman 1971) in the southwestern United States and by European archeologists (Vita-Finzi and Higgs 1970) before becoming truly operational in the Lower Mississippi Valley. The long delay in pursuing the problem of relative site locations (since Kniffen's /1938/ acknowledgement) can again be traced to the persuasive attitude, best exemplified (and perhaps created) by Ford's (1936b:5) declaration that Lower Mississippi native populations were sedentary, or relatively so. The investigative issue centered on why one specific location rather than another was chosen as a locus of habitation or work (cf. Gumerman 1971).

Of prominence in siting studies are the identification of specific environmental qualities and processes and presumptions of survey comprehensiveness (i.e., all or a representative sample of existent archeological sites have been recorded). Identification of relevant environmental qualities and processes has been largely a subjective matter, predicated on twentieth century perceptions of important ecological conditions and stresses. While archeological assemblage analyses have been commonly used to show what natural environmental resources were being exploited and which, thereby, presumptively formed integral determinants of siting, location itself has most often been viewed through cultural filters only as sensitive as the investigators' abilities to throw off their twentieth century cultural bondage and assume a feel, an appreciation, for the land that activates basic survival instincts. Thus, it might truthfully be said that identification of relevant siting variables ranges from purely abstract art to practical, workable science. The key to detecting better success in such endeavors resides in the recon-

struction which provides the more accurate predictor of undiscovered site locations. In the opinion of this reviewer, no amount of scientific skill or anthropological education for some time to come is likely to equal or supplant the intuitive feel of the naturalist in revealing the ecological factors which together formed the elemental bases for settlement or occupational choices.

In spite of these admonitions of contemporary efforts to isolate siting determinants for prehistoric village and work sites, some useful insights have emerged. Choice of stream bank line locations for relatively permanent sites seems to have favored cut banks, when inland, not marsh, situations (or when non-rangia vis-a-vis rangia middens) were involved (cf. Gibson 1976a, 1976b, 1977, 1978). In cases of seasonal utilization of bank lines, no specific preference for cut banks, point bars, or reaches seems evident (Gibson 1977). Prehistoric sites in all environmental situations, save the coastal marshes, appear to have preferred the conditions associated with the entry or exit of secondary streams (Gibson 1976a, 1976b, 1977, 1978a). Relatively permanent sites of all periods can be predicted by locations whose elevations exceed those of average levels of inundation but not necessarily flood levels (Gibson 1976b). Soil types are useful determinants for locations of sedentary locales, not necessarily because of any inherent qualities, but because the zones of conjoination of several types provided the ecotonal situation apparently essential to seasonally specific food provision (Gibson 1974a). Seasonally mobile populations apparently paid little heed to whether sand, silt, or clay lay underfoot (Gibson 1977). Pristine vegetation cover appears to have been of small importance to village agriculturists, but of primary value to seasonally mobile populations (Gibson 1976a, 1977).

The grand conclusion resulting from site locational studies in several regions of the Lower Mississippi Valley is that economic demands of several distinctive modes of adaptation in the Lower Mississippi Valley commanded that quite distinctive locations for habitation and work be selected. It is apparent that some choices exemplify the mini-max principle while it is equally apparent that some cultural preferences superseded the operation of the "law" of least effort, or as perhaps more understandably phrased, were subject to the whims of tradition rather than the amount of work involved (cf. Webb1977).

Relative location studies, deriving from the man-land (or cultural ecological) approach, have been criticized (cf. David Brose's review of Gibson's /1978a/ Lower Atchafalaya report) for failure to adhere to a finite chronological separation of adaptive modes. To this criticism, there are but two replies: a) the basis for chronological separation has not been provided (either stratigraphically or radiometrically), and b) even if chronological separation were possible, the adaptive modes in the Lower Mississippi Valley appear to be more of a long-lived tradition that pervaded certain regions rather than a cross-regional horizon which joined contemporary population enclaves in a common pursuit toward unitary adaptation. Surely there are myriad local differences that conditioned choices of settlement locales, just as there are today, but critical reviews of Lower Valley site locational studies have not presented any variable options. Until such options are identified, critiques of relative site locational studies had best be limited to what is known, or what is thought to be known; otherwise, such critiques are bound to fall into the realm of the non sequitur, or worse yet, simply demonstrate ignorance and criticism for criticism's sake.

CHAPTER 8

THE ARCHAEOLOGICAL SURVEY: ON BACKGROUND, RESEARCH OBJECTIVES, AND FIELD, ANALYTICAL, AND INTERPRETATIVE METHODS AND TECHNIQUES

INTRODUCTION

Before fieldwork commenced on the Atchafalaya levees archaeological survey, two separate papers, outlining the proposed research design and the implementation-evaluatory strategy, were prepared and submitted to the Corps of Engineers (cf. Scope of Services requirement, number 9, Chapter 1). After internal review, these documents were circulated to appropriate state and federal agencies for perusal and approval. The research design, strategy, and methods set forth in those papers was to have guided the overall program of archaeological fieldwork. Realities of the field, however, quickly showed that many aspects of the pre-fieldwork research design and investigative strategy could not be adhered to. The pace of change, especially related to landclearing and farming in the upper sections of the basin and to private, state, and federal landscape-alteration programs in the middle and lower section, has so altered the pristine environments that data relevant to many of the specific research design requirements simply do not exist any longer. Furthermore, such alterations seriously comprised the consistency and uniformity of field investigative procedures in actual practice. It should be emphasized that the problems were not with the formulations per se but with the inability to acquire the necessary data to satiate them on a consistent basis.

The fieldwork was well along before it was decided that data inconsistency and nonuniformity of ground coverage were such severe problems that a reassessment of research objectives was required. By this time, the entire project effort (including ingestion of previous data on archaeology, ethnology, history, and environment) was sufficiently well advanced to permit reformulation of research problems, issues, and desires in light of a quite detailed appreciation of the state of knowledge and the complications of actual fieldwork along the Atchafalaya levees.

At this point in time, it was decided to modify the original thrust of the investigation, not by abandonment, but by shifting the weight of data relevance, analytical procedures, and interpretative prospects away from initial, but unrealizable, ideals to less pretentious, but accomplishable, objectives. In other words, the pre-survey objective of testing various settlement and land tenure-adaptation hypotheses that required the assembly of uniform data and analytical manipulation via methods predicated on statistical randomness (or deviations from randomness) was replaced by less involved goals. The essence of a settlement-adaptive,research-structuring orientation was not lost in this perceptual reorganization; it still underpins the reconstituted research design and strategy summarized below. However, the research objectives and means of satiating them were considerably simplified, rendering the outcome of survey results far more compatible with field conditions.

It is appropriate at this juncture to mention that the revamping of the research design has in no way compromised the practical objective of the survey (i.e., the federal mandate and scope of services requirement to locate cultural resources that might be adversely affected by the Corps levee-raising project in order to evaluate their significance). While it has changed the data integrative, analytical, and interpretative results of the survey, these elements are primarily relative to the state of the art as points of interest and relevance to purists and academicians. This is not to say that practical determinations of significance under federal guidelines have no relationship to such considerations; indeed they are so intertwined that separation is impossible. No, the point to be made here is that

evaluations of significance can be made from so many different points-of-view and from so many distinctive theoretical, conceptual, and issue-specific springboards (cf. Chapter 10) that changing research designs, no matter their nature, can always incorporate significance-evaluating criteria, capable of satisfying those general considerations promulgated under federal guidelines (cf. 36CFR60.6).

RECONSTITUTED RESEARCH DESIGN FOR THE ATCHAFALAYA LEVEES SURVEY

With the background of design evolution aside, the simplified research design pressed into service to guide data collection and interpretation will be summarized forthwith.

Theoretical and Conceptual Underpinnings

Several theoretical and conceptual dispositions underlie the formulation of this research design. These adhered-to principles (i.e., beliefs, attitudes, or dogma, however one wishes to regard the largely "unproven" and "untested" law-like generalizations in anthropology) serve, not only to structure data-collection and interpretation, but even more basically, to define the data themselves. In other words, such principles permit one to organize and define the existential world as bits and pieces (categories) of information which either have relevance or nonrelevance within the perceptual structure provided by them. Actually to exhaustively list the entirety of such world-structuring precepts would require a tome much larger than the present one and would not really be germane to anybody. Thus what will be discussed are only those dispositions basic to the creation of the Atchafalaya research design as transcribed into terms specific to the basin itself, to its inhabitants of all ages, and to the status of cultural knowledge within its confines.

Following the teachings of Leslie White (1949, 1959) and various other unilineal and multilineal evolutionists (cf. Steward 1955), human tenure along the edges of the Atchafalaya Basin is regarded as

basically adaptive. People do, and have always done, those tasks necessary to insure survival. People have structured and organized their masses in ways and forms that insured the performance of those survival-permitting activities at a level commensurate with needs, technology, and attitudes concerning an acceptable life (changes in any of these inherent dimensions have been responsible for cultural changes and long-term evolution). Furthermore, basic to this research is the idea that the social nature of humans, i.e., collective living and group formation, serves to divide populations into factions, territorial-, community-, kin-, occupational-, or associational-, and that these factions act, react, and interact on many various levels and via many various means and processes. Interaction phenomena among human groups may take many forms and may result in reciprocal or one-way changes in one or a multitude of cultural practices. Technological innovations and/or introduced novelties may be accepted or rejected by individual groups of any size and composition dependent on their capabilities for "improving" (real or believed) livelihoods, or standards of living.

Purely natural environmental change will elicit cultural responses in either kind or quantity or both or will affect population distribution and arrangement without cultural change. Social or cultural change, intragroup pressures and intergroup stresses will also elicit responses of the affected groups and may produce evidences which can be recovered archaeologically.

Thus while culture in general and cultures in specific are regarded as adaptational human products and processes, the human capacity for whims, "abnormal" behavior, and various ethnic and ethical pecularities, has not been overlooked in developing this research design. Such a view certainly challenges some currently popular interpretative devices if applied too simply. For example, the so-called "principle of least effort," widely used to "explain" many aspects of the archaeological record, has yet to inspire wholehearted acceptance by this author, as well as others (cf. Webb 1979). To illustrate by analogy, an "outsider" might completely misconstrue the untiring and seemingly nonadaptive work behavior of a southern, hard-shell Baptist but to the Baptist his efforts and attitudes are quite understandable,

adaptive, and insure a place for him in the glorious hereafter. Can an aethiest or scientific agnostic, working solely from the basis of the least-effort principle, completely appreciate and properly interpret the adaptive nature of the religious ethic, or its potential archaeological dimensions. Certainly no contemporary investigator of past culture can get into the minds of long-dead individuals nor presume to know the attitudes and feelings of extinct cultural groups; so interpretative props, like the principle of least effort, must always remain as generalizations capable of prediction, or "explanation" in a statistical sense only.

One final theoretical axiom should be mentioned before dispensing with these preliminary matters. The archaeological record is considered by this author to represent the "fossilized" composite of artifactual loss and abandonment behavior of once-living peoples and the effects on that patterning due to post-depositional processes (cf. Binford 1968; Schiffer 1978). Data relevant to reconstruction of this record are constituted of artifacts and ecofacts, distributional patterns, and contexts (cf. Glassow 1977).

The Atchafalaya Data Base: Positive and Negative Data and Data Voids

Essential to the development of a sound research design is an appreciation of the existent data base. Data are defined in this context as being informationally important tid-bits translated by various archaeological metalanguages into heuristic categories of current, interpretative usefulness. What constitute data today may not be the data of tomorrow, as data of the past have sometimes become irrelevant in the present. The data base of Atchafalaya Basin archaeology may be characterized in terms of its positive or negative aspects and in terms of relevance or nonrelevance (i.e., data voids), all relative to the state of the art and to current levels of understanding. The objective of this evaluation of Atchafalaya archaeological data is given to exposing shortcomings and defining issues and problems, whose remediation or solution, in this author's opinion, provides the most effective means of judging cultural resource importance (cf. Chapter

10 , this report). Several substantive, methodological, and technical areas are evaluated below.

Time Control: Absolute Dating

Only two means of providing absolute ages for archaeological materials--radiocarbon and thermoluminescence--have been used in the Lower Mississippi Valley, and in the Atchafalaya Basin, only the radiocarbon method has been applied.

Thirteen assays had been reported by early 1980 (cf. Gibson 1979a: Table 4), and these were limited to just four sites in the basin. These serve only to bracket the late Troyville to Plaquemine-Natchezan span, or from around A.D. 600 to A.D. 1500. Of these 13 ages, only five were determined on charcoal, possibly the most reliable material. None of the ages have been corrected via dendrochronological calibration (cf. Ralph, Michael, and Han 1974:5-18).

As is apparent, not only is this radiocarbon series woefully inadequate for putting absolute chronological parameters on cultural periods and local phases, it is entirely useless in determining intersite contemporaniety inside and outside the Atchafalaya Basin. Improvement in the radiocarbon framework is one of the greatest needs in Atchafalaya archaeology.

Time Control: Relative Dating

Relative chronology in the Atchafalaya Basin is overwhelmingly a product of stratigraphy and artifactual cross-reference.

Prior stratigraphic data are available from only five sites: Bruly St. Martin (Springer 1973, 1976), Thibodaux (Weinstein et al. 1978), Bayou Ramos I (Weinstein et al. 1978), Gibson mounds (Weinstein et al. 1978), and Oak Chenier (Gibson 1978a). All stratigraphy has derived from limited test excavations. No major excavations have taken place in the Atchafalaya Basin in modern times (since C.B. Moore). Arbitrary rather than natural levels have been used to control data recovery. The principal focus of stratigraphic reconstruction has been the pottery type.

Like absolute dating, relative age assessment by stratigraphy is of decidedly limited value in the Basin. The resultant ceramic chronology is short, possibly covering only the last 600-700 years of prehistory or perhaps as compressed as two to three centuries. Local ceramic chronology is only as sensitive as the historical pottery type, a classifactory device unlikely to detect subtle nuances in relative chronology from site to site and region to region (cf. Gibson 1979b; Springer 1976; Davis and Giardino 1980).

Because of decidedly limited radiocarbon and stratigraphic details, the local chronology in the Atchafalaya Basin is an artifice imposed on the region from more completely studied regional sequences lying to the north. The Atchafalaya Basin shared many pottery types with surrounding localities and consequently was presumed to have followed a similar, if not the same, path of ceramic evolution and change. Thus by stylistic cross-reference, i.e., occurrence similiary seriation, the well-known "Red River Mouth" and even the further afield "Yazoo" ceramic sequences have been uncritically extended to the Atchafalaya Basin. Local pottery assemblages have been labeled Coles Creek, Plaquemine, etc., or Medora, Whitehall (phases) etc., without reservation and have been imbued with clear implications that Basin components existed at the same time as their northern neighbors.

There has been little awareness of the few previous attempts to show temporal deviations within the Lower Mississippi Valley style-sharing zone. Both Ford (1952) and Huner (1969), using simple ratios and the age-area concept, have tried to show diffusion away from ceramic "hearths"; diffusion which presumably extended through time as styles spread further and further away from points of origin. Huner's (1969) study is of particular relevance to the Atchafalaya Basin since he dealt with the diffusion of a zoned curvilinear-punctated type (i.e., French Fork Incised and its presumed derivatives, or varieties) into the Basin from a supposed hearth in the Eastern Gulf region and with its continued evolution and reflux spread from the Basin. Both of these studies, though naive, should have drawn attention to the possibility that temporal disparaties in pottery types and assemblages might have existed, but they did not.

More sophisticated frequency similary seriations of Bruly St. Martin (Springer 1973, 1976) and in the Houma-Terrebonne locality (Altschul 1978) have begun to reveal ceramic type popularity patterns from within and near the Atchafalaya Basin. Neither of these seriations have shown how the Basin ties in with surrounding regions. Indeed, the basic premise of seriation, that is, that contemporaniety is shown by best-fit ceramic popularity curves, may be faulty when pressed for the kinds of short-term ceramic changes that are essential to local sequencing.

In face of increasing indications of long-lived ceramic traditions, especially in check-stamped and zoned curvilinear incised-punctated designs, there is a growing concern that the Atchafalaya Basin, particularly its southern extremity, may be considerably "out-of-phase" with surrounding regions. In other words, the chronological brackets placed on culture periods and phases in the "Red River Mouth" and "Yazoo" sequences may not hold for the Basin. It is not improper to think that the Atchafalaya Basin may have traced a somewhat independent ceramic history even though it shared many design concepts with other areas.

In substantial sum, the Atchafalaya Basin lacks a firm time framework. Attempts to generate such a framework have been limited to a few stratigraphic test excavations here and there, a few radiocarbon assays, and some seriations whose validity is not beyond question. Local and regional sequences developed outside the Basin have been imposed upon basinal archaeology without cognizance of the likelihood that the prehistoric inhabitants did things their own way and at their own pace. At present, when an Atchafalaya site is labeled with one of the familiar culture period rubrics, it should be regarded only a bow to its ceramic (artifactual) similarity, not as a fail-safe indication of age.

Ecofactual Data

At the heart of reconstructions of aboriginal subsistence and other aspects of adaptation are ecofacts—those surviving organic residues produced by human activities. Needless to say, the

Atchafalaya Basin comes up short on these useful data.

Faunal inventories of variable comprehensiveness have been produced at 33 prehistoric sites in the Atchafalaya Basin (Gibson 1979a: 161-167). Except for two sites and one general locality these data simply constitute lists of animals. No interpretative use has been made of them.

At Bruly St. Martin, Springer (1973, n.d.) sought to establish the relative importance of faunal species in the diet of the inhabitants. Interestingly, he detected little or no change in animal exploitation, even though the location shifted from a seasonal base camp during Troyville times to a rather permanent village during Coles Creek times.

Faunal information played a significant role in Altschul's (1978) demonstration of two distinctive adaptive strategies in apparent competition over the natural levees, swamps, and marshes in Terrebonne Parish.

Byrd's (1978b)faunal analyses were integral to Gibson's (1978a) reconstruction of a persistent and little changing subsistence tradition in the marshes and gallery swamps along the Lower Atchafalaya River; a subsistence strategy which Gibson (1978a) believed may have effectively precluded the assimilation of maize horticulture along the Atchafalaya River delta.

As limited as is faunal data, information on economically useful plants is even more so. In the Atchafalaya Basin, recovered and identified plant residue amounts to less than three grams of material from Bruly St. Martin, where only acorn meat and persimmon and grape seeds have been confirmed (Springer n.d.: Table 7).

To this author's knowledge, there are no published records of archaeological pollen, phyoliths, coprolites, or organic or nonorganic chemical residues from Atchafalaya sites.

Ecofactual data from the Atchafalaya Basin are decidedly limited. Rarely have such data been vigorously sought as a primary objective of research, its production has been incidental to artifact recovery. Not only has the resultant corpus of information been almost exclusively limited to simple inventory lists of species and hampered by recovery and identification problems, but its use in cultural

reconstructions has been almost negligible. With very few exceptions, (cf. Springer 1973, n.d.; Altschul 1978; Gibson 1978a), ecofactually generated interpretations of local subsistence bases and other aspects of natural resource utilization have not been developed. Quite often it seems when subsistence topics are discussed that there is a general tendency to view Atchafalaya Basin food and economic bases of all localities and all times as a general continuation (areally and temporally) of patterns from outside the basin. Arguments, sometimes ill-conceived and always based on less than adequate information, have created a strongly adhered to notion that native populations throughout the Lower Mississippi Valley shifted from specialized hunting-gathering through hunting-specialized collecting to horticultural economies during the span from Paleo-Indian to White contact. While there may be general support for such a scheme, there must be untold localized deviations from it, and, in this author's opinion, the Atchafalaya Basin, especially its lower, marsh-dominated sections, is one of the localities where this model simply fails to hold.

Absolute and Relative Site Locations

This author recently had occasion to review site locations within the Atchafalaya Basin (Gibson 1979a:226). Fifteen file maps, maintained by the Louisiana Division of Archaeology and Historic Preservation, bore a total of 213 reported locations in the basin; this translates to an average density of one site per 21.8km^2. (This does not include the new sites located during the present survey.) While this may seem like a substantial number, the locations themselves furnish a woefully inadequate basis for constructing settlement patterns and for analyzing relative (comparative) site locations under siting or catchment objectives.

The main problem with these site locations for various interpretative ends is that they represent an unsystematic amalgam which has grown over many years as a result of uncoordinated archaeological surveys and artifact collecting ventures of varying degrees of intensity and adhering to quite disparate goals. Site locational knowledge is a

function not only of where sites exist and can be found given state-of-the-art methods, but where and how intensively archaeologists have looked for them.

The long-time land-altering dynamism of the Atchafalaya Basin has without doubt forever changed the pattern of prehistoric and historic settlement; site locations have been destroyed by river migration, they have been buried by alluvium to depths that negate archaeological detection, and they have subsided, especially in the coastal sections, to levels that similarly prevent accessibility. How many sites out of the total that has ever existed in the Atchafalaya Basin have been so effected will never be known. Obviously this pronounced accessibility problem (elimination of site locations and making sites impossible to find) has biased (or will) perceptions of settlement patterns and relative locations, even those based on systematized surveys. This is a problem and constant source of unascertainable influence on reconstructions that archaeology in the basin simply must accept and contend with. There is absolutely nothing that can be done about it.

Destruction of archaeological locations and removal from accessibility via natural geomorphic processes generally takes time, sometimes long spans. Where paleogeographic conditions and sedimentation-subsidence rates can be estimated, investigators may be able to introduce a certain measure of control when trying to assess the representativeness of their sample population of sites. While this still will not permit extrapolations (i.e., predictions or projections) to the total site universe, it may provide some insights on which kinds of areas and/or which kinds of sites (age-wise) are likely to have been the most or the least affected and to formulate and temper settlement-related hypotheses and reconstructions thusly.

Aside from this natural constraint to accessibility, the current status of information on Atchafalaya site locations is a function of survey intensity and guiding objectives. As has been previously acknowledged (Chapter 2), previous investigations have served a variety of masters (i.e., goals and objectives). Consequently, information on discovered sites is quite variable and uneven, and such nonuniformity quite often prevents its use for many detailed or specialized considerations. Other than quite general and often naive questions,

current site information from the Atchafalaya Basin is not amenable to hypothesis-formulation or testing.

Consideration of the intensity of previous surveys in an effort to evaluate the relationship between areas covered and site discovery does little to enhance confidence that reported site locations, even within bounded survey areas, reflect a major (or rather ascertainable) share of those sites which might have been discovered under current methods.

There are two consistent problems with nearly all previous survey in the Atchafalaya Basin, problems that have affected not only the discovery of the sites themselves but the ability to evaluate the surveys with an eye toward making pronouncements about site locational representativeness. Foremost is the generally low level of intensity deployed in survey. Surveys which are informant-based, which have sought out particular site types, which have used fast-moving means of accessibility--airplanes, helicopters, hydroplanes, etc.--and which have followed broad interval, on-the-ground search patterns most often result in low return (i.e., numbers of sites) for areas covered; in other words, sites actually located are most often only a small percentage of those which could have been found if the survey had been more intensive. With but a few exceptions, the results of nearly all previous surveys in the basin are marred by low intensity. Another basic problem with prior survey (one which affects the ability to judge intensity) is the lacunae of description of survey methods, techniques, and search pattern, density, and dispersion factors. Unless the survey program has explicitly set forth its rules for on-the-ground and in-the-ground coverage, e.g., locations of traverses, search areas, subsurface tests, spacing intervals, and the like, it is impossible to evaluate survey intensity and concomitantly difficult to make judgments on site representativeness per areal unit.

Aside from Kniffen's survey of Iberville Parish in the mid-1930s, all of the other intensive surveys conducted within the Atchafalaya Basin have taken place since the 1970s and are products of federally-mandated cultural resources investigations. Earlier surveys, e.g., Moore in 1912-1913, Collins in 1926, McIntire in the

mid-1950s, etc., produced site locations but the failure to discuss survey methodology prevents evaluation of the level of intensity. It is known that Moore's and Collins' surveys, and probably to a large degree, McIntire's survey, were informant-based and do not represent complete sweeps of defined areas. The resultant low intensity makes it highly likely that site locational information is nonrepresentative.

Because virtually everything we know or can determine about region-wide cultural patterns in the basin depends on survey site data, it is imperative to look at previous "comprehensive" surveys with an eye toward assessing their adequacy; adequacy, in this context, being equated with intensity. This discussion is not aimed at the kinds or numbers of data acquired from sites which have been extremely variable, but simply at the locations themselves and their possible representativeness.

Kniffen (1938:192) issued a strong statement about the thoroughness of his Iberville Parish survey:

> . . . for Iberville Parish the record of mounds and middens is probably as accurate and complete as it can ever be made; every site shown within the Parish has been visited.

It is quite informative to learn that Kniffen's survey procedure was based entirely on questioning of local swamp dwellers and on bank line observations from a boat during travel between the mounds and middens revealed by locals (Kniffen 1938)190). Even if every local inhabitant had been contacted and every single kilometer of stream boated, there would still be a question about the degree of survey thoroughness. Some swampers might not have recognized an Indian site, and in some cases deliberate attempts to mislead archaeologists are known. What about those sites lying away from present stream banks? Would they have been found? Kniffen's faith in his survey thoroughness seems traceable to the belief that sites could be divided into two general categories--mounds and shell middens, both of which exhibit high visability profiles in the marshes and swamps. The fact that other kinds of sites, without such high visability profiles, are now recognized in the area, prevents this investigator from sharing Kniffen's confidence in the completeness of site locational data in Iberville Parish.

From 1974 to 1976, Louisiana State University conducted an extensive survey in the Atchafalaya Basin for the U.S. Army Corps of Engineers in New Orleans. Survey methods involved helicopter and boat search in the southern parts of the basin and automobile, boat, and pedestrian search in the upper portion (Neuman and Servello 1976:9). Previously known sites were revealed by records search and local informants. In addition, some areas were given 100 percent coverage, though their locations and the procedures utilized to give 100 percent coverage remain mysterious (Neuman and Servello 1976:9). It seems that these areas were specified by the contractor and may have corresponded to future construction zones rather than representing areas selected for survey by some research disseratum. Even after dividing these blocks into quadrants, this survey procedure was abandoned because of time constraints and manpower shortages (Neuman and Servello 1976:10). As a consequence, the LSU survey was transformed into a search of natural levees along unspecified segments of unidentified streams, past and present (Neuman and Servello 1976:10). Since sample areas and survey intensity are not described, it is not possible to judge survey thoroughness. However, considering the Basin as a whole, the indicated concentration of search on natural levee segments does not seem likely to have produced anything even remotely resembling a representative sample of sites.

In 1975, the University of Southwestern Louisiana conducted an intensive bank line search of Bayou Teche from Port Barre in the north to Wax Lake Outlet in the south (Gibson 1976b:6). The survey was conducted in boats and sampling intervals (stops and ground surface examination) were spaced 400m along both banks (Gibson 1976b: 3). This spacing interval was interrupted only where modern habitations (towns, houses, yards, etc.) fell at the specified location. In spite of systematic coverage, only three archaeological sites were discovered throughout the nearly 180km long corridor. Gibson (1976b:84-85), assuming that the spacing interval was adequate to have yielded a representative sample of locations and using geomorphic arguments against burial by sediment, speculated that Bayou Teche was avoided by prehistoric settlers because of low biomass resulting from the lack of freshwater influx into the channel. Right or wrong, the

USL survey represents the first effort in the Basin to use locational data produced under a systematic sampling program to "explain" a settlement pattern.

In 1976, Coastal Environments, Inc. conducted a survey of pipeline corridor, part of which cut west to east across the middle part of the Atchafalaya Basin from the West Atchafalaya Protection Levee to a pumping station in East Feliciana Parish (Gagliano et al. 1976). Pedestrian and vehicular search in this corridor was limited to examination of what was called "high probability areas" (Gagliano et al. 1976:3). These areas were defined as natural levees of present and relict streams, terrace remnants, zones of distinctive vegetation, and places of historic activity revealed in documentary accounts (Gagliano et al. 1976:3-5). Thus the research design, which somewhat resembles a stratified approach, differed significantly from an explicit, statistically sound, stratified survey program by dint of the fact that examination was strictly limited to those areas selected by some preconceived (biased) notions about where sites could be expected to occur. It is also clear that the Coastal Environments survey party did not cover that portion of the corridor which bisected the Basin proper, which was reasoned to have been covered adequately by the previous LSU survey (Gagliano et al 1976:4). Based on the deletion of the Atchafalaya Basin segment of the corridor, the Coastal Environments survey produced no new information on site locations, and even if that portion had been covered, the research bias toward "high probability areas" may not have resulted in a representative sample.

A similar non-systematic survey bias seems to have underlain the Coastal Environments, Inc. survey of the Gulf Intracoastal Waterway which crosses the southern part of the Atchafalaya Basin (Gagliano et al. 1975:5-6).

However, two surveys performed by Coastal Environments, Inc. are described as complete pedestrian (and boat-borne) searches of narrow linear corridors. One of these surveys, conducted in late 1976 to mid-1977, lay along the proposed relocation route of U.S. Highway 90 from Morgan City to near Ellsworth in St. Mary and Terrebonne parishes, a distance of about 41km (Weinstein et al. 1978). Detailed survey procedures are not described, but if coverage was uniform throughout

the search corridor, the evident restriction of sites to points where streams intersected the corridor may speak toward a real settlement phenomenon in the region or perhaps just discoverability.

The other intensive corridor survey, performed by Coastal Environments, Inc., in March 1978, followed the proposed right-of-way for the Teche-Vermilion Conveyance Channel which extended from the West Atchafalaya Protection Levee about 2.1km north of U.S. Highway 190 due east about 10km to the Atchafalaya River (Gagliano et al. 1978). This survey was conducted by pedestrians (two individuals) and although the exact survey procedures are not described (e.g., spacing intervals, etc.), it appears that the entire corridor was walked. Subsurface testing was limited to auger borings where streams crossed the right-of-way and to shovel holes every 100m in unplowed zones. Holes were dug no deeper than 20cm and because this technique proved "futile" (produced no artifacts) it was soon abandoned. Apparently some sort of difficulties (possibly ground cover or water) prevented total coverage of the corridor for degrees of survey comprehensive within the four delimited segments of the route are expressed by percentages less than 100 (Gagliano et al. 1978). How these percentages were determined in unknown.

A third major intensive survey was conducted by the University of Southwestern Louisiana between March and November 1977. The work was performed along the bank lines of bayous Chene and Shaffer, Avoca Island Cut-Off, and the Lower Atchafalaya River, lying between Morgan City and Atchafalaya Bay (Gibson 1978a). Along the smaller streams, boat-transported survey crews examined bank sections at 50m intervals; along the Atchafalaya River, the interval was broadened to 100m (Gibson 1978a:12-15). These spacing intervals were maintained, no matter the kind of terrain or conditions in these "look" areas. Shovel testing, one to three holes in every "look" area, augmented surface scrutiny. These shovel holes were normally carried to about a meter in depth (Gibson 1978a:13). Deeper subsurface examination at selected spots was done by solid coring. Thus this survey was free of bias occurring from some preconceived notion about "high probability areas", and although it was confined to stream bankline corridors, a contract mandate, rigid adherance to the sampling interval should

mean that few large sites on or near the surface should have escaped detection.

A host of small contract surveys and reconnaissances have been carried out in the Atchafalaya Basin. Other than those performed by this author, the methods, intensity, and results of these investigations are unknown. Most have been identified by title only from a bibliography of contract reports prepared by the Louisiana Division of Archaeology and Historic Preservation (1978), and that compilation is only current through 1977. The noncirculation, nonpublication, and nonavailability of these documents not only prevents their discussion in this context, but compromises, perhaps seriously, the ability to rethink and evaluate various site distribution issues.

In substantial sum, previous archaeological survey in the Atchafalaya Basin has not been uniform in either coverage or intensity. Some areas, generally linear corridors along streams, pipelines, or highways, have been subjected to more thorough investigation than the majority of the land, but even within these areas, coverage has been exceedingly variable. This leads to the inescapable conclusion that the presently known distribution of sites in the Atchafalaya Basin is a product of archaeological methods and selected (biased) coverage. If the resultant site pattern, dispersion, and density in any way resembles the real settlement geography in the region, it is purely coincidental. To complicate matters further, previous work has not laid the groundwork for prediction of projection to the Basin as a whole. We are thus faced with the prospect of having a relatively substantial amount of site locational information but no sound bases for determining its representativeness (as a sample to the universe) nor for relating one surveyed area to any other (data are noncomparable).

Other Problems

All of the problems discussed above pertain to data voids, data unevenness, and data noncomparability. In other words, they refer to technical or methodological problems in Atchafalaya archaeology. There are other constraints on the information base of similar ilk.

There have been no large scale, intensive excavations in modern times. Archaeological information is almost entirely derived from surface collections and limited test excavations. Thus stratigraphic information is sparse, and data on internal site features and structures are practically nonexistent.

Both survey and on-site investigations have been conducted within a framework that has been less than rigorous. Artifact collections have rarely been controlled by intrasite proveniences, and test holes have generally been placed in areas of high artifact density ("hot spots") or in positions selected to reveal some stratigraphic profile. In very few cases have site limits been defined, eliminating the prospects of determining site sizes and configurations. Thus, there have been no opportunities to rigorously determine the relationship between recovered samples (i.e., entire sites or artifacts within sites) to survey (or cultural) universes or to site universes. Because of the lack of adherence to an explicit sampling strategy, various means of statistical analysis have not and cannot be effectively used to discriminate subtle nuances in data nor to project or predict site occurrences.

There is another major problem with the Atchafalaya data base. It does not relate to acquisition of information but to dissemination. As mentioned above, the recent stepped-up cultural resources investigations are rarely published. Reports prepared for various sponsors are written and submitted. The review process brings these reports before various authorities and agencies, and there information exchange usually ends. Reports are filed away or occasionally are deposited in the state library where easy access is hampered. There is no mechanism for distributing these reports or for even making a potentially large consuming audience aware that reports exist. While some report exchanges transpire or an individual-to-individual basis, this is definitely a hit or miss procedure. Laying blame for this dismal state of affairs is easy but does not solve the problem. In this writer's opinion, once the notion that contract cultural resources studies are somehow different from cultural research programs is purged, we will see a much greater level of information dissemination. Responsibilities to a client do not differ in kind from responsibilities to the data base

or to the profession. Client-oriented archaeology is only an applied aspect of sound archaeological research. In fact, obligations to a client cannot be effectively discharged in the absence of acceptable research designs, strategies, analyses, and interpretations. Each level in the cultural resource management structure--from contractor through agency to client--must recognize its obligation to see that information is exchanged. All the work in the world will not lead to advancement in the management process or to increased knowledge of culture without information transmission. The irony in the current state of affairs is that we are purporting to study culture in its myriad facies and culture itself is basically learned conditioning. Culture is information exchange at its most basic level. We are thus dealing with information exchange and its products, yet we are not exchanging information, or such exchanges are being limited to restricted circles which are becoming very cliquish.

Research Structure and Organization

At the outset of the Atchafalaya levees survey, it was proposed to direct data acquisition and manipulation toward the testing of certain broad settlement-related hypotheses dealing with lowland adaptation and relative site locations. As the survey progressed, it became increasingly apparent that data relevant to the locational research design were not uniformly obtainable; a consequence, to a paramount degree, related to extensive landscape alteration within levee corridors. In addition, survey continuity throughout the levee corridors was periodically interrupted; gaps in coverage were related to both contract specifications and terrain inaccessibility. Certain segments of the levee were eliminated from coverage because construction was already completed (e.g., West Atchafalaya Basin Protection Levee, levee stations 4620-4480). In other sections, survey coverage was concentrated where the advanced stage of engineering plans actually indicated the locations of fringe and isolated borrow areas (e.g., survey segments 2 and 4, cf. Chapter 1). This does not mean that the intervening areas were not inspected; in many cases, they too had to be traversed simply to gain access to separated borrow

areas, but occasional shifting of search corridors (when borrows "flip-flopped" from one side of the levee to the other) did interrupt the uniformity and continuity of survey down both sides of the levees. Survey segments 1, 4, and 5 (Chapter 1) were, however, uniform and continuous.

The matter of terrain inaccessibility was partially overcome by resurvey of these inundated sections during the life of the fieldwork. But some localized areas, especially in survey segment 2 (from Belle River to Morgan City, levee stations 1546-2400), simply never emerged from their watery mantle. This stretch of survey corridor is the lowest (elevation-wise) segment, and even though water levels fluctuated greatly during the duration of fieldwork in this area, some areas simply remained water-covered and are probably always inundated. It is suspected that, even if these areas could be rendered accessible to survey, the likelihood of finding sites would be very low because of the tremendous siltation in these zones.

Thus the aggregate of these complications to survey coverage uniformity and site and nonsite data unevenness would have compromised site locational analyses and statistical manipulations based on random principles. The applicability of hypothesis-testing procedures under the original research design was dependent on statistically treating the two, north-south levee corridors as random vectors. The operating premise was that comparisons of the sites and their catchment zones, as well as nonsite areas, intersected by these lines would prove to be quite informative on patterns of land tenure and use and that these patterns would furnish suitable tests for a priori hypotheses and anticipations about swamp adaptation, generally and specifically.

These idealistic prospects could simply not be realized. The Atchafalaya Basin archaeological data base, including the data generated by this survey, is just inadequate. Reflections on this corpus of information are quite sobering, for they lead to the inescapable conclusion that realistic understanding of human tenure and settlement patterns, at least on the edges, of the Atchafalaya Basin, may be beyond the point of realization. Pre-modern alterations, natural and human, have been so extensive that broad comparative studies dealing with the entirety of this vast swamp and the full range of endemic

cultural resources are probably incapable of being operationalized with any great hope of success, at least at the present time. Perhaps in pristine, unaltered areas of the swamp with advanced, futuristic archaeological programs, we may see this picture change, but at present (1980), this author sees little prospect for making general, basin-wide sense out of the available corpus of information.

With idealism tempered by realism, the thrust of the Atchafalaya levees survey was shifted from a designed objective of testing general land use and tenure hypotheses to a more site-specific orientation in which a variety of substantive issues would be entertained and discussed. These issues were derived from this author's personalized appreciation of local research questions and barriers to understanding. These issues shifted from site to site, as the nature, quantity, and relevance of recovered information changed or as perceptions dictated. In one sense, this reorganized conceptual basis for dealing with archaeological information has obviated a rigidly structured research design per se. For this no apologies are necessary, only that the reader be made aware of this shift in objectives. For some scientific purists, this may cause considerable consternation and remove any interest in the interpretative sections of Chapter 9. For more descriptively oriented readers, this should cause no difficulty. For archaeological pragmatists, those who weigh hypothetical gestures and structures against available data, this shift will be understandable.

In a very real way, research designs which are organized in an hypotheses-derivation and -testing framework must be compatible with the available or desirable information corpus to be successful. This author does not believe that this statement has the "cart before the horse," so to speak, with regard to the opinion that one's research design necessarily dictates the kinds of information that can be acquired. There are many kinds of archaeological information which are recognized as basic to any type of inquiry (cf. Glassow 1977) and to plain and simple description. Research designs and even general theoretical and methodological predelictions do, however, control information quantity and level of detail and, more particularly, how and to what ends that information is used. The major point to be made

here is the question of information relevance. The substance of the archaeological record--artifacts-ecofacts, contexts, and distributional patterns--is widely recognized by most archaeologists. Individuals using different approaches and adhering rigidly or loosely to explicit or implicit research designs generally come up with distinctive end products. This has not changed the information corpus itself, only how it is perceived and used. Investigators who are cognizant of a wide range of relevant, or potentially relevant, information uses can obtain and describe a comprehensive part of the tangible archaeological record, no matter what their objectives may be.

It is toward the goal of exposing many and varied contexts of relevance that the recovered information and interpretations are directed (Chapter 9). Though circumstances have prevented formal operationalizing of the broad, integrative, land tenure and use research design, the ideas and ideals which were incorporated into that structure of inquiry have still guided most interpretations. Thus the inability to adhere to the original research design has not changed the way the archaeological information was collected or looked at, but it has changed its integrative and hypothesis-testing capacities.

What has resulted is an array of interpretations and reconstructions, call them issues or investigative problems if you like, that are rather specific to each site. Where such issues are believed to be of more general relevance, they are noted. The aim of this less rigid approach is to expose and draw attention to myriad interpretive possibilities of the existing data base along the Atchafalaya levees in an effort to identify basic research questions and problems pertinent to understanding human tenure in North America's largest overflow swamp. They are commensurate with the quality and quantity of the existing data base in the Atchafalaya Basin and compatible with various popular investigative issues that dominate archaeological inquiry today. They may be viewed as hypotheses, or the stuff of which hypotheses may be built. They are integrative only in the sense of being pertinent to various aspects of human tenure (i.e., adaptation) in the Atchafalaya swamp, and they are untested but potentially testable.

Examples of these issues are provided to draw attention to the breadth of inquiry and scope of relevance of surviving archaeological data.

1. Questions concerning age, function, structure, and organization of sites and internal site precincts of features;

2. Questions involving identification of sites and site contents based on ethnographic or historic analogy, e.g., burial programs compatible with Chitimachan reburial practices, site locations equating with recorded Indian or Euro-American houses, villages, or battlegrounds, etc.;

3. Questions concerning site contexts, whether representing surviving vestiges of loss and abandonment behavior of occupants as opposed to locations created by post-depositional alterations;

4. Questions centering around site development in terms of interrelationships with locale-specific paleogeographic development and local conditions;

5. Questions involving long- and short-term cultural stability, change, and evolution;

6. Questions dealing with estimates of population numbers and compositions;

7. Questions embracing nutritional requirements and food and other resource needs, preferences, and sources of acquisitions (economic catchments);

8. Questions relevant to periodicity or permanence of site inhabitation;

9. Questions dealing with archaeological recognition and classification of material cultural elements;

10. Questions concerning resource exploitation and technology; and

11. Questions concerning social, political, and economic organizations.

Identification of Categories of Relevant Information

To operationalize these inquiries, it is necessary to identify categories of relevant information. These will be broken down into classes that are commensurate with their interpretive bearing.

Natural Environmental Variables.

Soil Types.

Since soils grow, they represent the embodiment of developmental, or time-related, processes. They are not simply modern phenomena whose utility to interpretation is limited to the present. Their lengthy, in place, growth is conducive to enhancing understanding of cultural materials which are incorporated in them. Soils inform on many critical factors in paleogeographic reconstructions and relative locational suitability for settlement. Identification of soil types permits specification of source of parent material (e.g., Mississippi River alluvium, Red River alluvium, etc.), a necessary ingredient for determining water body association by intra- and inter-regional connectiveness. Paleogeographically, soils furnish the building blocks for determinations of landform slope and elevation, flooding and inundation conditions, endemic plant cover, potential horticultural productivity, and a host of other useful details.

Sediment and Stratigraphy.

Sedimentary stratigraphy provides an essential corpus of data for archaeological interpretation. Except for a few confined areas of eolian or colluvial deposition on its perimeters, the sediments which comprise the surfacial and near-surfacial topstratum in the Atchafalaya Basin are all water-lain. Identification of sediments and elucidation of stratigraphy are basic to reconstructing environments of deposition, sequences of and hiatuses in deposition, and rates of accumulation. The applicability of this information to archaeology is evident.

Landforms and Terrain.

Terrain and its constituents, landforms, are another useful source of archaeological imput. Landscape morphology, both modern and paleogeographic, comprises a variety of useful information. Like soils and sediments, landscapes grow, or develop, and when considered as processes,

rather than static entities, can contribute greatly to concerns of human adaptation. There is little question of the conditioning influences of terrain and landform on human settlement and activities. But many previous archaeological uses of landscape data have been stifled by treating landforms as things rather than processes. In the present consideration, landforms and terrain are viewed in an ecological perspective; that is, any given landform chosen for habitation or use is not merely a feature, it is a composite register of sequentially changing microhabitats (ecological successions) that existed before, during, and after human activities. Thus it is the stage, or stages, of landform development that are emphasized here, not simply the fact that the landform is of a particular kind or that the terrain is composed of said number of landform types.

Composite Geomorphic Details.

When one combines the relevant ingredients and implications of soils, sediments, and landscape morphology, a more finite set of human adaptive influences emerge. These factors are products of this broader spectrum of forms, processes, and history but can be isolated from it because they pertain to dimensions and possible response-eliciting stresses that are functions of the enjoined relationships among the aforementioned natural environmental variables. Some of these identifiable details include elevation, slope, and the related factor of flooding-inundation. Slope and elevation are measurable factors and are readily determinable; flooding and inundation conditions are relative to elevation, slope, distance from stream, hydrological conditions, and several other factors. Whether the problem being examined pertains to a present or occupational time frame, water coverage is ascertainable from sediment nature and structure.

How such composite details may contribute to archaeological interpretations are outlined below. In wetlands, such as the Atchafalaya Basin, elevation differential of only a few centimeters and slope disparities of only a few degrees may mean the difference in whether a spot furnishes suitable or unsuitable residential qualities and selective locales for work. Use of a spot in terms of seasonal

timing and duration are also influenced by these composite dimensions. These composite dimensions also furnish a vehicle whereby influences on archaeological site detecting methods and techniques can be evaluated.

Biota.

Because plants and animals have furnished man's food and culture's fuel since the beginning, it should come as no shock that biota is considered as a relevant source of archaeological information. In addition to food, biota has directly (unaltered) and indirectly (technologically altered) provided materials for various "industries," e.g., tool-making, housing and other constructions (facilities), cooking and heating, among others. Beyond materialistic considerations, biota seems to have played a large role in shaping ideas, ideals or attitudes, and all nature of in-group perceptions having social, political, religious, and ethnic ramifications. Thus site-specific biotic data, whether tied to time of human occupancy or precedent-postcedent, are considered to be highly relevant to archaeological reconstructions. When coincident with occupation, biotic information may inform on resource utilization or setting influences and is usually recognizable as ecofacts (i.e., tangible residues such as pollen, plant or animal structural remains, soil precipitates and/or phytoliths, or possible chemical signs) or detectible indirectly as reconstructions based on other ecological factors. When circumstances prevent or inhibit the collection or analysis of ecofactual data, all may not be lost because modern on-site conditions or geomorphic-ecological analogs can be utilized as sources of comparative data. Modern biotic systems analogs are also of considerable importance in constructing models of subsistence and patterns of land use by providing a pool of comparative data against which ecofactual information or reconstructions may be compared. This enables determinations of selective use of the biotic environment, i.e., forms of cultural adaptation.

Industrial Resources.

Whether or not one adheres to a Whitian view of technological determinism, the fact remains that the entirety of human existence has been closely bound up with technology and tools. Nature provides some manipulative devices (implements and facilities), but the large majority of energy-transmitting or -retarding (containing) equipment has been altered from a natural state by subtractive or additive modification or assembly. Natural resources which figured in technological systems of various times and various places thus become critical data. Identification of materials and specification of sources of origin will play a large role in considerations of cultural utilization of the environment (in terms of nature, pattern, structure, and organization).

Dimensions, Character, and Content of Cultural Residue.

The categories of natural environmental variables, mentioned above, are largely related to site context, or setting; in other words, those qualities of land and site that associate with locations of material cultural remains. Another class of information basic to archaeological interpretations pertains to the material cultural residues themselves, their arrangement, their organization, and other details.

Site Size, Shape, and Orientation.

These dimensions of sites--size, shape, and orientation--furnish important sources of archaeological information as they represent variable qualities of the archaeological record which can be observed, measured, estimated, and subjected to comparison. From these data, it may be possible to derive ideas about the size and arrangement of occupant groups; about residential or occupational layout and arrangement in terms of natural and artificial (cultural) siting features; about spacing and accessibility factors; and about character of distribution of cultural constructions and facilities, artifacts and ecofacts, and culturally produced chemical residues.

Site Context and Contents.

Artifacts, ecofacts, and constructions furnish the normal content of archaeological sites. Their observation, collection, classification, and analysis provides the grass-roots comparative basis for all higher order interpretations. Since these cultural residues exist in or on the ground, their contextual character can often be ascertained and drawn on to elucidate patterns of loss or abandonment behavior, as well as their manner and sequence. Even the most basic question of what constitutes a site is determinable only by content and context.

Different schemes for "site" identification generally integrate, in some combination, the factors of number of artifacts, of artifactual proximity (density), and of artifactual variability. The plan adopted by the State of Louisiana for records-keeping and assignment of catalogue numbers goes even further by integrating factors of artifact collecting intensity (methods and techniques) and of postdepositional landscape alterations. In this scheme, sites are differentiated from "possible" sites by reason of investigative intensity, i.e., sites being those locales definitely determined to be sites (sic). Possible sites are defined as those places which require further work to determine their nature. The third grouping in the State plan, i.e., spot finds, are separated from the other two categories on the criterion of number of artifacts found. From one to four artifacts recovered from a location dubs the occurrence a spot find. The State plan is outlined in detail, not for critique (although its usefulness even for records-keeping may be doubted and it certainly has little or no applicability to study of the archaeological record itself), but simply to comparatively point out how the concept of site adhered to in the present report differs from the State plan and others of similar character. Locations bearing any evidence (regardless of kind or number) of past human behavior, no matter the context or circumstances of discovery or recovery, is considered to be a site. Any attempt to identify of classify the location after the point of recognition falls in the realm of data integration and interpretation. In other words, any recognized occurrence of cultural residue is a site. Should consideration of observational or recovery intensity dictate, or

should data integration indicate post-depositional alteration (e.g., transport of an artifact for its spot of loss or abandonment to another location, etc.), such a site will be considered differently from an in place or unaltered site in higher order interpretations, but it is still regarded as a site. In short, the concept of site, used in the present report, depends not on whether or not the location of discovery constituted the place of human activity, but on the fact that archaeologically detectible evidence of any kind and quantity exists.

What kinds of site content and context data to be collected and what usage is to be made of them will be discussed in the following section.

Post-Depositional Data.

A third and final category of useful data is comprised of those evidences of post-depositional alteration to place or cultural residue which affect the contemporary appearances of the archaeological record and interpretations resulting therefrom. Never is the contemporary state of archaeological information a fossilized and unaltered picture of past human activities (i.e., facility construction and cultural residue loss and abandonment behavior). Always lacking is a continuous, minute by minute chronicle of each and every human action and thought (and its context, or situation) that led to the production of the archaeological record. Observers of the archaeological record and inquirers into things cultural are beset with so many barriers to understanding that even if the record was totally comprehensive and completely pristine, its presentations might still be far removed from the reality of site and artifact. Such obstructions run the gamut from observor incompetence to state of the technical and interpretative art. However, there are other complications, whose detection and influence on the record must be recognized if archaeologists are to proceed at all beyond simple state-of-the-art description. These things deal with the processes--their nature, and their extent--which modify archaeological tangibles from their original depositional or accumulational state. Schiffer (1978:28) has called such modifications "A - A transforms," indicating changes from one archaeological state,

or condition, to another that are not a consequence of the same behavioral activities responsible for rendering the things or places archaeological in the first place.

Relevant data include: a) identification of disturbing process(es); (b) specification of nature and extent of impact; and c) pinpointing how such disturbances have effected the achievement of various research objectives or determinations of significance.

Methods and Techniques for Obtaining Relevant Information

Survey Methods and Intensity

Now that categories of archaeological information determined relevant to achieving the descriptive and interpretive goals of this project have been identified, we may now turn to the field methods and techniques used to acquire them. It should be recalled, at this point, that field investigation programs were given to two separate, but interrelated, ends; one, an archaeological survey and two, an ethnographic survey. This discussion is confined to the first of the two programs--the archaeological survey.

At the outset should be mentioned matters of survey intensity; i.e., level of personnel deployment relative to areas of contract-mandated coverage. Archaeological survey of the Atchafalaya levees in actuality represents a sampling survey, though its intensity has been much greater than that normally performed under inventory or reconnaissance level investigations. This admission is more than a simple play on words. A comprehensive field survey was required by contract. A comprehensive survey, by any manner of definition, has been performed throughout the project corridors. Yet it is admitted, without timidity, that every square meter of land surface and subsurface within survey corridors has not been inspected or dug into by field workers. Survey areas, specified by contract, have been delimited in Chapter 1. The width of these linear corridors was arbitrarily set at 460m, centering on existing levee crests. However, within these delimited alinements, the levees themselves, the berms

(or foundations), and the existing borrow pits were contractually eliminated from coverage. This left only new borrow areas, or everything outside the specifically eliminated sections to the perimeter of the 460m width, to be covered by field personnel. Thus by contractual limitation (and quite practical judgment as well), the Atchafalaya levees survey was converted to a sampling survey in the beginning.

However, even within the remaining segments of the levee corridors, the survey has been of a sampling nature. While it can be said that every linear meter of corridor has been traversed by field crews, the same cannot be said of every meter of land lying perpendicular to the alinement axes. These lateral strips of land lying beyond existing borrow pit edges to the survey corridor limits have been traversed by pedestrians in one of two manners: a) they have been longitudinally covered by one to three pedestrian transects, spaced 10 to 40m apart, or b) they have been covered by one to three irregular search paths which emanated from systematically spaced (every 200m) points of disembarking. The latter means of search was adopted in areas where regularized longitudinal transects were prohibited by terrain and/or accessibility difficulties. Conveyance between points of disembarking was afforded by automobile and boat. Not covered via either procedure were those zones which were water-covered during the life of the fieldwork. So in effect, survey coverage within specified corridors has been comprehensive and regularized but of variable intensity given the logistical problems of terrain and access.

It was the impossibility of maintaining uniform survey coverage within corridors that, when coupled with the extensiveness of previous terrain alteration, prevented the implementation of the original research design .

The tactical strategy for carrying out the physical, on-the-ground survey was simple. Since the survey corridors were linear and in all cases were traversed or paralleled by levee-top roads and/or borrow pit canals, personnel deployment was accomplished normally in steps by relay. In zones where longitudinal transects were followed, one survey team was conveyed by four-wheel drive truck or

small, outboard-powered bateau (or pirogue) to the head of the survey strip. A second team would move down the corridor, some 400-600m, where they would disembark, leaving the truck or boat to be picked up by the first team. On arrival at the parked or docked vehicle, the first team would then drive or motor to a spot (400-600m) ahead of the second team, leave the vehicle, and proceed with the next strip; the entire process would then be repeated.

These tactics fit the corridor shape quite well. They enabled the deployment of personnel throughout the survey corridor in numbers (one to three people) necessary to insure transect spacing intervals of under 40m. They also facilitated coordination and reassembly of both survey parties when accessibility problems were encountered or when intensive efforts were required at discovered sites. Thus considerable down-time was avoided.

Where accessibility problems in the survey corridors forced modifications in the continuous transect tactics, another procedure was followed. Personnel were organized into two parties but were assigned to different survey segments, each with its own means of conveyance. Whether by land (truck) or water (boat), these parties would traverse the segment, stopping every 200m if terrain conditions allowed, and would implement a search procedure which carried them to the outer limits of the survey strip. The search paths followed in this systematic stops procedure were generally irregular, but since they involved a transect enclosure (i.e., a set-out and return walk), or enclosures if more than one person was involved, they were regarded as sufficiently intensive. However, the very reasons which often necessitated this kind of search tactic were no doubt responsible for the low return in terms of discovered cultural resources in zones where this procedure was followed. Ponded areas obviously could not be covered at all; in fact, along the lower East Atchafalaya Basin Protection Levee from just south of Belle River to Morgan City and from Morgan City to the terminus of the Avoca Island Cutoff Levee, permanently inundated swamps and marshes often interrupted the regularity of stops and/or surface examination to the outer margins of survey corridors. Even where on-the-ground inspection could be done, alluviation from decades, centuries, or even millennia of high-waters covered inspection areas with a

blanket of fine clastics which often extended beyond the limits of augers and probing rods used for subsurface examination. These are precisely the areas too where subsidence has been especially pronounced.

Thus, the systematic stops survey tactic which already integrated an irregular transect feature because of terrain accessibility also had to contend, in the survey strips mentioned above, with terrain-caused interruptions to the regularized spacing interval. However by way of explaining (not excusing) the resultant unsystematic coverage of certain survey zones, let it be acknowledged that archaeological techniques for discovering terrestrial sites covered by water and buried by sediment to depths that obviate use of shovels or augers have yet to be developed (or actually in the case of solid-coring machinery that can be used in a cost-efficient manner).

Where conditions demanded along transects, ground cover was periodically stripped to afford better visual observation of the ground. In the southern extremities of the survey area (e.g., East Atchafalaya Basin Protection Levee south of Bayou Sorrel, West Atchafalaya Basin Protection Levee south of Lake Fausse Point, and Levees West of Berwick), a probing device, capable of exploring depths to 165cm was used regularly at spacing intervals averaging about 50m apart. This simple device, a metal rod with welded handle, proved quite efficient in delimiting rangia-dominated sites but did not, by itself, lead to the discovery of any site that could not be detected by other means. However, this fact does not prove that the device was not capable of discovering buried, cultural shell components, only that it did not. Another observational technique was employed along transects where previous information, primarily geological, suggested the possibility of supporting cultural resources near the surface. Shovel test holes, averaging 50 by 50 by 50cm, were dug in such areas. The usage of this subsurface investigative technique should not be misconstrued as being guided by some preconceived notion about where archaeological sites were expected to occur, i.e., so-called "high probability areas." A previous evaluation of the distribution of known sites in the Atchafalaya Basin (Gibson 1979a) underscores the impossiblity of making such determinations on the basis of present

knowledge. Shovel-testing was implemented on the basis of geological input as to where sites might be discoverable given the capabilities of shovel-test units. In other words, shovel-testing was confined to those geologically older and geomorphically less active landforms which were intersected by survey transects. In general, this procedure was used in isolated areas slong the East and West Atchafalaya Basin Protection Levees, lying north of U.S. Highway 190.

On-Site Methods and Techniques for Acquiring Relevant Information

Once a site was discovered, a program of investigation was followed in order to produce the information determined to be relevant to the various research objectives of the survey. As noted in the original research design, many of these data were also to have been systematically collected on siteless areas which would have enabled comparisons of relative site locations, as well as site vis-a-vis nonsite relative locations. When field conditions forced the abandonment of this objective, the weight of data-collection was shifted to the sites themselves.

Soils.

Soil data was produced through the use of soil boundary aerial photos and maps contained in various bulletins published by the U. S. Soil Conservation Service. When available for the areas under survey, site-specific soils were confirmed by map or photo correlations and soil descriptions. When soil maps were unavailable for correlation, consultation sessions were scheduled with pedologists at the U. S. Soil Conservation District Office in Opelousas. In spite of these concerted efforts, soil identifications for a few site locations were simply unavailable.

Sediment and Stratigraphy.

Except where prohibited by landowners, sediment and stratigraphic data were acquired at each site through shovel- and auger-testing and/or through observation of existing subsurface profiles (e.g., such as along

stream banks, drainage ditches, or borrow pit edges). Standard lithological descriptions were used, and profile drawings were made. A consulting geologist (John Lenzer) aided in field descriptions and in interpretations based on profile drawings and descriptions.

Landforms and Terrain.

Landforms and terrain which corresponded to or immediately surrounded site locations were identified in the field and in the lab by simple observation or by interrelating the sedimentary, pedological, and stratigraphic data. From this, specific ideas about landform developmental processes and stages prior, during, and after occupation were extrapolated.

Composite Geomorphic Details.

Details, such as elevation, slope, and flooding-inundation conditions, were compiled through observations, measurements, and calculations. Elevations were generally determined from map contours and subsurfacially by relating various culture-bearing strata to map contours and water-table-river stage (gauge readings when nearby) levels. Slope determinations, specific to occupational surfaces, were made by calculating differences in subsurface elevation ascertained judgmentally over "level" surfaces or more precisely by Brunton compass or alidade over paced or taped distances. Water-coverage conditions were actually observed or detected indirectly by observing water-marks, drift, sorting of sediment or surface detritus, presence of certain water-specific biotic evidences or by reconstructions predicated on soil or sediment information.

Biota.

Biotic data was assembled by direct observation of on-site conditions and by identification of ecofacts. In the former technique, vegetation, when present (actually when native, not farm, plants occurred), was identified by an experienced wildlife ecologist, who also served as field director. Identification competance was greater for woody constituents than for grasses and herbs. Animal components were identified by direct sightings, by calls, and by tracks, skeletal

leavings, shelters and nests, and by browsing or feeding habit evidences. Attempts to augment present biotic data were instituted through interviews with locals and perusal of various biological publications and reports, particularly recent environmental impact assessments and statements dealing with the Atchafalaya Basin. Pre-modern, historical, biotic information was gathered through publications, particularly records of early explorers and naturalists. Conditions specific to the time of occupation were reconstructed through sedimentary or pedological details based on the principle of uniformitarism or through ecofactual details.

The enormous extent of land-alteration within survey corridors produced a general lack of uniformity in this useful class of data.

Industrial Resources.

The materials of which artifacts (and sometimes facilities) were made were identified. The overwhelming majority of the data on material resources is limited to rocks and minerals. The few normally perishable items that furnished industrial raw materials have also been identified as precisely as possible.

Site Size, Shape, and Orientation.

The acquisition of information on site size, shape, and orientation was limited to those situations which had recognizable boundaries and which had not experienced a great deal of post-depositional disruption. Determination of boundaries followed no arbitrarily set rule (such as artifact or ecofact density limitations) but varied from site to site. Where organically enriched earth or rangia shells (i.e., middens) were present, site boundaries were fixed at the outer edges. When no discernible midden was present, artifactual distributions guided the setting of site boundaries. At least four artifacts were deemed necessary for establishing limits, and these artifacts had to exhibit a "four-cornered" dispersion pattern. In other words, if artifacts were distributed as "points along a line" and no other artifacts were discovered off that line, site size was judged to be nondeterminable. However, if "lines" connecting the four artifacts formed a four-sided figure and if there were artifacts within the figure, then site

dimensions were measured. In theory, no limits were placed on the size of artifactual distributional patterns (i.e., distances among the artifacts in a "four-point" pattern), but other considerations did result in limitations in actual practice. The nature of artifacts played a large, albeit subjective, role in assessing sizes of these "four-point" patterns (hence, site sizes). Artifacts, which showed tendencies to associate geographically, temporally, functionally, etc. (i.e., which seemed to form historically diagnostic units), were proclaimed as site-specific residues, and the area over which they were spread was determined to be the area of the site.

Some examples might aid in clarifying this procedure. If four potsherds formed the corners of the "four point" figure and if they were of the same type or belonged to the same cultural complex, the intervening area was determined to the size of the site. Similarly if artifacts of different types (e.g., projectile points, sherds, or other tools) but of the same cultural complex formed the corners, then site dimensions were also determined. However, if the artifacts were of different cultural historical origin, (e.g., a Clovis point, an Alba arrowpoint, an Addis Plain sherd, and a Tchefuncte Stamped sherd) site limits were judged to be nondeterminable because the elements that comprised the distribution derived from different time periods and thus could not be spatially related in any culturally interinfluential manner. Their proximal distribution in space would have to be a matter of happenstance.

Both surface and subsurface observations were employed to establish site boundaries. When a site was discovered, its surface extent was flagged and otherwise marked. Surface delimitation was followed by subsurface testing via probing, augering, or shovelling to reveal any deviations of buried occupational zones from the extent of surface exposure. Outermost limits were plotted by pace, tape, or alidade to determine actual dimensions. These were transferred to scaled field maps, which with the aid of directional instruments--compass and alidade, also revealed site shape and orientation.

On-site subsurface testing employed the same equipment used in the search for sites, i.e., a probing rod capable of reaching depths of 165cm, a three-inch barrel auger with a depth capacity (with

extensions) of 300cm, and shovels-trowels with limitations set only by industry, water-table, and/or base of cultural deposits themselves.

No regularized strategy for placement of subsurface test holes was followed, although a systematic approach was adhered to. Probe and auger holes were placed indiscriminantly in all directions radiating outward from the point of main artifactual concentration or from the densest or darkest area of midden. The number of holes varied from site to site and depended on field judgments as to where site boundaries had been exceeded. Shovel test units, generally measuring 50 by 50cm by at least 50cm (depth) complemented the probing-augering procedure but mainly were dug for purposes other than delimiting site areas (e.g., acquiring artifactual, stratigraphic, and paleoenvironmental data). However, on sites lacking middens and having low artifactual densities, shovel test units were dug for delimitation ends. Shovel test data was recorded and locations of these holes were plotted on site maps. Like auger and probe holes, shovel test units were dug in locations and numbers determined by field judgments concerning various needs for data-collection.

Acquiring Site Context and Content Data.

Context and content of sites constitute the primary corpus of archaeological data and enable meaningful comparison with locational information and with other sites. The sources of these data lie in the tangible things that can be collected or observed and in their spatial (horizontal and vertical) arrangement, or relative position. The primary elements of content and context that were deemed important to present objectives and the means of acquiring or recording them are discussed here.

1. Artifacts. Objects exhibiting signs of human modification, as well as those whose presence belies human activity, were retrieved from sites. On sites with low material cultural densities, every visible object was collected. At other locations, where artifact densities and time constraints prohibited the collection of every object, efforts were made to produce a sample of materials which was nonselective. Sample representativeness (i.e., sample parameters

statistically paralleling the universe parameters) is not claimed because controlled measures of collection and observation were not uniformly or systematically instituted in the field. All that can be said of collecting procedures is that all kinds of artifacts were sought, or to say this another way, no discernible class of artifacts was neglected. It is subjectively felt that qualitative dimensions of artifact contents may be reliably broad, but no such claim is made for quantitative dimensions. Emphasis should be placed on the broad definition of artifact, voiced at the outset; artifacts cover the full range of things whose condition has been influenced by human agency. Artifacts are not merely limited to tool classes.

Site areas were covered by three to eight people who crossed and often recrossed the areas following independent search paths. Even on large sites with heavy artifact densities, the entire extent was thoroughly covered, and artifacts were picked up throughout.

2. Ecofacts. Ecofacts are defined as tangible objects of organic origin whose presence in a location is due to human activity. Examples include plant and animal food residues and phytoliths or precipitates. Ecofacts were collected in much the same manner, via the same techniques, used to retrieve artifacts. However, a definite bias, or selectivity, controlled acquisition of these materials. In rangia middens, every valve was not collected; in fact, only a few examples of shells which showed size variability among rangia or which represented other molluscan species were gathered. However, all visible bones were gathered. Aside from charcoal and phytoliths, no other plant remains were retrieved. No small scale recovery techniques--fine screening, water screening, flotation, or pollen extraction--were used. Thus ecofacts are heavily weighted toward cultural bones.

3. Constructions and Other Facilities. Constructions and facilities refer to those stationary (nonportable) features which were built, or assembled, by people. A sample list of constructions--facilities within the project area include the mounds and borrow pits at 16IV4; the standing buildings at 16SMY130 and 16SL60; the plantation

ring levee at 16SMY164, 16SMY165, 16SMY104, and 16SMY107; the railroad bed at 16SL64, the pump station at 16SMY107; and the hearth at 16SM50. These constructions were described; their form, dimensions, and components ascertained and measured; and their layout, or arrangement, plotted.

The context of artifacts, ecofacts, and constructions--facilities was determined by comparison with relevant siting data; e.g., soil and sediment, stratigraphic position, etc. Also deemed important to assessing context was horizontal position. If more than one construction-facility was discovered, their distribution was recorded.

Recording Post-Depositional Data.

An integral part of understanding the archaeological record depends on elucidating the post-depositional processes that have affected the integrity of cultural remains following their loss or abandonment.

Attempts were made to identify the processes which have altered archaeological context and content. Site situations were examined with an eye toward spotting tangible evidences of alteration, such as dirt borrowing, land-leveling, plowing, erosion, water-sorting and redeposition, etc.; data on both kind and extent of modification were assembled in an effort to determine the degree of integrity of remaining cultural residues.

Methods and Techniques for Simplifying Relevant Information

Material cultural remains, particularly artifacts, were classified and/or typed via rather traditional systems. Choice of systems used here was not made on the basis of relative value or precision or by dint of any other argumentative reasoning concerning whether one classification system is superior to any other. They simply reflect the preference of the author under present circumstances.

However, because the author's approach to classification-typology, especially with regard to ceramics, differs conceptually from the approach of others applying the same classification system, important

differences will be pointed out. The familiar historic type system, or actually its spin-off the type-variety system, was used to categorize aboriginal pottery. As developed by Ford and associates and later "refined" by Phillips and colleagues, historic types grew out of subjective groups of similar (and recurrent) attribute combinations (or modes) that showed tendencies to respond to time and space differences. The typical way of classifying ceramics, under this approach, was to go through a collection of pottery, making piles of "similar" sherds, and if the criteria used for sorting also responded to stratigraphic or geographic differences and were repetitive from site to site, they were formalized as "types." Co-occurring types became the basis for higher order classifactory schemes, such as ceramic complexes, and these with repeated demonstration became the essence of the familiar culture period-phase taxonomy. Emerging patterns and continual feedback from design and ware variability and horizontal and vertical space factors led to refined pronouncements about cultural unit "affiliations" and the labeling of ceramic categories with rubrics identifying higher order categorizations.

Somewhere along the line, the emphasis on classification shifted to identification. In other words, after types (and later, type-varieties) became truly formalized, they became subjective units of comparison, and typologists began to sort potsherds, not by intra-assemblage details, but by how well sherds fit into pre-established types. Since established types were already imbued with names signaling cultural unit "affiliation," e.g., Tchefuncte Incised equals Tchefuncte period, the classification process itself resulted not only in pottery type counts but in identification of cultural components.

This methodological shift had consequential implications for the practice of archaeology in the Lower Mississippi Valley, but these effects will not be examined here. Rather, the following discussion will be given as to how the present use of the historic type-variety system differs from its traditional application. The differences in application are not detectible in the types themselves or in the use of names used to identify them, but in the kinds of interpretations generated from them.

The pottery groupings inventoried in Chapter 9 are used purely as morphological categories, not as proven vehicles for determining cultural affiliation. Even the use of recognizable type names is restricted by this distinctive approach. For example, where types have been set up on variable criteria which have been more heavily weighted by presumed or demonstrated sensitivity to space- or time-factors, those types (or actually their formal type names) have not been used at all. For example, some identical or highly similar designs which occur on wares bearing distinctive fabric qualities, say sand - vis-a-vis clay - tempering, have not been given traditional type names, because, in most cases, these have been divided into two or more separate types. The present typological system would only recognize one group with two or more subgroups in this case. In this author's opinion this rids the system of pre-conceived notions of cultural affiliations when such affiliations have not been determined on a site- or locality-specific basis. If criteria used to classify types involve fabric (or ware) qualities in one case and design, or motif, or technique in others, then the resultant types comprise an inconsistent bunch of categories lacking uniform descriptive parameters. While it may be quite easy to follow procedure (sorting instructions, cf. Phillips 1970) in attributing type or variety names to such groups, the results of such a mechanical application usually obviate efforts to ascertain the usefulness of types on a specific, interpretive level.

A similar difficulty plagues formal type categories which incorporate two or more primary techniques of design rendering, e.g., incising and stamping, incising and punctating, etc., as well as those which combine zoning or paneling fields. Should a sherd which possesses punctating and incising techniques be made a variety of a punctated type or a variety of an incised type, or should a completely new type be established? There has been no consistency in formalizing type groups bearing multiple techniques and variable combinations of them. Thus established type names have not been used in these situations.

To traditional typologists, the outcome (i.e., pottery type inventories) of this distinctive use of historic types and type-varieties will be evident primarily in the use of noncommital type names, i.e., ware A, ware B, etc., or Group 1, Group 2, etc., to

label categories which, under a more traditional application, could be given definite names. However, the descriptive bases of these nonformal categories are given, so that conversion to traditional types or type-varieites will be facilitated. A further indication of the difference in approaches will be evident in the apparent misuse of certain types to connote site components, time periods, or other interpretative issues. For example, specifying the temporal and/or cultural affiliation of a given stratigraphic level at a site as Tchefuncte on the basis of the presence of Marksville Stamped, var. Crooks, or of Marksville Cross-Hatched rim modes, may seem illogical and confusing. Yet such pronouncements are actually made and are consistent with the typological approach followed in this report. Using familiar historic type and type-variety names to label ceramic categories does not obligate one to stick entirely to historical conclusions, when the categories have been operationally divorced of pre-set historical implications; or to say this another way, when type categories have viewed strictly as morphological groups.

Several means of classifying stone artifacts have been jointly used in this report. First stone objects have been separated by means of reduction, whether chipped or nonchipped (e.g., battered, ground, or polished). Then tools have been distinguished from nontools. Tools have been awarded familiar names from myriads of published sources. Classes of tools are generally accorded "functional" labels without emphasizing function. In other words, just because an artifact is called a projectile point does not mean that it necessarily functioned solely throughout the entire span of its use as a projectile. Classes of stone tools have been divided into types by means of several typological systems. For projectile points this means that historical types have been adopted (cf. Bell 1958, 1960; Perino 1962, 1964; Webb, Ford, and Gagliano 1971; Suhm and Jelks 1962). However, as with the use of historical pottery types, projectile point types are viewed strictly as morphological, not temporal or spatial connoting, labels. Subdivision of functional classes and historical types follows a system of technological categorization. Technological unfinished or broken and/or laterally

cycled or recycled tools and the technological by-products produced during various manufacturing, repair, or conversion stages in production have been divided into "types" that reflect their status at the time of loss or abandonment. The criteria for sorting these fine-scale types are given specifically in Chapter 9.

Other type labels are used depending on the nature of the artifact being clasified and source of categorization being used. There is only one constant underlying all classificatory-typological systems and rubrics used. No matter superficial appearances; classes or types are regarded descriptive or morphological units only. Nothing is presumed, nothing assumed, nothing is considered given or understood a priori in the name of a classifactory unit. The classes or types used in this report are merely heuristic devices for reducing lots of informational tid-bits into larger, more easily manipulated categories.

The same conclusion permeates the use of culture historical units. Names of culture stages, periods, and local phases are bantered about in Chapter 9, but their use does not necessarily convey meaning of time or cultural affiliation. They certainly are divorced of implications of once-existing cultural events or cultural organizational or structural meaning. The names employed here as unit labels and the units themselves are viewed as nothing more than a metalanguage, a means of abstracting and reducing observable similarities and differences into a descriptively simplified and analytically manageable means of presentation. The classifactory and typological units/rubrics used in this report are products of contemporary means and methods of organizing and visualizing archaeological information. They bear no necessary correspondences to once-existing realities. The relationships among units of archaeological classification and realities of once existent cultural systems are a matter of interpretation--not classification.

Methods and Techniques for Analyzing Archaeological Data

The manipulating of archaeological data and its integration to produce reconstructions (i.e., interpretations, models, etc.) of past

cultural phenomena is attendant upon what objectives are sought and the nature of acquired data, given methodological and technical constraints to data production. Since unilaterally applicable objectives and heuristic means of data amassing and organization were prevented by the data input, no all-embracing manner of handling archaeological information has been used in this report. To say this another way, there has been no uniformly applied means of analyzing data that incorporated input from each and every site toward a solitary objective. The originally proposed settlement/adaptation goal was cancelled when it was realized that pertinent data were simply uncollectible. Consequently what has resulted has been interpretative exercises that varied as data applicability and whim dictated. There can be no separate data integrative section (such as required by the Scope of Services) when data input and manipulative means are so diverse as those commanded by the reality of the present data base.

Thus to determine what use and what means of manipulation that data have been subjected, the reader must examine the "Interpretations" section under each site in Chapter 9.

Summary

This chapter sets forth the organizing principles, methods, and techniques which guided archaeological fieldwork and data analysis and interpretation. Through an evaluation of previous information, voids in the data base were identified and various research problems and questions were recognized.

The status of archaeological knowledge from the Atchafalaya Basin can be curtly characterized as both limited and nonuniform. This has been due partly to the nature of previous investigations and partly to the nature of the terrain itself. Archaeologists who have worked previously in the Atchafalaya Basin have sought out certain kinds of information and neglected others; their work has been of low intensity and has been geographically dispersed. The great swamp itself has proved a formidable barrier to investigations. Its watery confines have hindered accessibility. Its geomorphic development has over many millennia destroyed untold numbers of sites

and has buried others under thick blankets of sediment. Its marshy southern extremity is sinking (subsiding) carrying with it other sites. Man's recent efforts to harness the vast lowland by converting it to a floodway, designed to relieve the Mississippi River of floodwaters, have caused still further problems. The basin, now confined by floodway levees, has become a giant sediment trap. The effect on archaeological sites, especially in its middle and lower sections, is obvious. With protection from overflow enhanced and rising elevations from siltations, the swamp has submitted to the plow and the drilling rig. Land-clearing and -leveling and bean farming in the northern part of the basin is taking its toll of archaeological sites. Oil-related construction activities are disturbing cultural resources elsewhere. The cumulative effect has been extremely damaging to the archaeological record itself and quite compromising to investigative efforts designed to make sense out of what remains.

These natural- and human-induced alterations have had a profound effect on the present survey. An original research plan, designed to expose siting determinants, had to be shelved because of these modifications and noncontinuity of project corridors. In-the-field limitations considerably narrowed survey objectives by focusing attention on the sites themselves (plans to derive nonsite information were foregone) and within the sites, on those data that remained unaltered or that could be reconstructed given the kind and extent of modifying processes. In other words, research came to be guided by the nature of the cultural resources; by the information that was recognizable and collectible.

The major effect that field conditions have had on this investigation is in the area of data integration. Because site (and nonsite) data proved to be nonuniform and survey corridors could not be treated as random vectors, there was no way to pull information from every site together and produce an intelligible picture of settlement. Consequently what has resulted has been a discussion of each site in terms of particular research questions and issues to which the data have interpretative relevance. While these discussions cover only a small number of topics that bear consideration in the Atchafalaya Basin, they do represent a range of substantive, methodological, and

theoretical issues; issues whose resolution would contribute greatly toward an understanding of archaeology in the great swamp.

CHAPTER 9

CULTURAL RESOURCES ALONG THE ATCHAFALAYA BASIN PROTECTION LEVEES: SITE AND ARTIFACT DESCRIPTIONS, INVENTORIES, AND INTERPRETATIONS

INTRODUCTION

In compliance with contractual scope of services directives (Chapter I), this chapter sets forth descriptions, material cultural inventories, and interpretations of prehistoric and historic sites investigated within the specified survey corridors. Site descriptions include general locational information, present appearance and environmental setting, and stratigraphy (if determined). Artifacts and ecofacts are described, classified, and tabulated. Site specific interpretations (and/or speculations) are advanced in a number of variable areas including paleogeography, settlement, economics, culture history and development, and functional activities. The lack of uniformity or weight given to these different areas of reconstruction from site to site is a function of information relevance and of the author's personalized appreciation of questions whose "solution" could provide new understandings or fruitful areas for further inquiry.

The survey limits agreed to during contract negotiations form corridors about 460m wide, centering on the protection levee crests. Within these narrow strips, a total of 33 locations of cultural resource relevance were identified and investigated. Numerous other previously known and newly discovered locations lie beyond these corridor limits and consequently beyond the descriptive commitments of this chapter. However, data from these nearby locations cannot be ignored in an understanding of those locations that happen to fall within contract-specified

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corridors and will be utilized, as need requires, in the concluding, integrative chapter of this report and in formulating cultural resource management recommendations.

The major objective of this chapter is to provide descriptive and interpretative bases and foundations for prescribing significance (based on criteria promulgated under National Register of Historic Places guidelines) and viable mitigative courses of action which will void or minimize adverse effects of the planned construction project on locations which fall within the rights-of-way. In this author's opinion, legislated management requirements are inseparable from the intellectual requirements, needs, demands, and modus operandi of the "academic" disciplines joined in the cultural resources management process. Whether site "significance" is to be determined nonscientifically and artistically on the basis of site-specific qualities (cf. Glassow 1977) or on the basis of potential information yield to currently existent research questions (House and Schiffer 1975) is somewhat irrelevant to this practical issue. Whatever the individual situation, federal laws and guidelines cannot be implemented outside the current status of historical and archeological knowledge. We only know what we think we know. We seek additional knowledge only within those areas that can be presently imagined. There is no need to be apologetic for the current state of archeological and historical knowledge. Government rules simply cannot be legitimized outside the scope of current or imagined archeological practice. Therefore to profess that the major objective of this chapter is to comply with federal requirements is no different from saying that the aim is to describe and interpret cultural resources as an exercise in producing knowledge and new research problems.

Organizationally, sites will be presented in an "around-the-basin" fashion. Beginning with the Morganza Lower Guide Levee and continuing down the East Atchafalaya Basin Protection Levee, sites will be listed in order of north-to-south occurrence; along the West Atchafalaya Basin Protection Levee, from south-to-north. This format not only serves as an heuristically appropriate organizational structure, but allows the southernmost sites to be presented more or less together. While these southern sites, mainly rangia middens, do not necessarily form a cultural or temporal complex, they do stand out from their northern counterparts

as a very distinctive class of remains. To further aid presentation, sites will be grouped latitudinally with U.S. Highway 90 serving to divide the levees into northern and southern parts (Figures 1.3-1.5).

MORGANZA FLOODWAY LOWER GUIDE LEVEE: NORTH OF U.S. HIGHWAY 190

This segment of survey corridor stretches from the town of Morganza in the north to U.S. Highway 190 near Lottie in the south (Figure 1.3). This section along the Morganza Floodway Lower Guide Levee extends for 26km, from levee station 0+00 to levee station 855+90.9. Two sites were located.

Bayou Fordoche-Morganza (16PC34)

This site lies on the right descending bank of Bayou Fordoche and on the left descending bank of the borrow canal paralleling the east side of the East Atchafalaya Basin Protection Levee near the highway 77 bridge. It is positioned on the crest of the natural levee flanking Bayou Fordoche, and the brown clayey silt surface soils reflect this geomorphic origin. Elevations slightly exceed 9.1m above msl. Relief is negligible, and slope is gentle toward the bayou.

The area is in a plowed field, and native vegetation has been removed except for a fringe of cypress, bitter pecan, and water oaks along the bayou bank.

Little archeological information was retrieved during the visitation to this site. No artifacts were recovered although a few pieces of prehistoric pottery and modern glass and earthenware sherds were observed. Site size, shape, and orientation were not discerned because of the paucity of artifacts and the absence of organically distinctive midden zones. Subsurface testing was not conducted because the field was being cultivated.

The location seems to have been extensively disturbed by the evidently long history of cultivation, and very few useful archeological data remain.

Mt. Olive (16PC35)

Description

This small badly disturbed location lies on the left descending side of Bayou Fordoche and on the left bank of the borrow canal flanking the east side of the East Atchafalaya Basin Protection Levee. It is about 250m south of 16PC34, on the opposite bank of the bayou.

It is on the natural levee crest (ca. 9.2m above msl) in a cut bank position. Soils are brown sandy silts. The site is in a plowed field, and natural vegetation has been removed.

Prehistoric and historic artifacts were thinly scattered over the surface of an area of about 1830m^2, measuring about 61m along the axis paralleling the bayou and 30m perpendicular. No midden zones were detectable on the surface, and since testing was not done, none were discovered in the subsurface. The location has been extensively disturbed by agricultural activities.

Artifacts

Four prehistoric potsherds were collected from 16PC35; three are plain body sherds with badly corroded exterior surfaces; the other is a Plaquemine Brushed sherd. The latter sherd illustrates "overbrushing," that is, an original series of brushing marks were subsequently covered by another series running at angles perpendicular to the first.

The only stone artifact retrieved was a flat brown chert pebble containing a few bifacial flake scars emanating from the edges of the stone.

Three neck and lip fragments of clear (purplish tinge) glass medicine bottles were also recovered. One of the sherds derives from a bottle molded from two halves. The other two are from blown containers with round laid-on lip rings.

Interpretations

The paucity of artifacts, as well as the clearing, land-leveling, and cultivating at this location considerably limits interpretations. Farming has obviously disturbed the location by displacement of artifacts

and by elimination of features, etc., if any were ever present. The lack of an organically enriched soil, coupled with artifact scarcity and ecofact omission, suggests that Mt. Olive was probably not a long or intensively occupied spot. However, neither the nature nor intensity of human activities can be reconstructed from present data.

The prehistoric Indian pottery, particularly the brushed sherd, suggests a Plaquemine age and culture assignment, or sometime after A.D. 1100 or so. The "bitters" bottle fragments may date to the period between 1880 and 1914; manganese added to glass of this period reacts strongly to sunlight exposure causing it to turn purple (Kendrick 1971:54).

EAST ATCHAFALAYA BASIN PROTECTION LEVEE: SECTION I, U.S. HIGHWAY 190 TO BAYOU BOEUF LOCK AT MORGAN CITY

This section of survey corridor follows the East Atchafalaya Basin Protection Levee from U.S. Highway 190 to the Bayou Boeuf Lock near Morgan City, Louisiana (Figures 1.4-1.5). It includes the Morgan City Floodwall and the segment of levee extending along the north side of Bayou Boeuf from the end of the floodwall to the lock. It extends for approximately 72 km. Seven sites are included in this section.

Bayou Sorrel Mounds (16IV4)

Description

This large, important site is located on the left descending bank of Bayou Sorrel in the little village of the same name. A borrow pit canal which represents the lower end of Little Bayou Pigeon borders the site on the west, and the East Atchafalaya Basin Protection Levee presently forms the approximate eastern limits of the site. The levee slope, in fact, overlaps the side of the easternmost mound. Before the drainage alteration in this locality, the site lay about 1000m upstream from the confluence of the Lower Grand River.

Two mounds are present at this location (Figure 9.1). One is conical with a relatively flat top having a basal diameter of about 35m and a height of 3.5-4.5m depending where the sighting is taken. A

now greatly filled-in ring borrow encircles the base of the mound, and about 25m west, southwest of the mound is a wet circular depression which probably represents another mound borrow pit (Figure 9.1). The eastern toe and slope (about halfway up) of the mound extends under the protection levee. The flattened summit of the mound is being used as a cemetery with the earliest observed headstone dating to 1882. When C.B. Moore visited the site in the winter of 1912-1913, he noted that the mound was 43m in diameter and 4.8m high (Moore 1913:13-15). He also observed that the mound had a rectangular platform connected to the northern side (Figure 9.1). This ramp-like affair was about 30m across where it was joined to the mound and broadened to a width of about 44m at the opposite end. It stretched away from the mound in an east by northeast direction and sloped from a height of 2.0m at the mound end to 1.7m. Moore did not record its length.

About 175m west by northwest from the conical structure is another mound, apparently unobserved by Moore. This mound lies along the bank of a borrow pit canal. It is a badly mutilated pyramidal truncate, measuring about 70m along its north-south axis, 60m east-west, and averages between 3.0 and 4.0m high. Its sides are scarified by erosion and by an access road and foot paths leading to the houses on its summit. Its top is undulating and pitted. Flanking the east side of this mound about 20m distant is a large oval shaped depression which probably furnished the fill dirt (Figure 9.1).

The area intervening between the mounds has been extensively modified by human activities since the 1880s. Several residences and outbuildings occur on the location. Roads connect them, and a major unpaved artery leads to a boat-landing on the borrow pit canal. A pipeline corridor, 30-40m wide lies between the two mounds. Gardens and other residential activities have further disturbed the site location.

Such extensive modification and "private" properties which negated access prevented confirmation of midden zones and determination of size, shape, and orientation of occupational areas. Several shovel and auger holes were dug in wooded sections of the site, outside residences, but despite being carried to depths of over 120cm, in some cases, no buried midden zones were discovered between the mounds or in the area west of the conical structure. No surface artifacts were observed except around

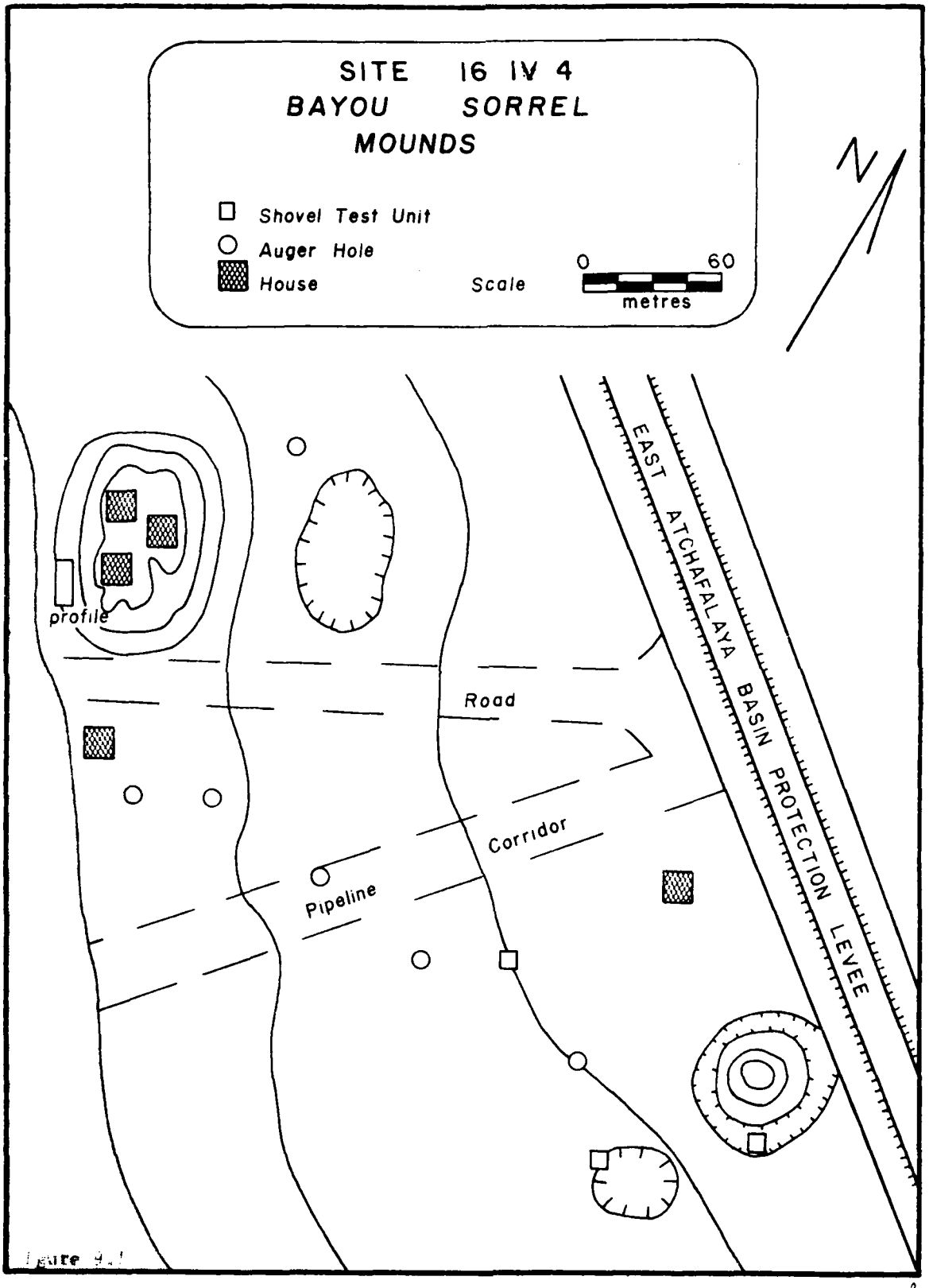


Figure 9.1. Bayou Sorrel Mounds.

the flanks of both mounds, so prehistoric occupational surfaces were undetectable by noting artifactual distribution.

The site area though now largely cleared bears a fringe of woods along the bayou and borrow pit canal, north and south of the mounds. Vegetation is dominated by mixed hardwoods (e.g., oaks, waterlocust, pecan, ash, elm) on the better drained spots and by willow, cypress, and privet in the depressions. Except for the mounds and borrow pits, ground elevations are about 1.5m above msl, and local relief is negligible. Surface soils are of the Fausse-Sharkey association (Spicer et al. 1977:16-17, Sheet 40). However, as Spicer et al. (1977:16) notes small irregular areas within this associational unit are comprised of Tunica clays and Commerce silt loams. These latter soils dominate the crest and slopes of the old natural levee on which the mounds are located. The Sharkey and Fausse clays fill the lower areas.

Previous Investigations

Bayou Sorrel has a lengthy history of archeological investigation. Beginning with C.B. Moore in 1912-1913, the site has been visited and/or reported by Kniffen (1938), McIntire (1958, visited in 1954), Phillips (1970), Weinstein and Burden (visit of June 1975), and Weinstein and Rivet (1978:122-123).

The only reported excavations are those conducted by Moore (1913: 13-15). Moore's digging was apparently confined to the ramp, or platform, connected to the northeastern side of the conical mound. Practically every hole produced human bones and midden refuse in a black dirt matrix. Midden debris consisted of mussel shells, ash, charcoal, fish and deer bones (and an otter penis bone), and an occasional potsherd. Judging by his brief description, Moore (1913:15) recovered one sherd of Larto Red and several of Pontchartrain Check Stamped. He also recovered several unidentified bone tools, a chert "knife," and three baked clay objects which can only be Poverty Point objects (Moore 1913: 15). These objects were apparently incidental inclusions in the soil used to construct the ramp, as Moore specifically states that none of the burials were accompanied offerings.

Human burials were scattered throughout the platform from one end to another and from depths ranging from 0.3m to 2.6m below the surface.

The deepest burial lay only 0.3m above the original ground surface. Individual grave pits were not discerned because of the homogeneity of the fill but were suspected because of the vertically varying points of origin of the burials and because of the discontinuities in the clay layers used to cover the burials (Moore 1913:14). Only two articulated skeletons were found; one was an extended, supine adult; the other, a tightly flexed adult lying on its left side. The remainder of the skeletal material was disarticulated and spread over extensive areas. Some large, continuous layers of crania and post-cranial elements, suggested occasional mass inhumations. Of a total of 268 crania recovered by Moore, only two were from infants and five from children. The others were adults.

Sixteen skulls (eight adult males and eight adult females) and some bones were sent to A. Hrdlicka of the U.S. National Museum. Hrdlicka (1913:95) estimated the age of this sample from 35 to 60 years. All of the skulls showed slight to extreme cranial deformation of the fronto-occipital kind (Hrdlicka 1913:95). His study indicated a robust, heavy-featured (though sexual dimorphism was pronounced) population with large cranial vaults ranging from broad-headedness to mesocephaly.

The skulls were remarkably free of pathologies; even dentition was excellent. Hrdlicka (1913:98) found only six caries in 401 teeth examined; these from only five different skulls. However excessive wear apparently promoted gum disease which in three or four examples had apparently evolved into pyorrhoea and bone absorption.

The post-cranial bones, which may have derived from only one or two individuals, were quite pathological, exhibiting an advanced state of a condition which Hrdlicka (1913:98) attributed to either tuberculosis or pronounced arthritis.

Kniffen's (1938:Figure 23) investigation at Bayou Sorrel produced a collection of 85 sherds which he classified as follows: Bayou Culter complex (94 percent of the sherds), Coles Creek (two percent), Deasonville (one percent), and unrelated (three percent).

McIntire's site visitation and subsequent reanalysis of Kniffen's collection prompted him to classify the site as a Troyville component (McIntire 1958:71). He acknowledged that Kniffen's Bayou Culter complex corresponded to the early part of the Coles Creek period as originally

defined by Ford in 1936 (Ford 1936b), and that with the subsequent creation of the Troyville culture period (cf. Ford 1951), the temporal assignment of Bayou Sorrel had to be necessarily shifted. McIntire's (1958:Plate 13) sherd counts only partly support this assignment: Pontchartrain Check Stamped (56.6 percent), French Fork Incised (12.8 percent), Plaquemine Brushed (6.4 percent), Larto Red (2.5 percent), and unclassified (21.7 percent). This assemblage minimally contains decorated types whose maximum popularities were reached after the Troyville period; i.e., Pontchartrain Check Stamped during the Coles Creek period and Plaquemine Brushed during the Plaquemine Period. This would seem to at least suggest the possibility that Bayou Sorrel may have been occupied during these later periods as well as during the Troyville span. However, in all fairness, it must be mentioned that McIntire was primarily interested in establishing the period of initial occupancy as a guide to dating landscape evolution; thus some (actually a majority) later sherds were inconsequential to his temporal assignment. Not only did McIntire's research objectives serve to cloud a rounded historical assessment of the site, but it should be pointed out that the post-Tchefuncte, pre-Plaquemine span in South Louisiana is historically, culturally, temporally, artifactually, and processually a very confused and totally unclear interval of prehistory at present.

Phillips' (1970) review of Bayou Sorrel in the context of his fine-scale, phase approach to bracketing small temporal and geographic archeological units was based on Kniffen's data and McIntire's reclassification. Phillips did not personally investigate the locality. According to Phillips (1970), Bayou Sorrel was evidently a long-occupied spot bearing Rabbit Island (Poverty Point), Lafayette (Tchefuncte), Bayou Culter (Coles Creek), and Medora (Plaquemine) components. Some of these phase attributions are based on slim and controversial criteria. The Rabbit Island identification stems from Moore's mention of three Poverty Point baked clay objects of unspecified shapes. Phillips has consistently neglected incontrovertible evidence that such objects continued into the Tchefuncte period. Acknowledgement of a possible Tchefuncte period occupation (Lafayette phase) was based on McIntire's inclusion of two Tammany Punctated sherds on some unidentified list of pottery types from the site which Phillips had perused. No Tammany Punctated sherds appeared

on McIntire's (1958:Plate 13) published chart. Phillips (1970) apparently chose to ignore McIntire's counts of Larto Red and French Fork Incised sherds in failing to include a Baytown (i.e., Troyville period, Whitehall phase) component at Bayou Sorrel; both types presumably reaching maximum popularities prior to or during the early spans of the South Louisiana Coles Creek period. Yet a Bayou Culter--Coles Creek--component was included (Phillips 1970), evidently because of the high incidence of Pontchartrain Check-Stamped, a type which may have a rather lengthy history of production in South Louisiana. The Medora assignment (Phillips 1970) seems relatively secure because of the Plaquemine Brushed sherds (cf. McIntire 1958:Plate 13).

Phillips' outline of culture history at Bayou Sorrel is impeccably logical and unquestionable if one adopts the premises underlying the cultural-historical integration approach (Willey and Phillips 1958) and its operational mechanism, the type-variety ceramic classification system (Phillips 1958, 1970). There are, however, two difficulties which render Phillips' characterization of Bayou Sorrel prehistory untenable. He organized all of Lower Mississippi Valley prehistory from the vantage point of the Yazoo Basin in western Mississippi, a region lying on the periphery of the main centers of intensive development and diffusion. And he assumed, incorrectly, that stylistic developments were identical and temporally coeval from the Yazoo Basin to the Gulf of Mexico. There is little doubt that coastal Louisiana, including the major part of the Atchafalaya Basin, traced a largely independent path and rate of cultural development from immediately conjoined inland areas, not to mention its considerably out-of-phase divergence from happenings in the Yazoo Basin.

Inspired by Phillips' mention of a Tchefuncte component at Bayou Sorrel (i.e., McIntire's two lost Tammany Punctated sherds), Weinstein and Rivet (1978:122-123) found and reexamined Kniffen's original pottery collection, housed in the Louisiana State University holdings. They confirmed the existence of the two Tchefuncte sherds (classified as variety Brittany) and additionally mentioned examples of early and late Marksville types, as well as late Baytown and early Coles Creek materials.

In this background of educated confusion, the present investigation transpired. Aims of the present study were considerably different from previous ones, though one was compatible--radiometric determination of

the age of the pre-mound midden, if present. In keeping with contractual obligations, our primary objective was to determine the extent and dimensions of the site in order to prevent adverse impact from the levee-raising project and to assess site significance in compliance with federal regulations. We also wished to produce novel and meaningful archeological information which could be used to enhance understanding of the apparently complex nature of the location and its relation to regional developments as a simple gain to knowledge and as a possible basis of recommending conversion of the location into a public educational and interpretative facility.

Stratigraphy

To accomplish the above objectives, numerous shovel and auger holes were dug in the area intervening between the mounds. Shovel holes were carried to depths of 80cm, auger holes to 120cm; neither means of subsurface testing revealed any indications of buried midden strata. Tens of probe-pushed holes failed to detect subsurface, shell-dominated strata. Convinced that midden zones buried beneath the present surface might be artifactually and/or lithologically undetectible in auger or probe excavations and perhaps unrecognizable in shovel tests, an excavation unit was dug on the southern toe of the conical mound in hopes of revealing a preserved area of pre-construction midden and its nature which would aid recognition elsewhere (Figure 9.1).

This test unit was a 60 by 60cm square excavated by shovel (unscreened) to a depth of 60cm and extended by barrel auger to a total depth of 160cm. The following stratigraphic sequence was revealed (Table 9.1, Figure 9.2).

TABLE 9.1 -- STRATIGRAPHIC PROFILE OF NORTH WALL OF EXCAVATION UNIT IN FLANK OF CONICAL MOUND AT BAYOU SORREL (161V4)

Stratum	Description	Depth (below surface)
A	Silty loam and humus; dark reddish brown; represents colluvial wash down mound slope; structure consists of fine laminae aligned with slope of mound surface; contained unclassified prehistoric potsherds.	0 to 20-30cm

TABLE 9.1, (continued)

Stratum	Description	Depth (below surface)
B	Sandy silt loam; dark reddish brown; considerable mottling ("loaded"); lense-like structure interrupted by potsherds and charcoal flecks; top contact abrupt and sharp, differentiated mainly by hardness or compactness; lower contact also sharp; represents undisturbed mound mantle resting on top of pre-construction midden.	20-30 to 80cm
C	Silty clay; dark brown to black; stratified structure; charcoal (wood and cane) interspersed throughout but at least three separate strata, or lenses, revealed; the upper one, lying between 80-84cm below surface; the middle one, 94-98cm below surface; and the lower, 108-110cm below surface; upper part of this stratum laden with burned pieces of clay, perhaps reflecting pre-mound surface preparation, i.e., burning of vegetation cover; becomes more clayey and less organically enriched (lacks charcoal) with increasing depth; charcoal strata, or lenses, run parallel to present ground surface rather than at angles elevated with the mound slope; three radiocarbon samples collected from the three charcoal layers; basal part of stratum carried to 160cm below surface without encountering another lithologically distinctive boundary.	80-160cm

This test excavation did apparently disclose the existence of a pre-construction occupational surface, or surfaces. While it is not entirely certain that the stratified upper portion of Stratum C represents the pre-construction ground surface or whether it represents initial mound-building episodes, the horizontal nature of the charcoal strata would seem to favor the former. Unfortunately, no artifacts were recovered from Stratum C which could have served to provide cultural historical identity to the lithological-cultural unit. If this does indeed represent a pre-mound, refuse-laden, depositional unit, it does not appear to have extended far outside the area of the conical mound. No similar stratum was detected in any of the test holes scattered throughout the vicinity.

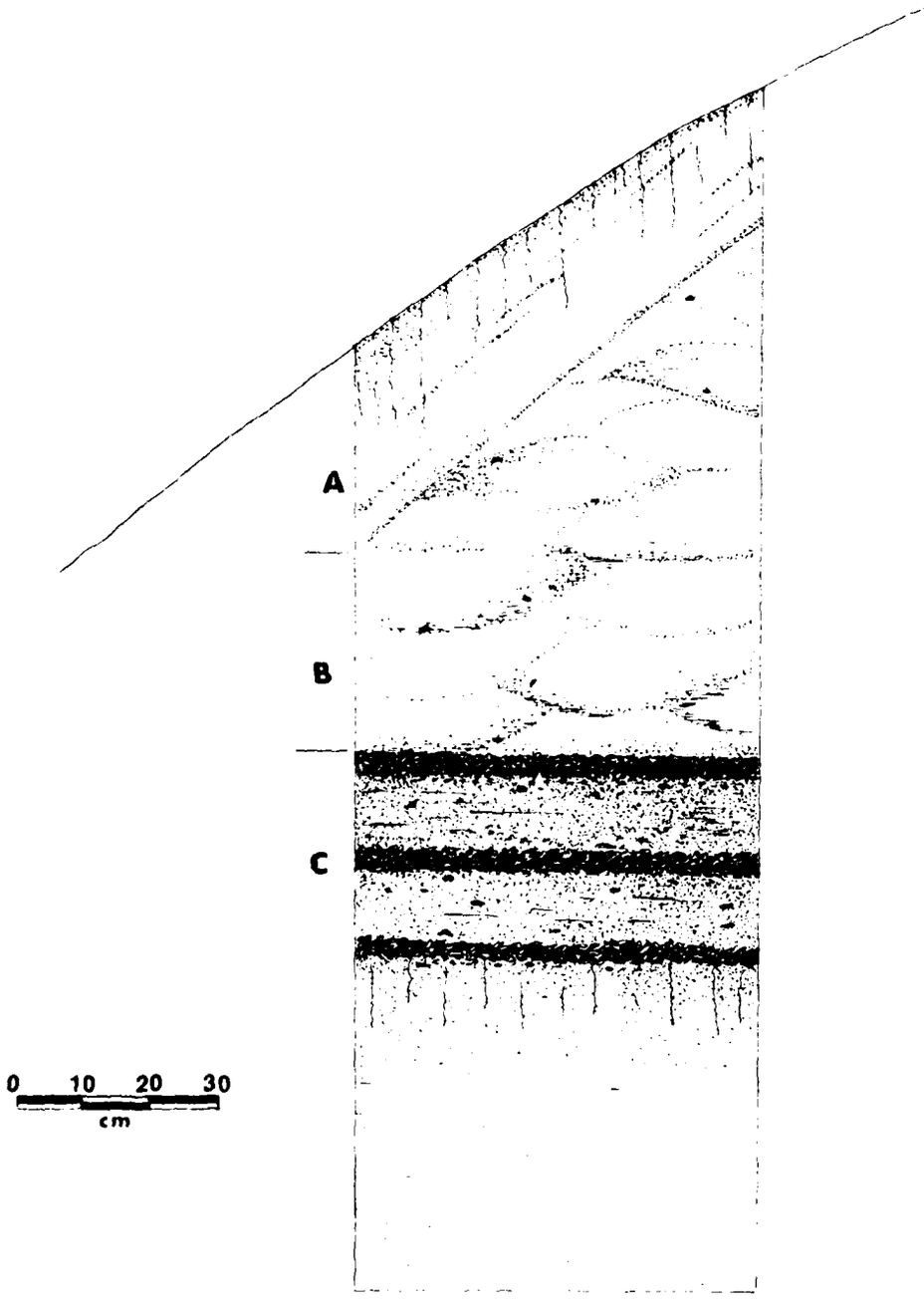


Figure 9.2. Stratigraphic Profile on Southern Toe of Conical Mound.

Another stratigraphic sequence was observed in and below the base of the rectangular truncated mound. Although neither holes nor profiles were physically prepared (the location is in private residence), a weathered, natural stratigraphic profile was recorded (Table 9.2, Figure 9.3).

TABLE 9.2 -- STRATIGRAPHIC PROFILE OF WEST SIDE OF TRUNCATED PYRAMIDAL MOUND AND ADJOINING BARROW CANAL BANK AT BAYOU SORREL

Stratum	Description	Depth (below surface)
A	Silty clay, gray to black; internal structure unspecified despite the fact that this unit represents mound fill and probably exhibits a loaded, lensatic structure; weathers into regular, silt-coated polygons; soil represents a Sharkey or Fausse clay taken from the borrow pit which flanks the mound to the east.	0-300-400cm
B	Sand, fine; white to tan; appears to have massive structure but considerably weathered surface prevented fine structural observations; a few potsherds were observed eroding from the upper few centimeters of this stratum; evidently represents the top soil stratum; i.e., original pre-construction, land surface, pre-dating mound construction; potsherds suggest it supported occupational activities prior to mound-construction; stratum forms a "bench" which sticks out from under mound base and also represents modern ground surface; contact with stratum A, abrupt and unconformable; lower contact also abrupt and unconformable.	300-400 to 475cm
C	Clayey silt; reddish-brown; highly oxidized with upper section representing a well-developed A-horizon paleosol; no artifacts observed; probably represents an initial growth phase of a natural levee; bottom contact gradational and conformable.	475 to 565-585cm
D	Silty clay; dark reddish-brown (wet), reddish-brown (dry); structure undetermined; contains blue and bluish-gray clay lenses and mottling; very hard and well-indurated and forms ledge along eroded bankline; culturally sterile; bottom contact unobserved, below present water level in borrow pit canal; probably represents initial accretional stage of natural levee in this location; limits of observation terminated by water level.	565-585 to 685cm

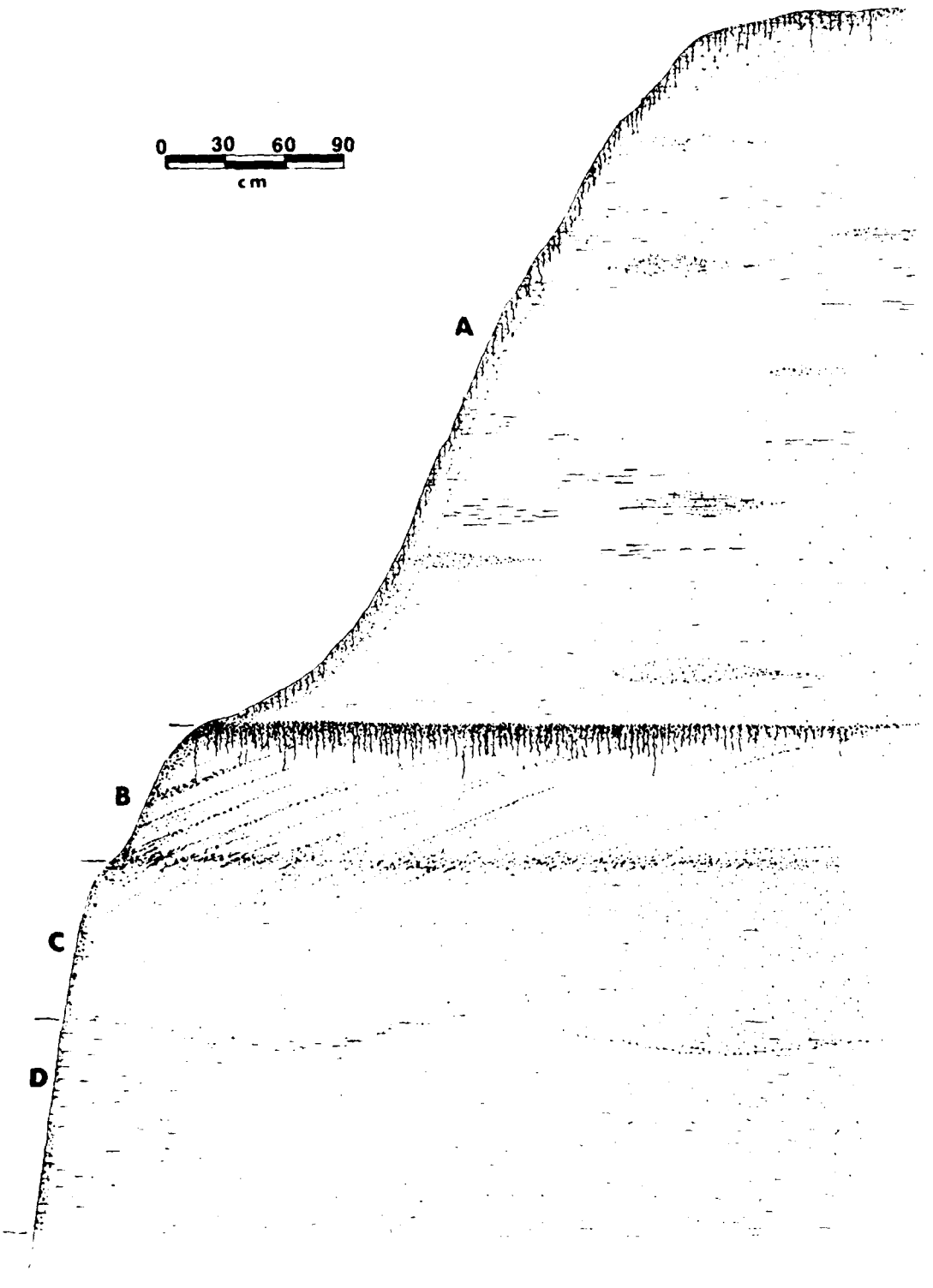


Figure 9.3. Stratigraphic Profile of Truncated Mound and Bayou Bank.

Artifacts and Ecofacts

Previously recovered artifacts and biotic remains obtained and studied during previous investigations have been summarized above. The very limited collection of materials secured during the present visits to the site are incapsulated below.

Eleven potsherds were retrieved; nine from the excavation unit at the toe of the conical mound and two plain body fragments from the western flank of the eroded rectangular structure.

Because of the small size of the present sample, no effort has been expended to categorize plain wares. Only one of the sherds bore a decoration; the remaining 10 were from undecorated vessels, or portions thereof. Colors, core and surfaces, ranged from black to dark brown, indicative of firing under reducing conditions and/or smudging. No visible aplastics were present, other than grit, a possible natural inclusion in the clays chosen for use. Surfaces were smoothed but were unwashed and unfloated. Smoothing marks, scraping produced by an unresilient tool, scarified both interior and exterior surfaces.

Three of the undecorated sherds were rim fragments. All were unthickened and direct (not out-curving or in-curving), but lip profiles were completely different. One was from a thin-walled, straight-sided pot, bearing a horizontally flattened lip and measuring about 26cm in orifice diameter. Another exhibited a dihedrally-beveled lip with the exterior angle steeper and shorter than the interior one, producing an elevated lip crest closer to the outside edge of the vessel. The third rim sherd bore a horizontally flattened, slightly expanded lip profile. It was broken from a vessel measuring about 40cm in mouth diameter.

The only decorated sherd was unhesitatingly typed as French Fork Incised, var. Brasher (Weinstein et al. 1978:28). The lines that comprise the zonal hatching are overhanging in the classic Coles Creek Incised mode.

Faunal remains in the present collection consist of a solitary midshaft section of a cow humerus, sawed across both ends. It was derived from a thick shoulder steak or roast.

Discussion and Interpretations

Bayou Sorrel presents an interesting set of archeological problems

and given the present state of knowledge very few solutions.

Afixing the cultural historical span or periods of occupation is difficult to say the least. The difficulties are exaggerated by the culture period-phase scheme imposed and the adherence to the index type or "type fossil" method used determine historic unit membership. Specific problems in outlining the culture history of Bayou Sorrel have been pointed out in a preceding section. All that can be said at present is that Indians occupied the location possibly as early as the second half of the first pre-Christian millennium and possibly as late as the first few centuries of the second Christian millennium. Whether occupation was continuous or interrupted must be determined by future research.

The age, or span, of mound construction is impossible to determine precisely. It is apparent that the mounds were built after a period of occupation which resulted in the accumulation of an organically enriched midden. The best hints as to the timing of construction depends on Moore's (1913:15) mention of a probable Larto Red and several Pontchartrain Check Stamped sherds in the fill used to build the ramp attached to the conical mound. Whether the sherds were discarded during the time of the building-burial activities or whether they were already old and simply incorporated in the borrowed fill cannot be ascertained, but their inclusion allows us to put a maximum relative Bayou Culter age (Early Coles Creek or Late Troyville period) on platform construction. Unfortunately, such a cultural age cannot be identified chronologically except to within the five or so centuries during the middle of the first Christian millennium. It should be emphasized that this is simply the oldest possible age of construction; it could have transpired any time within the following five or ten centuries.

An interesting result of Moore's (1913) and Hrdlicka's (1913) studies was the conclusion that reburial was practiced at Bayou Sorrel. Two of the skulls excavated by Moore were filled with clay of a distinctive origin from that of the platform fill (Moore 1913:14). Hrdlicka's (1913:95) osteometric observations also favored reinterment because of the variable colors of the bones. Drawing from Swanton's (1911) description of Chitimachan burial practices, Moore concluded, probably accurately, that the Bayou Sorrel inhabitants followed a similar funeral system. Swanton's (1911:350) information, lifted from Gatschet (1883:8) is quoted:

> One year after the death of a head chief, or any of the village war chiefs, of whom there were four or five, their bones were dug up by a certain class of ministrants called "turkey-buzzard men" (osh ha tchna), the remaining flesh separated, the bones wrapped in a new and checkered mat, and brought to that lodge /i.e., the "bone house," writer's note/. The inhumation of these bones took place just before the beginning of the kut-naha worshipping ceremony or dance. The people assembled there, walked six times around a blazing fire, after which time the bones were placed in a mound. The widow and the male orphans of the deceased chief had to take part in the ceremonial dance. The burial of the common people was effected in the same way, one year after death; but the inhumation of the bones took place at the village where they had died.

Each village had one of these "bone houses" (Swanton 1911:350). It is not certain whether these charnel houses were always associated with a mound, and Gatschet's (1883) information seems to imply that mound burial may have been reserved for civil and military principals. Although comprehensive information on the Bayou Sorrel burial population is lacking, Moore did note that only seven of the 268 crania (2.6 percent) recovered were from children or infants, giving the Bayou Sorrel cemetery an overwhelming adult composition. The adult-dominated burial population may reflect a strong age criterion before achieving and entering civil and military leadership roles, regardless of rank, clan, and/or moiety birthrights. Interestingly, both males and females were interred at Bayou Sorrel, although the proportion of each was not disclosed (Moore, however, did ship Hrdlicka an equal number of male and female crania, if this has any projective meaning). Rank positions were open to both males and females, and the hierarchical system of ranks (statuses) was protected by a strict system of preferred endogamous marriages (Swanton 1911:348-349), which made social ranks virtual castes. Although not clearly specified in the case of rank position, it is probable that social standing was inherited through the matriline, as certainly was clan membership (Swanton 1911:349). There are clear ethnohistoric examples of females succeeding to chiefly offices, perhaps even to the office of paramount chief (cf. Swanton 1911:349). However, these seem to have been wives of deceased chiefs, not daughters, as the normal line of inheritance passed from father to son. Thus the presence of females alongside males in the Bayou Sorrel cemetery is not at all surprising and certainly conforms to expectations

under the existent social organization.

What remains unclear from Moore's data and the general ethnological description of Chitimachan funerals is the nature of the Bayou Sorrel cemetery. Was it a centralized place reserved for chiefs? Was it simply a village-specific cemetery for commoners? Did it function as both a cemetery and a temporary charnel depository from which bodies of chiefs and commoners alike were exhumed and carried to other final burial locations? These are some questions that simply cannot be answered with the data at hand.

It does seem quite certain that some of the burials at Bayou Sorrel were buried there after initial interment elsewhere. The jumbled mass of disarticulated bones (only two articulated skeletons found in the entire cemetery) also suggests relocation and/or considerable disturbances resulting from continual inhumation and exhumation activities. Perhaps a key to unraveling a more detailed picture of the Bayou Sorrel burial program may reside in the sealed contents of the conical mound, which, except for the modern white cemetery on the summit, seems to be in a well preserved condition.

The application of the Chitimachan burial program analogy to the Bayou Sorrel site seems justified not only on formal comparative grounds but because of the fact that Bayou Sorrel and vicinity lay in the midst of Chitimacha territory as known during the colonial and American periods. Gatschet (1883:343-344) secured the location of several Chitimacha villages on Bayou Plaquemine and Grand River which were presumably in existence as of 1700. Furthermore, a recent study of Chitimacha village locations in connection with a land claims case definitely establishes two Chitimacha villages on Bayou Plaquemine and Bayou Jacques between 1792 and 1863 (Gibson 1980a). The Plaquemine village was located only 10.6km northeast of the Bayou Sorrel site, up the Lower Grand River and Bayou Plaquemine from the former's junction with Bayou Sorrel near the mounds.

Sand Drain (Y16IB-F)

Description

This location consists of a redeposited accumulation of Rangia and Corbicula shells and clay lying on the berm of the East Atchafalaya Basin

Protection Levee along the left descending bank of the Port Allen-Morgan City Intracoastal Canal.

The accumulation followed the canal for a taped distance of 815m and averaged 17m wide from the canal bank to the outer limits of scattered shells. The deposit reached maximum depths of 35cm below the surface. The distribution of surface shells, while continuous or nearly so throughout the entire length of the "site," was characterized by discrete scatters of Rangia separated and overlapped by concentrations of the Asian Corbiculla clam. As stratigraphic testing would eventually show, this peculiar distribution was produced by dredging.

The limits of the accumulation were identified by regularized probing and shovel test holes, as well as by observing the extent of scattered shells. A 1.0 by 1.0m square excavation unit was dug near the midpoint of the accumulation and a 3.0m long profile was shaved along the face of a sand drain (Figure 9.4), which bisected the deposit perpendicularly near the northern end. None of the subsurface tests were screened.

Stratigraphy

A profile of the east wall of the excavation unit is shown in Figure 9.5. The lithology is described in Table 9.3.

TABLE 9.3. -- STRATIGRAPHY IN EXCAVATION UNIT AT SAND DRAIN

Stratum	Description	Depth (below surface)
A	Shell (Rangia and Corbiculla), whole and broken, set in shell dust; bottom contact unconformable.	0-5cm
B	Clay; glee-colored; massive structure; penetrated by roots and rootlets in upper part; no shells; top contact with base of shell pavement (Stratum A) probably represents ground surface after dredging; bottom contact sharp and unconformable.	5-20cm
C	Clay-shell; glee-colored; clay forms matrix into which shells and shell fragments are set; shells are both Rangia and Corbiculla;	



Figure 9.4. View of Sand Drain (Y161B-E) Looking East.

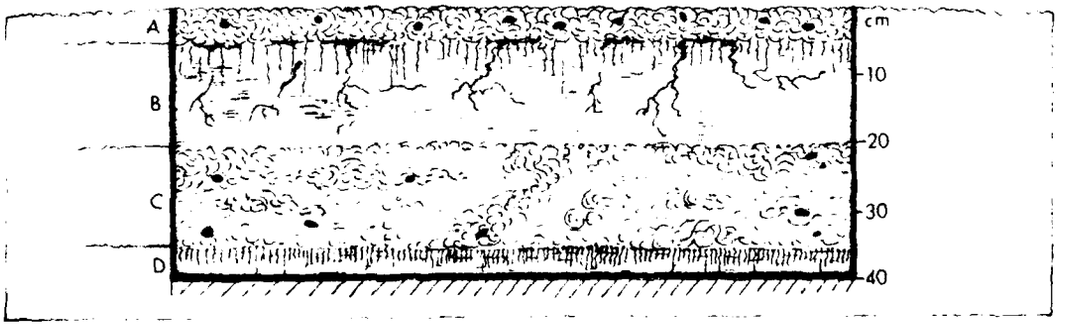


Figure 9.5. Stratigraphic Profile of North Wall of Excavation Unit.

TABLE 9.3, (continued)

Stratum	Description	Depth (below surface)
	bottom contact sharp and possibly unconformable.	20-35cm
D	Clay; glee-colored; massive; some black and red mottles; no shells; bottom contact not observed.	35-40+cm

When the detailed stratigraphic column in the excavation unit is added to that from the excavated profile and the numerous shovel test units, it is apparent that the surfacial sediments (ground surface to 60cm) represent dredged materials associated with the construction of the Intracoastal Canal or the protection levee or both. There is no continuous stratification such as suggested in the excavation unit (Table 9.3). Clays and shells occur in large pocket-like features with boundaries which are sharp and tend to facilitate cracking and silt coating, i.e., large loading features. Further evidence of artifactual loading--dredge deposition--is found in the mottling, the mixed occurrence of Rangia and Corbiculla throughout the deposit, and the discovery in one of the shovel test units of a 10-Penny galvanized nail at a depth of 32cm below the surface. Corbiculla are native Asiatic clams introduced into this country during the 1930s. Their presence in the buried shell zones (Table 9.3) indicates the recency of the deposition, a point corroborated by the modern nail.

Artifacts and Ecofacts

A single plain prehistoric potsherd was recovered from the surface. It is a rim from a deep, straight-sided jar measuring about 40cm across the mouth. The rim is slightly out-turned, and the lip is irregularly flattened producing a weak interior bevel. The rim is thickened, not by the addition of an extra strap of clay, but by an expanded terminal wall coil. The thickening produced a rounded bulge on the exterior. The thickened rim measures 9.0mm at its widest part while the vessel wall below this coil measures only 4.0mm in thickness.

The fabric is smooth but gritty. The core is black (reduced), and the exterior surfaces are dark brown. Surface colors seem to be confined to a thin surface integument, probably a wet wash or perhaps a slip.

The sherd is not culturally or temporally diagnotic, although the suggested vessel form is similar to Early Coles Creek vessels from Belle River Landing (16IB6?).

Faunal remains, other than Rangia and Corbiculla clams, included three plastron fragments from unidentified turtles and a cow metatarsal bone.

Interpretations

All evidences point to the probability that Y16IB-F is a product of recent dredging and not an in situ locus of prehistoric human activity. It seems probable that materials from an archeological site, perhaps associated with one of the fingers of Bayou Forche or possibly with Little Goddel Bayou, were excavated by the dredges during construction of the protection levee. It is unlikely that the old midden materials were transported very far, since fill is usually exhumed and dropped within the turning radius of the barge-mounted dredge boom. The redeposited midden material probably parallels its original location, which must now be in the channel of the Port Allen-Morgan City Intracoastal Canal.

Little Goddel Intracoastal (Y16IB-E)

The Little Goddel Intracoastal site lies on the levee berm of the East Atchafalaya Basin Protection Levee and along the left descending bank of the Port Allen-Morgan City Intracoastal Canal, about 400m downstream from the Sand Drain site (Y16IB-F).

The Rangia-Corbiculla-clay accumulation stretched for 700m along the canal bank. It averaged 15m wide and extended to depths ranging between 15 and 40cm below the surface. Its location on the levee berm, where flanked by an excavated canal, means that the natural environment has been completely altered from its natural condition, a situation which was also discovered to hold true for the "site" itself.

Regularized probing and shovel testing (approximately 50m intervals) was employed to determine extent, stratigraphy, and nature of the accumu-

lation. In addition, a 1.0 by 1.0m square excavation unit was dug in an area near the middle of the "site" where shells were thickest. The entire area was found to be churned and disturbed--deposits of dredged material. Mottling, discontinuous shell lenses, mixing of rangia and corbiculla at all depths, and the discovery of a polished aluminum bar at a depth of 40cm below the surface in the excavation unit, all evidence "site" genesis through dredging.

Like Sand Drain, the Little Goddel Intracoastal location represents mechanized redeposition of midden materials from a now destroyed site which lay in the path of the canal.

Artifacts and Ecofacts

Two prehistoric potsherds were found amid the scattered pavement of loose rangia and corbiculla shells. One is a nondescript body sherd, containing grog pellets in the fabric and exhibiting a foliated paste texture. The other sherd is an example of Indian Bay Stamped, var. Indian Bay that conforms precisely to the published type description (Phillips, Ford, and Griffin 1951:88-90; Phillips 1970:91).

Another baked clay artifact was an amorphous lump with two somewhat flattened faces, perhaps a piece of a fire pit lining.

Faunal remains, other than the ubiquitous rangia and corbiculla shells, were limited, in the recovered sample to one unidentified turtle plastron fragment and two fragmentary portions of the gill covers of large fish.

Interpretation

There is little to add to what has already been said about Little Goddel Intracoastal in the descriptive section. It is not an archeological site but rather a redeposited mass of shell and a few artifacts dredged from a now destroyed archeological site which once lay where the intracoastal canal channel now runs.

Belle River Landing (16SM6?)

Description

In the rangia shells used to pave the public boat landing in the

modern village of Belle River are quantities of prehistoric artifacts and other ecofacts. The landing is located on the left descending bank of the Port-Allen-Morgan City Intracoastal Canal and along the western berm of the East Atchafalaya Protection Levee.

The midden materials cover the boat landing and parking area, forming a pavement 40m long, 10m wide, and 2.0-5.0cm thick. Although no subsurface testing was done because of the nondesirability of digging holes in such a heavily used facility, ample opportunities to observe the stratigraphy at the location were afforded by numerous erosional gullies and the fresh bankline profile along the canal. The shell pavement rests unconformably on an highly organic (peaty), blue-black backswamp clay, completely devoid of cultural materials. The clay is more than 40cm thick in the deepest profiles observed.

Both stratigraphy and discussions with residents indicate that the shells (and contained artifacts and other ecofacts) were transported to the location from an unknown source and used to pave the parking and launching area at the facility. Thus the midden materials at Belle River Landing did not accumulate there, and the location does not represent a location of prehistoric activities. The "site" is simply a product of recent construction.

Although no leads as to the source of this midden residue were provided by local residents, there are (or were) three nearby shell middens, any one or all of which might have furnished the materials. A site, 16AS4, reported by Kniffen (1937) is shown on file maps maintained by the Louisiana Division of Archaeology and Historic Preservation on the right descending bank of Belle River about 1.0km northwest of the landing. This site, however, was not relocated during the Louisiana State University survey (Neuman and Servello 1976) nor during the present one, and no helpful information is provided on the state site form. The location shown on file maps was inspected without results, except for the observation that the area has been used as construction borrow. Another site, recorded in state and Louisiana State University files, 16SM14, is shown at a spot about .64km north of Belle River Landing on the left descending bank of the Port Allen-Morgan City Canal. The site was reported by William McIntire in August 1952 but could not be found by the Louisiana State University survey team (Neuman and Servello 1976). The supposed location of the site was also thoroughly scrutinized during

the present survey without success. The area has now been thoroughly disturbed by recent dredging and levee construction, on-going at the time of the present survey, and any chance of relocating the site (if indeed it was correctly plotted) is now gone. The final site, the well-known Miller Place (16SM6), is shown on file maps at a location which seems to correspond to Belle River Landing. This would seem to have been the most logical source of the boat landing material (and is so implied by the use of the same catalog number, followed notably by a question mark). While the Miller site is well known and has been the scene of repeated investigations over the years (e.g., Moore in 1912-1913; Kniffen, Doran, and Beecher in 1937, Doran in 1940, Neitzel in 1940, and McIntire in 1952), it embarrassingly escaped detection by both the Louisiana State University survey in 1974-1976 (Frank Servello, personal communication, 1980) and the present survey.

In spite of the fact that the exposure of midden material at Belle River Landing does not constitute an archeological site in the sense of being a location where cultural residues accumulated at the scene of previous human activities, it does provide some useful archeological information. Artifacts collected from the landing are described below.

Artifacts from Belle River Landing

Pottery.

A total of 187 prehistoric potsherds was retrieved from Belle River Landing. Of these 125 were plain and 34 were decorated (Table 9.4).

Four distinctive ware classes were recognized in the Belle River Landing collection. These classes were separated by dint of firing differences which produced distinctive surface color combinations. This breakdown has absolutely no chronological or cultural implications but is simply recognition of rather clear-cut differences in the ceramics. As a matter of fact, the decorated sherds, which occur on all the ware classes, probably represent a short temporal span during the Early Coles Creek (or Late Troyville) culture period.

Ware A.

In this grouping are sherds exhibiting uniformly dark colors

TABLE 9.4. ARTIFACTS FROM BELLE RIVER LANDING

Type	Number
POTTERY	
Plain:	
body	125
bases	13
rims	15
Decorated:	
Pontchartrain Check Stamped, var. Pontchartrain	12
Pontchartrain Check Stamped, var. Tiger Island	1
Pontchartrain Check Stamped, var. Shellhill	1
French Fork Incised, var. Brasher	4
French Fork Incised rim treatments	3
Mazique Incised, var. Bruly	1
Evansville Punctated, var. Evansville	1
Evansville Punctated, var. Rhinehart	1
Alligator Incised, var. Alligator	1
Larto Red, var. Larto	1
Coles Creek Incised, var. Lone Oak	1
unclassified incised (single line)	4
unclassified incised (broad shallow lines)	1
unclassified incised	1
unclassified drag and jab incised	1
HISTORIC	
Earthenware:	
Red ware, lead glaze	1
Glass:	
Clear	1
BONE	
Projectile point, deer cannon bone	1

(black, dark gray, dark brown) throughout, [illegible] surfaces through core. Aplastic inclusions in the fabric include grit, grog (crushed potsherds), and ground shell (four sherds only). Fabric is dense and relatively uniform and with the exception of a few foliated examples is predominantly structureless. While exterior surfaces are inconsistently smoothed, neither wet washes nor slips seem to have been applied and floating was not done. Wall thicknesses in Ware A range from 3.5 to 10mm. Ten "grabbed" specimens provided the following descriptive statistical characterization: thickness mean, 6.0mm; thickness median, 6.0mm; thickness mode,

6.0mm. A total of 39 sherds are included in Ware A.

Ware B.

Ware B is composed of those sherds with dark (black, dark gray, dark brown) exterior surfaces and light (buff, orange, reddish brown) interior surfaces. Core colors vary between the two extremes. Grog and grit are included in the fabric. Paste is foliated to contorted. Ware B bears integuments on both surfaces, produced by slipping, wet washing, or floating. Wall thicknesses range from 4.0 to 8.0mm. Fifteen measured sherds produced the following thickness statistics: mean, 6.4mm; mode, 7.0mm; median, 7.0mm. Ware B sherds numbered 15.

Ware C.

All sherds with light exterior surfaces (orange to buff) and dark interior surfaces (black to grayish-brown) are grouped into Ware C. Fabric inclusions consist of grit and grog (and one sherd has shell fragments). Paste is smooth, contorted, and/or foliated. Slips, washes, or floats have been applied or prepared on walls, and a few sherds show surface cracking and sluffing. Wall thicknesses range between 5.0 and 7.0mm; ten randomly selected sherds provided the following statistical standards: mean, 5.7mm; mode, 5.0mm; median, 5.0mm. Ware C is the dominant class, numbering 49 examples.

Ware D.

Ware D is characterized by uniformly light surface colors, which range from orange to buff. Grog and grit provide aplastics. Cores are variably smooth, contorted, or foliated, and most are reduced (i.e., darker than surfaces). Wall surfaces have integuments (slips, washes, floats) which tend to crack and sluff. Thickness ranges from 2.0 to 8.0mm; averages (based on 10 randomly chosen sherds), 5.6mm. Half the 37 total sherds in this class measure 6.0mm thick or less, and the most frequently recurring thickness is 6.0mm.

Other Observations.

A total of 13 vessel bases was numbered among the 125 plain sherds; four were flat and round, two were flat and square, and the remaining seven were flat and of indeterminate shape.

A total of 15 plain rims was included in the Belle River Landing Collection. Rim styles were quite variable and included thickened (eight sherds), thinned (six sherds), and unmodified (one sherd) forms. Rim profiles are illustrated in Figure 9.6a-n.

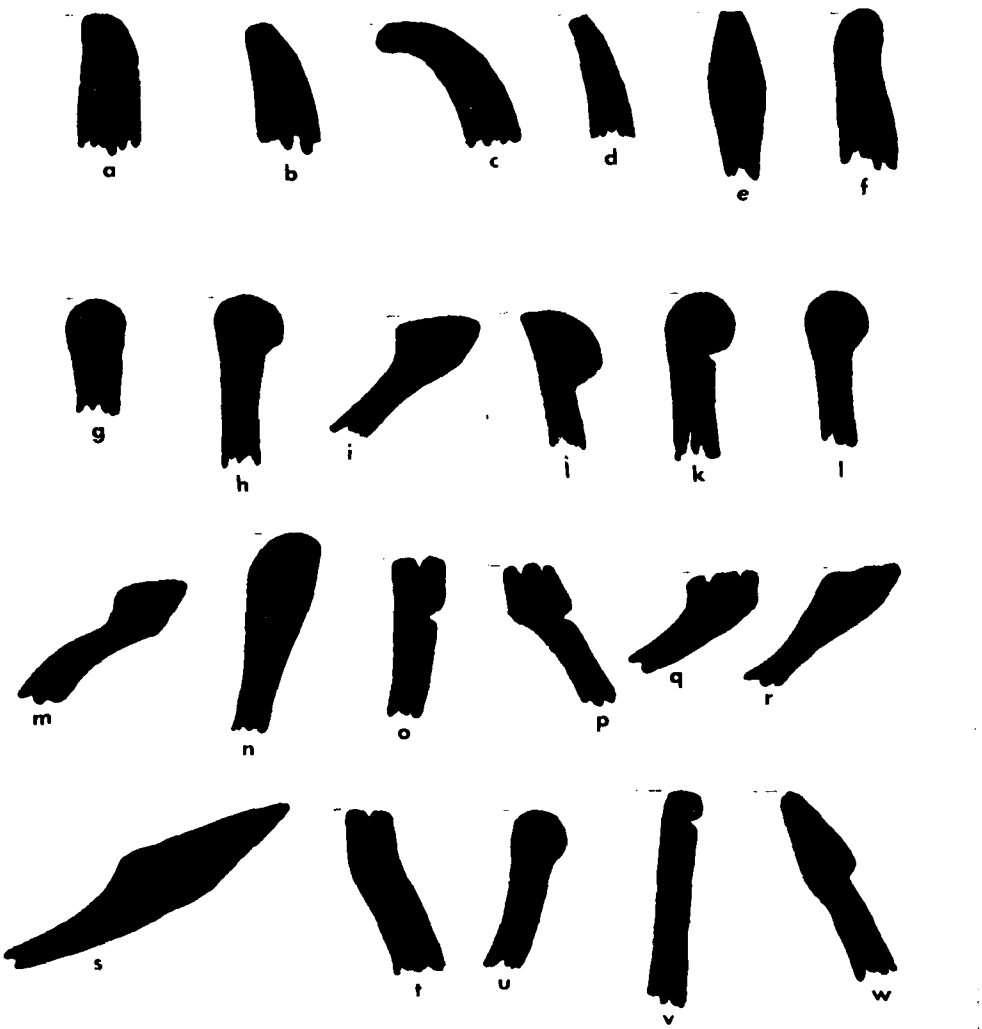


Figure 9.6. Rim Profiles from Belle River Landing (inside of vessel to left): a-n, Plain; o, Unclassified Drag and Jab Incised; p, Coles Creek Incised, var. Lone Oak; q-s, French Fork Rim Mode; t-u, French Fork Incised; v, Alligator Incised, var. Alligator; w, Pontchartrain Check Stamped, var. Pontchartrain.

Although unable to calculate vessel capacities, 10 fairly large rim sherds were measured for orifice diameters. Vessel mouth diameters ranged from 20 to 36cm and averaged 29.4cm. The most frequently occurring opening was 30cm in diameter, but the measured series broke down thusly: 20cm (one sherd), 28cm (three sherds), 30cm (four sherds), 34cm (one sherd), and 36cm (one sherd).

Composite reconstructions of vessel forms based on rim and base qualities and body sherd curvature suggest that the straight-sided deep jar was the most popular form, although globular and flaring-sided pots were present. In addition, at least one sherd seems to have derived from a shallow bowl, and another represents a tecomate, a neckless, globular jar.

Decorated Pottery.

Nine decorated types of several varieties and four unclassified designs were included in the Belle River collection (Table 9.4). Where deviations from published type descriptions occur, they will be noted; otherwise, the design may be presumed to fall within the range allowed in the type description.

Pontchartrain Check Stamped. 14 sherds (Figure 9.7); one attributed to the Tiger Island variety (Weinstein et al. 1978), 12 to var. Pontchartrain, and one to var. Shellhill (Duhe 1979). These varieties are mainly separated on the basis of the size of individual impressions in this check-stamped design, a questionable criterion of dubious and undemonstrated importance. Only Tiger Island (Weinstein et al. 1978) employs another sorting criterion--check-stamped zones separated by plain lands. In the Belle River collection, the classificatory artifice used in variety recognition is complicated because the size ranges of impressions and the shapes (rectangular to square) run through relatively smooth clines and do not peak or break out abruptly. Separation into varieties is possible only because previous authors have set arbitrary limits on sizes and shapes of individual punctations.

One of the Pontchartrain sherds is a collared rim from a globular pot or deep, rounded bowl with a mouth measuring 20cm in diameter (Figure 9.6w).

French Fork Incised. Four sherds (Figure 9.7); all attributed to

the Brasher variety defined by Weinstein et al. (1978:28). All of the sherds generally conform to the published description, i.e., curvilinear incised lines containing punctations (often of the drag and jab mode) enclosing zones filled with parallel incised lines. There are, however, two minor deviations in the Belle River sherds. On one sherd, there is no separate enclosing border around the hatched zone; triangular punctations made at the opposing ends of the hatching lines form the zonal border. On another sherd, there is a faint, barely visible, fine incision used to trace the border, but the dominant zonal outline is made by accentuated triangular punctations made at the ends of each of the stippling lines.

Two of the sherds are rims, one bearing a single incised line in the flattened lip is from a collared bowl with an orifice, 20cm in diameter (Figure 9.6t); the other derives from a deep, globular bowl measuring 24cm across the mouth (Figure 9.6u).

French Fork Rim Mode. For completely vague reasons in traditional ceramic classification in the Lower Mississippi Valley, decorations confined to the area around the rim (either on the lip or extending only a short distance down the exterior vessel surface) have not been generally placed into recognized historical types. There seems to be little defensible logic in this practice because, in cases like the French Fork rim mode, the only difference lies in where the clearly recognizable design is placed. Admittedly some adaptation of motif may be necessary to fit the confined vessel lip or upper rim panel, but, in most cases, the design elements themselves (i.e., attributes or combinations of attributes--modes) are unchanged. However, the desire to follow standard classification systems in this report means that however illogical, the three sherds bearing French Fork designs on rim lips are placed in a separate category from "real" French Fork types.

One sherd illustrates two drag and jab (rectangular indentations) incisions in the flat lip (Figure 9.7) of a shallow bowl with an outside mouth diameter of 30cm. Another sherd is from a similar but smaller (18cm in outside mouth diameter) vessel, but the design consists of two parallel rows of narrow triangular punctations which point toward the interior of the vessel (Figure 9.7). The last sherd is the basal part of a large rim lug (with the apex missing) which bears an

expanding panel of curving linear punctated lines (Figure 9.7). The punctates are lunate-shaped. This sherd, too, is broken from a shallow, but large, bowl. Rim profiles of these sherds are depicted in Figure 9.6q-s.

Larto Red, var. Larto. One sherd. This piece bearing a brownish-red paint, or wash, on both surfaces conforms to Phillips' (1970:99-100) revised type description.

Evansville Punctated, var. Evansville. One sherd (Figure 9.7). This random, fingernail punctated sherd conforms to Phillips' (1970: 78-79) revised type description.

Evansville Punctated, var. Rhinehart. One sherd (Figure 9.7). The entire motif on this sherd is not apparent, but its elements consist of paralleling lines of linear punctates (triangular impressions) parallel to the rim. The midpoints of these lines are 6.0-7.0mm apart. The rim bears a rounded lip and derives from a straight-walled jar with a mouth opening, 20cm across.

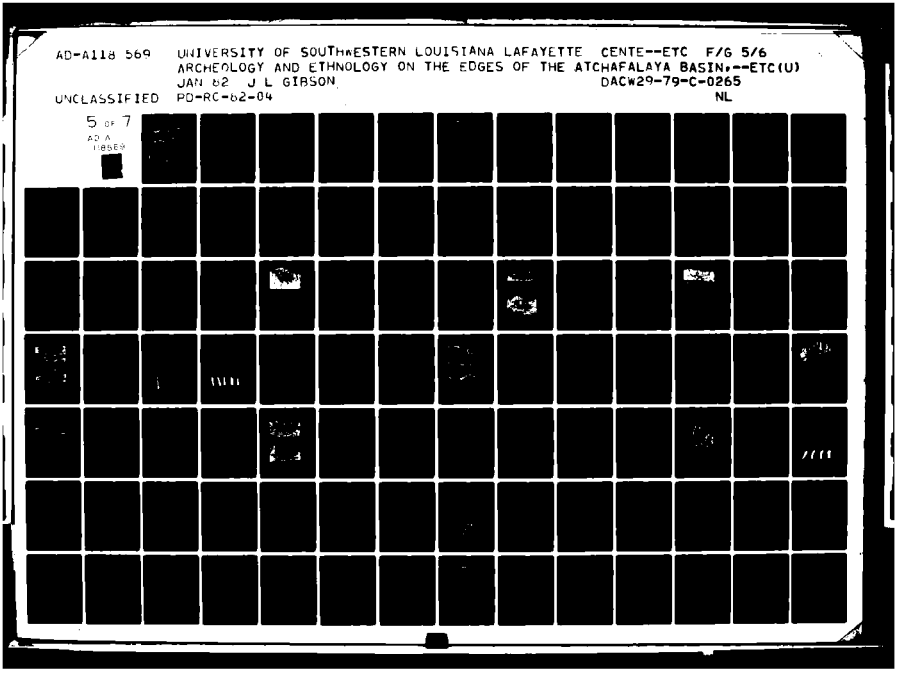
Mazique Incised, var. Bruly. One sherd (Figure 9.7). The major differences between the type description of Weinstein et al.(1978:28) and this specimen is that the accentuated punctations which terminate the lines that make up the motif are both simple incisions and drag and jab incisions. Additionally free triangular punctates are placed between lines.

Alligator Incised, var. Alligator. One sherd (Figure 9.7). Conforms to Phillips' (1970:38-39) revised type description. This sherd is a rim, which represents a simple termination of the vessel wall with a direct and flattened lip (Figure 9.6v). The vessel which produced this sherd was a straight-sided, deep jar with an outside mouth diameter of 26cm.

Coles Creek Incised, var. Lone Oak. One sherd (Figure 9.7). This sherd varies somewhat from the type description (Wiseman et al. 1979: 7-6--7-8, Figure 7-3) because the encircling lines below and paralleling the lip are not simply dotted by punctates at narrow or wide intervals but are actually drag and jab incisions (i.e., about as closely spaced as punctates can be without forming a plain incision). These multiple lines are spaced 4.0-6.0mm apart. The flattened top of the rim lip bears two additional drag and jab lines. The sherd is broken from a globular pot with an orifice diameter of [illegible]

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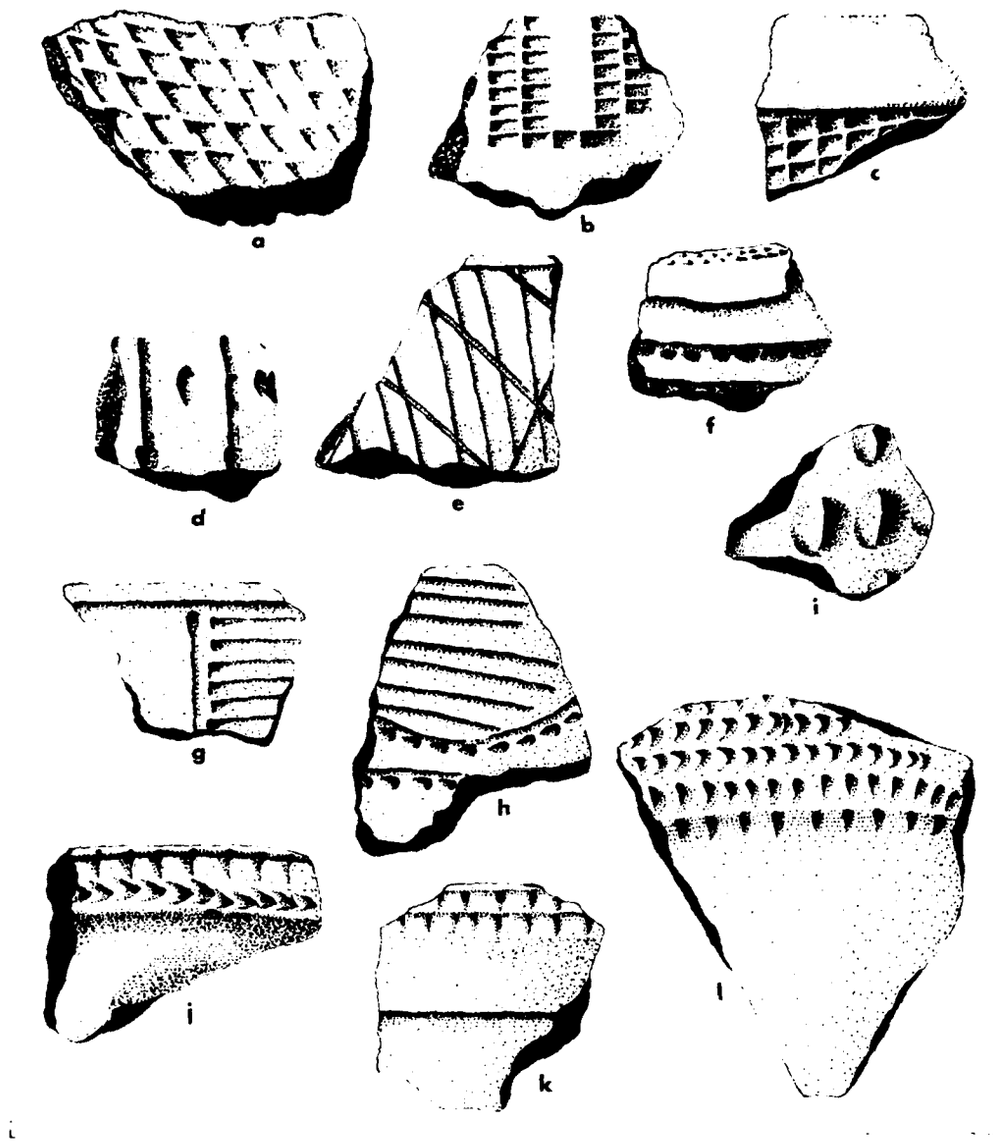


Figure 9.7. Decorated Pottery from Belle River Landing: a, Pontchartrain Check Stamped, var. Shellhill; b, var. Tiger Island; c, var. Pontchartrain; d, Mazique Incised, var. Bruly; e, Alligator Incised, var. Alligator; f, Coles Creek Incised, var. Lone Oak; g-h, French Fork Incised, var. Brasher; i, Evansville Punctated, var. Evansville; j-l, French Fork Rim Mode.

9.6p).

Unclassified Incised. One sherd. The motif consists of multiple, broad and shallow lines ("trailing"), encircling the vessel apparently parallel to the lip.

Unclassified Incised. One sherd. This rim sherd bears two encircling, closely spaced lines below the lip and a third, 20mm below the first two, defining a plain (nondecorated) band around the upper vessel wall. Below the lowest line are remnants of a fourth line which is apparently part of vessel body design, broken in such a way as to prevent possible classification. The sherd derives from a straight-sided, collared jar, measuring 40cm in outside mouth diameter.

Unclassified Drag and Jab Incised. One sherd. This rim bears a single drag and jab incision on the vessel wall a few millimeters below the lip and another in the middle of the flattened lip. The punctates ("jabs") are triangular. The sherd was broken from a deep, straight-sided jar (Figure 9.6o).

Bone Projectile Point.

The only recovered bone artifact at Belle River Landing was a projectile point, fashioned from a deer long bone. The distal end of the tool was produced by cutting the bone at about a 45 degree angle and then sharpening the sides to a point.

Historic Artifacts.

Only two historic artifacts were collected at Belle River Landing. One is a redware (lead glazed) sherd from a shallow bowl; the other, a fragment of clear glass.

Ecofacts from Belle River Landing

A total of 55 pieces of animal bones were retrieved from this site. These bones have been separated into rather gross (nonspecific) categories consonant with the author's recognition level.

Human.

Four bones and one tooth comprise the total of human skeletal material. Three of the fragments are from long bone shafts; one from a femur, and the other two probably from humeri. Another is an occipital cranial fragment. The tooth is a mandibular third molar ("wisdom

tooth") from the right side of the jaw.

The presence of human remains in the rangia-dominated midden materials can be interpreted variously. They may derive from burials or, to press an historical analogy from the ethnohistoric Attakapa Indians who lived west of this location, they may represent food residues (i.e., cannibalism).

Fish.

A total of 22 bones are clearly fish remains. Only one is identifiable to family, that being the dorsal spine of a catfish. The remaining 21 are large to small vertebrae from a number of different species.

Deer.

One tooth constitutes the deer remains in the present collection, if one omits the projectile point cut from a deer long bone (described above).

Small Mammal.

Two vertebrae from unspecified small mammals are contained in the Belle River materials.

Turtle.

A plastron fragment from an unidentified species of turtle was retrieved.

Bird.

A small section of a femur from an unidentified fowl was recognized among the Belle River faunal remains.

Rangia.

The overwhelming faunal constituent of the midden material is Rangia cuneata, a brackish-water clam. The valves in evidence are medium-to-small-sized, suggesting that the harvest areas were supporting a reproducing clam population, rather than a fresh-water isolated adult population only (Malcolm Vidrine, personal communication, 1980). The sheer number of Rangia shells has been convincingly shown by Byrd (1976b)to represent only a portion, sometimes only a small one, of the total animal protein consumed by prehistoric populations in coastal Louisiana, in spite of the fact that by volume they may suppress all other remains into insignificance.

Unclassified.

A total of 22 fragments of various bones from various animals

complete the faunal inventory.

Lost Hill (16SM51)

Description

Lost Hill is a mound-like accumulation of shell and earth located on the right descending bank of the Port Allen-Morgan City Intracoastal Canal. The name derives from its practically undetectable location when viewed from the canal. Its above-the-ground expression is an oval dome with a gently rounded top. Its taped measurements are 60m along its long east-west axis (orientated along a 280 degree azimuth) and 45m, north-south. It stands 1.0-1.7m above the surrounding ground level.

It is completely ringed by a cypress-tupelo swamp. Surrounding elevations are everywhere less than a meter above sea level but are lowest on the north side of the dome where a soggy depression marks what appears to be an old stream scar which is perpendicular to the present axes of both the Intracoastal Canal and the Belle River. The Belle River is some 400m east of the location. The elevated, better drained dome supports a growth of water oaks, bitter pecan, and palmetto. Privet and cypress occur in a fringe around its base.

Stratigraphy

The primary constituent of the dome is clay, but rangia shells, including some very large valves, occur consistently throughout the mass as lenses and pockets (not strata). Interspersed with the brackish-water clams, in considerably reduced numbers, are fresh-water clam shells (Quadrula) and nacreous flakes and "dust," resulting from Quadrula decomposition. Some shells are visible on the surface and are scattered to within 25m of the present canal bank, but generally the shells are incorporated in the earthy matrix.

Shovel and auger test holes were placed indiscriminately over the dome, and an excavation unit was dug on the north face about 35m east of the western end of the "mound" and about 7.0m downslope from its top. The excavation unit was lowered with shovels to a depth of around 75cm and then by barrel auger to 245cm. Material was unscreened.

Stratigraphic details are given in Table 9.5, and the profile is illustrated in Figure 9.8.

TABLE 9.5 -- STRATIGRAPHY IN EXCAVATION UNIT AT LOST HILL (16SM51)

Stratum	Description	Depth (below surface)
A	Silty clay loam; dark reddish-brown; represents A-horizon soil; massive structure; rangia and Quadrula valves scattered and few, do not form strata or lenses; top contact, ground surface with pavement of scattered, loose rangia and sod; bottom contact, abrupt and unconformable.	0-16cm
B	Silty clay-shell; clay matrix, glee-colored; shell occurs as pockets or lenses (not strata) and includes large to small valves, both whole and broken; bottom contact conformable, transitional with increasing clay and fewer shells; structure massive and red mottling appears and increases with depth.	16-71cm
C	Silty clay; glee-colored; stratification suggested; red mottles follow root and burrow disturbances; no shells; bottom contact not observed; water table encountered at 240 cm below surface.	71-greater than 245cm

Interpretations

A tentative reconstruction of the geomorphic history at Lost Hill is as follows. A low mud ridge (Stratum C) developed along the bank of a slack-water stream which flanked the northern edge of the site-to-be. The stream was evidently a small tributary-distributary of the Belle River, which may have been in a channel somewhat closer to the location than at present. The ridge continued to grow through over-bank accretion, and the sedimentary suite became more silty (Stratum B), a reflection of its increasing elevation. Its accretionary rise above the surrounding swamp rendered it attractive to the shellfish exploiters residing in the area,

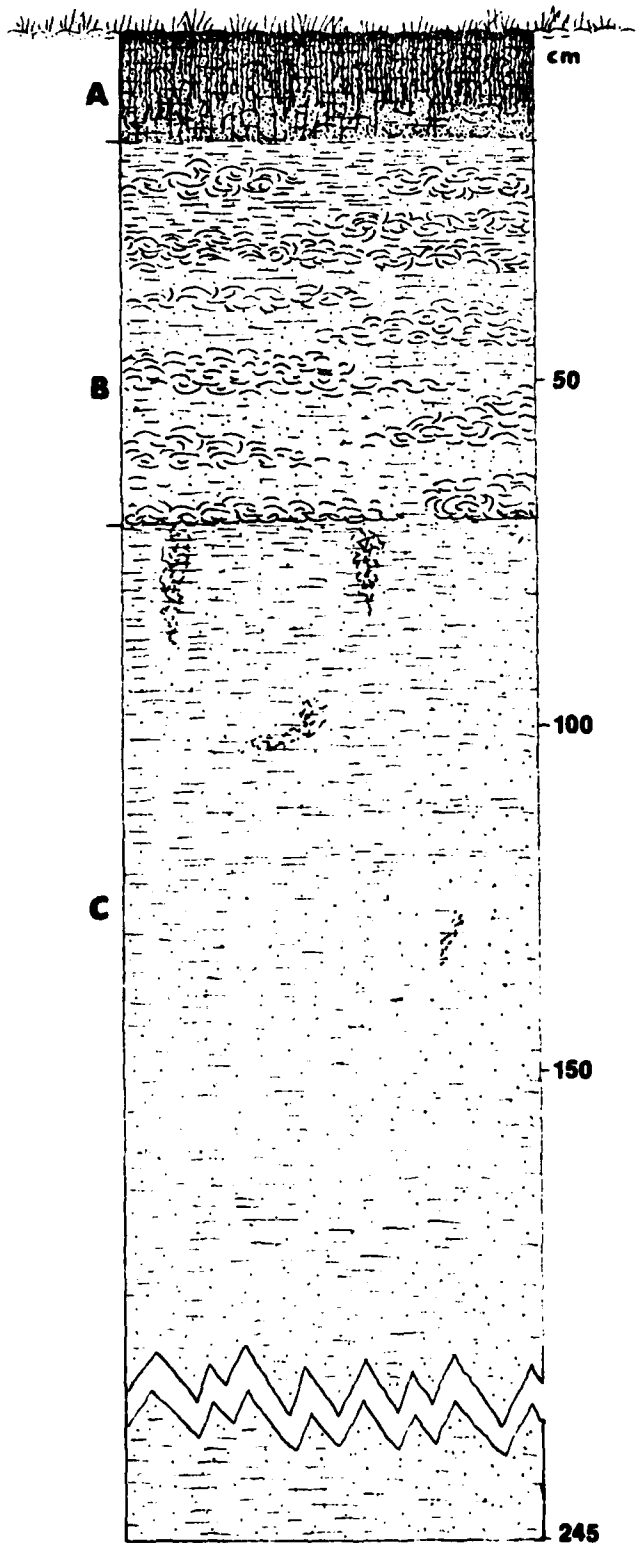


Figure 9.8. Stratigraphic Profile of "Mound" at Lost Hill (16SM51).

and human utilization commenced. The cultural addition of discarded shells added to its elevation, apparently rendering it even more attractive to the collectors (upper Stratum B). Human activities during this episode seem to have been temporary and transitory and failed to produce any substantial artifactual residue. Two plain potsherds from the surface represent the sum total of prehistoric artifacts recovered from the site. The lack of shell strata and the occurrence of brackish- and fresh-water species as discrete lenses, or pockets, in the silty clay matrix are key indicators of the short-duration, practically individualized and event-specific nature of the shellfish piles. Thus the growth of Stratum B, which speaks of both human and natural depositional agents, implies fleeting but repeated human utilization (i.e., minimally meat extraction and discard of empty shells) on the ridge at Lost Hill. After aboriginal utilization of the low ridge ceased, a well-developed soil (Stratum A) grew over the location. At this time, the ridge crest was relatively immune to over-bank flooding, possibly because of the migration of Belle River to a position in or near its present channel and/or because of silting-up and abandonment of the little bayou which initially formed the ridge. Whatever the case, Lost Hill was no longer used by the Indians as a clam-shucking station, and the next event in its cultural history was its reuse by cypress loggers during the early part of the twentieth century. The interval between aboriginal and Euro-American use witnessed the continued alluviation of the old stream channel and sedimentation in the flanking swamps. The immunity of Lost Hill to all but the severest inundations permitted the growth of the soil and the vegetation succession to that which today typifies the most elevated and protected spots in the Atchafalaya Basin.

Aside from the two plain potsherds and the piles of rangia and Quadrula shells, there is nothing more, artifactually or ecofactually, to report of the Indian utilization of Lost Hill. There is little doubt about the virtually pristine and geologically unmodified nature of prehistoric cultural residues at Lost Hill. The locale could reveal a rather precise picture of the results of a highly limited exploitative activity--shellfish meat extraction and valve discard, and possibly its seasonal timing--but it is doubtful that such events could be tied to any specific prehistoric cultural group. If artifacts,

especially temporally-culturally diagnostic ones, were ever pressed into use at Lost Hill, their users were careful to remove them upon completion of their on-site tasks. Thus many traditional archeological objectives could not be satisfied by additional work at Lost Hill. The site could yield functional and adaptive information but probably little cultural historical stuff. In this writer's opinion, the state of the art has not presently evolved to the point where a purely functional study could be done or appreciated, and the integrity of Lost Hill would be best served by preserving the location rather than attempting any further work with current methods and theoretical dispositions.

Concentrated near the western end of the "mound" were several charred cypress planks and two felled cypress logs bearing eyed metal pins at one end. These are certain evidences that Lost Hill was used by late nineteenth or early twentieth century swampers as a staging area where logs cut in the fringing swamps were "snaked" via winch and cable operated from a barge, known as a pullboat (Comeaux 1972:19). Originating near the summit of the "mound" and extending eastward along its long axis toward the Port Allen-Morgan City Canal is a linear depression which may be either the route through which logs were pulled or a path leading from an anchored pullboat to a logging camp. Comeaux (1972:20) notes that many of the swamper camps were located on high ridges in the swamp, although the infrequency of such favorable spots led to the use of camps built on rafts of floating logs and later to true quarterboats. Lost Hill certainly would have provided one of those favored ridge situations. If Lost Hill did function as a camp, as well as a staging area, there is practically no observable "domestic" residue. However, archeological ignorance of swamper camps leaves us totally in the dark about what kinds and quantities of discarded residues might be expected to occur around these old sites. If a great deal of reliance is placed on the cypress boards here, it is reasonable to assume that they could have derived from a building, i.e., camp quarters, which was simply dismantled after the logging operations ceased or which burned down (both boards are charred).

Whatever the nature of the logging activity at Lost Hill, it must have assuredly occurred after 1889, when the first pullboats were

pressed into service in the Atchafalaya Basin (cf. Comeaux 1972:20) and before 1925, when the industry was withdrawn from the basin. Further, historical information (cf. Gramling, this report) reveals that swamping was a seasonal activity. Trees were deadened during low water periods in the fall and then cut and floated out during spring high waters. The archeological remains at Lost Hill reflect activities during the latter period.

Nutgrass (16SM45)

Description

This site is located on the right descending bank of the Port Allen-Morgan City Intracoastal Canal about 1.9km south of Belle River Landing (16SM6?). The site was discovered and investigated during the Louisiana State University Atchafalaya survey in 1974 and 1975 (Neuman and Servello 1976). Subsequently the site was placed on the National Register of Historic Places and has been protected by the U.S. Army Corps of Engineers. Because of its protected status, the present investigation was limited to observations on its present condition. No cultural materials were collected.and no subsurface testing was conducted.

The site was a shell-clay midden forming a long narrow fringe along the canal bank. Neuman and Servello (1976) reported the site to be 115m long and 9.0m in average width. According to their report, approximately 6.0-7.0m of additional midden was removed by dredging between the time of discovery in November 1974 and subsequent testing in November 1975. Some of the exhumed material had been dumped over the site, which had also been cleared of vegetation, presumably to facilitate additional dredging. With the realization of the importance of the site, dredging plans were changed and protective measures instituted.

Nutgrass was located in a cypress-tupelo swamp prior to clearing and dredging. The addition of dredged material over the location has now permitted a thick, rank growth of sedges (hence the site name, Nutgrass), reeds, and ragweed. Surfacial soils are of the Fausse type, typical of frequently inundated and constantly moist clayey alluvium of Mississippi River origin (Murphy et al. 1977:Sheet 61). A small drainage artery flanks the northern perimeter of the site and probably formed at one time

a substantial stream, at tributary-distributary to the Belle River which today lies in a channel approximately 325m east of 16SM45. Surface elevations are everywhere less than 1.0m above msl, and relief is negligible. Ground surfaces do become lower (i.e., to nearly sea level) in the backswamp immediately posterior to the midden.

Stratigraphy

Three solid cores, placed successively 1.0m, 3.0m, and 5.0m perpendicular to the canal bank, were taken during the Louisiana State University investigations (Neuman and Servello 1976). The cores were never analyzed and are no longer available (R.W. Neuman to J.F. Roy, written communication, 1 April 1980), but a field log of the stratigraphy was made by A. Frank Servello (field notes, 11 November 1975). These notes, as well as personal communication (A. Frank Servello, October 1979), furnish the basis of the following stratigraphic reconstruction.

According to Servello, two shell strata were present. One was surfacial, extending from the ground level to maximum depths of 25cm. It was dominated by rangia shells but also contained some unidentified animal bones and unclassified potsherds. This upper midden stratum was confined to the southern (downstream) section of the site, which was slightly lower in elevation than the northern end. Whether or not this upper shell stratum was underlain by the lower one was not ascertained. The lower, buried shell stratum was revealed by coring in the northern section of the site. The top of the stratum was struck at increasing depths in two of the cores; in the core nearest the canal bank, 35cm below surface and in the core 3.0m from the bank, 60cm below surface. The core positioned 9.0 away from the bank failed to penetrate the shell stratum at all despite being carried to depths of greater than a meter. This indicates that the surface of the midden stratum sloped toward the present-day backswamp behind the site, a morphology suggestive of shell deposition along a low bankline ridge. The stratum pinched out at the northern site limits and averaged 35cm in thickness near site midpoint. However, the layer thickened considerably south of this point and dipped sharply downward at about a 45 degree angle, reaching a thickness of greater than 55cm (Servello,

personal communication, October 1979). This hints of accomodation of the loose shell to a steeply sculptured landform such as a stream bank. However, if such an attribution is correct, it implies the existence of a now completely filled-in stream channel which bisected the site perpendicular to the axis of the modern canal and the nearby Belle River.

Interpretations

As previously indicated, the National Register status of 16SM45 ruled out destructive testing during the present survey, and cultural materials were not observed or collected. The Louisiana State University report (Neuman and Servello 1976) did not classify, identify, or inventory the recovered artifacts or ecofacts, and thus we are ignorant of the temporal and cultural position of the site. Servello (personal communication, October 1979) suggested that 16SM45 might have been a Troyville-Coles Creek site, or rather contained a Troyville component and a Coles Creek component and that the components might have segregated as the lower and upper shell strata. The only artifact clearly recalled was a portion of a cypress dugout canoe found in the dredged materials piled on the site.

The generality of stratigraphic description also inhibits reconstructions of the geomorphic and cultural events which led to the development of the locale and site. In spite of factual short-comings, a tentative interpretation is presented.

Prior to human occupation or utilization, the spot seems to have been at or near the junction of two streams, one flowing generally east-west, the other aligned nearly with the present channel of the intracoastal canal (perhaps an old course of the Belle River or one of its arms). The spot was elevated as it constituted a point of coalescence of low bankline ridges (i.e., natural levees) paralleling these streams. Human activities commenced at the location, resulting in the accumulation of rangia shells and other cultural materials in a narrow fringe along the corner of land formed by these streams.

Following the cessation of cultural activities, the small, east-west trending stream was rendered inactive. It filled-in with fine clastics--clay, and simply became a slightly lower depression in an

already low swampy environment.

Subsequent geomorphic events can be interpreted in several different ways. One reconstruction maintains that after the clogging up of the small stream and following a period of alluviation which buried the earlier midden stratum, Indians again returned to the spot and discarded shells over the surface of the filled-in bayou.

However, a preferred explanation is that continued lateral widening of the large bayou resulted in reworking of the buried midden stratum and slightly downstream redeposition of shell materials. In this reconstruction, the upper shell stratum is viewed as a product of stream erosion, not on-site cultural accumulation. Thus the two shell strata would not represent two episodes of cultural activity but one, with the upper zone a consequence of redeposition from the lower.

Persimmon (16SM48)

Description

This location is situated about 0.8km south of 16SM45 on the right descending bank of the Port Allen-Morgan City Intracoastal Canal in eastern St. Martin Parish. It was previously found and investigated by a Louisiana State University survey team during a cultural resources reconnaissance of the Atchafalaya Basin in October 1975 (Neuman and Servello 1976). That investigation resulted in several management recommendations including testing and possible excavation. The present work operationalized the recommended testing and additionally improved the observational information from 16SM48.

The site is an accumulation of shells and clays and silts. Subaerially, it extends for a taped distance of 68m along the canal bankline and has an average width of 10m at midpoint, tapering (obviously) to nothing at both extremities. Shells extend into the waters of the canal another 3.0-4.0m, apparently to the position of an old bankline, now eroded.

Woody vegetation is stratified in the site area revealing its bankline-natural levee position. A line of privet, cypress, and a few willows mark the water's edge. A thick growth of persimmon and bitter pecan occur on the highest elevations and, in the swamp behind the

linearly orientated midden, is a stand of cypress, privet, and tupelo. The surface of the shell deposit reposes 25-42cm above water level indicating elevations above msl of less than a meter. Relief is minimal (less than 0.5m) and conforms to the crest and backslope of the natural levee on which the site is located.

The site today lies about 375m west of Belle River, the dominant natural waterway in the vicinity. At the time of its accumulation, the midden seems to have been in a stream side position, though the stream was certainly not the Port Allen-Morgan City Canal, which now intervenes between the site and Belle River. The silts and the Rangia clams themselves imply stream bank association as does the stratigraphy. Canal dredging certainly affected portions of the site but the remaining stratigraphy graphically illustrates that the shell deposit accumulated on a then existent natural levee.

Stratigraphy

Systematic probing, shovel test holes, and two stratigraphic excavations not only clearly showed the extent and shape of the shell deposit but its dip and strike. This subsurface testing revealed that the midden dips and thins as a function of distance from the water's edge. The angle of dip is consonant with the present slope of the levee. One stratigraphic test, a 1.0 by 1.0m square, shovel-excavated 15m from the present bankline, failed to encounter any shell strata at all. A series of probes along a line 10m from the water's edge also failed to detect shell deposits, save for the thin, apparently discontinuous, stratum of shell dust, described as Stratum C in the following lithological description of Test Excavation 1.

Test Excavation 1.

This shovel excavated unit was a 60 by 60m square dug to a depth below surface of 190cm. It was positioned near the midpoint of the site and 3.0m from the water's edge. Matrix was unscreened. Stratigraphy is described in Table 9.6 and illustrated in Figure 9.9.

already low swampy environment.

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Woody vegetation is stratified in the site area revealing its bankline-natural levee position. A line of privet, cypress, and a few willows mark the water's edge. A thick growth of persimmon and bitter pecan occur on the highest elevations and, in the swamp behind the

TABLE 9.6 -- STRATIGRAPHY IN TEST EXCAVATION 1, PERSIMMON (16SM48)

Stratum	Description	Depth (below surface)
A	Pulverized shell (rangia and corbiculla) and limited number of animal bones and potsherds set in matrix of shell dust; elements loose, fragmentary, and wave polished; size sorted; redeposited.	0-17cm
B	Clayey silt; reddish-brown with dark brown to black stains (organic mottling; massive; replete with roots and rootlets and shell dust but generally free of shells or shell fragments; top contact and bottom contacts sharp but conformable; no artifacts.	17-27cm
C	Shell dust, pulverized; concentrated and dense in reddish-brown silty clay; stratified; bottom contact sharp but conformable; no artifacts.	27-29cm
D	Clayey silt; reddish-brown with blue clay mottling: iron stains follow root molds; blue clay occurs as fingers and pockets in silty matrix; massive; bottom contact abrupt and unconformable; no shells or artifacts.	29-42cm
E	Pulverized shell set in silty clay; light gray; black stains appear to be carbonized roots and reddish precipitates have discolored shells; shells (rangia only) are broken and wave polished; structure massive, no lensing or stratification apparent; one possible garfish scale identified; bottom contact not observed; top of stratum corresponds to present water level.	42-greater than 232cm

Test Excavation 2.

A second test unit was excavated 15m from the water's edge due west of Test Excavation 1. It measured 1.0 by 1.0m square and was shovel prepared to a depth 20cm below the water table (a depth of the surface of about 55cm). A barrel auger (7.6cm diameter) was then employed to reveal underlying stratigraphy to depths of about 1.0m, where its

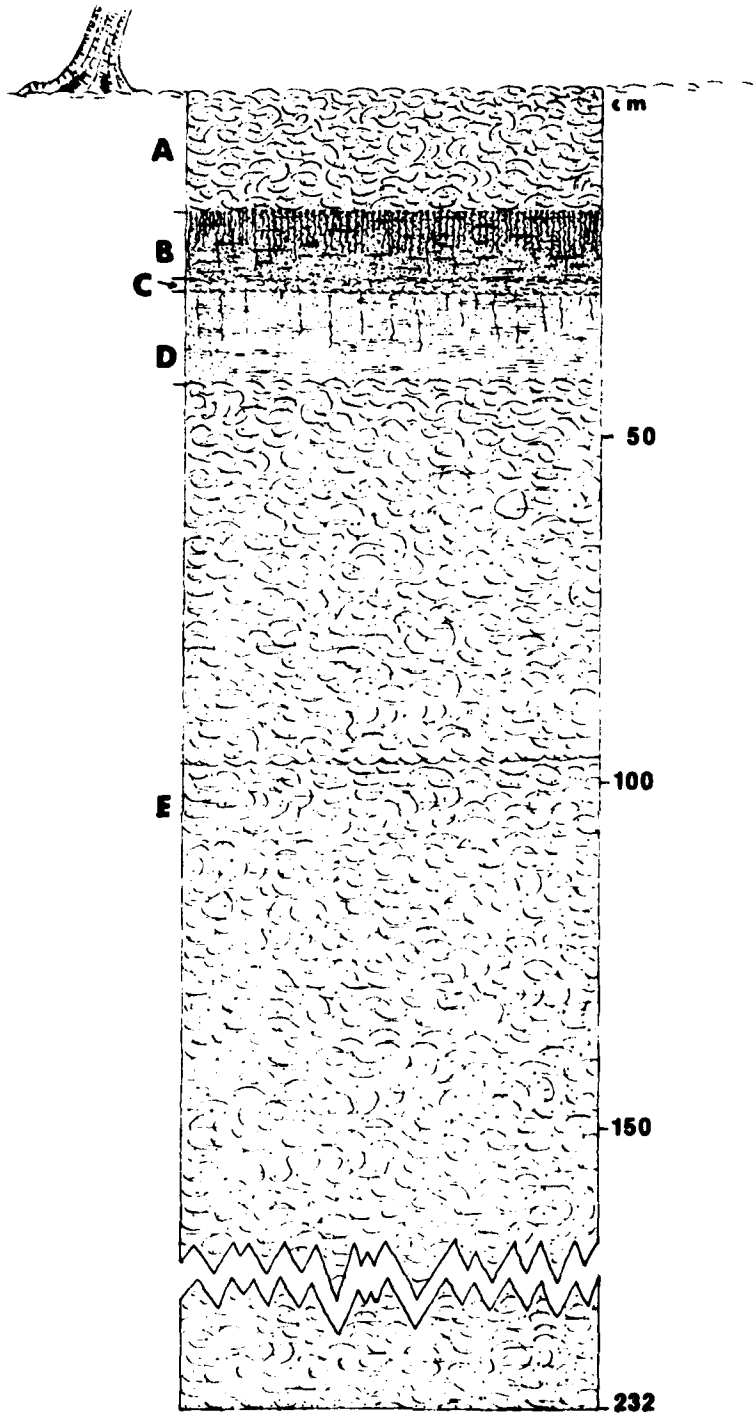


Figure 9.9. Stratigraphic Profile at Persimmon (16SM48).

usefulness terminated, and a probing rod was then pushed to a depth of 178cm in an effort to detect buried shell strata. Matrix was unscreened. The unit was purposefully placed beyond the surface scatter of shells toward the backswamp in the hope of revealing off-site stratigraphy and the relation of the shell deposit to the underlying landform and geomorphic processes.

The unit penetrated 1.78m of relatively homogeneous silty clays which closely resembled Stratum D in Test Excavation 1; the major difference being the higher clay, less silt, content in Test Excavation 2. No artifacts, shell strata, or even loose shells were found in this unit.

Interpretations

The stratigraphic tests at 16SM48 suggest the following interpretation. The basal shell layer, Stratum E, accumulated, probably naturally, as a result of stream activity in a nearby rangia bed. The pulverized, water-worn nature of the shells reflects considerable reworking and probable redisposition. The absence of artifacts in this stratum rules against human activity as the responsible agent in this accumulation. Once deposited, overbank flooding resulted in the accretion of clayey silts (Stratum D) over the shells. The environment of deposition of this alluvium is characteristic of low energy discharges such as might be expected on the backslopes of low natural levees in sluggish water, swampy situations. The higher silt content on the site area, as opposed to the more clayey sediments in the present-day backswamp, suggests a pre-modern depositional environment almost identical to that which obtains at the location today. The sealed shell stratum was then subjected to active erosion, evidently by lateral widening (truncation) by the paralleling stream, which resulted first in the spread of fine shell dust (Stratum C) over the bank and eventually (following the deposition of another layer of mud--Stratum B) of a final layer of broken shells and shell dust, which represents the present surface. The last deposition (Stratum A) includes some prehistoric potsherds and probably cultural bones. Fixing the age of prehistoric activity is difficult. It almost certainly transpired after the deposition of Stratum E but beyond this

geological event, it cannot be pin-pointed. The sherds are all wave-polished suggesting fluvial abrasion and transportation. They occur in and on the surface of Stratum A, where they are mixed with broken rangia and corbiculla shells.

The presence of the corbiculla clam is an important datum in interpreting geomorphic history and site integrity in southern Louisiana, because it represent an Asiatic migrant which entered California in the 1930s and rapidly spread to other areas of the country following dredge-altered stream habitats; it was first recorded in Louisiana in the early 1960s (Malcolm Vidrine, personal communication, 1980). If the species has been correctly identified (Note: a similar clam Polymesoda carolinana, is an endemic resident of brackish-water marshes), it implies that Stratum A has been deposited (or certainly reworked) during the last two to four decades.

These indications support the hypothesis that, at present, 16SM48 is a geological, not cultural, deposit. A seemingly natural Rangia bed was apparently worked over several centuries (or perhaps a millennium or so) by stream action. At some period, or periods, in its formation, human activities were conducted on or very near the present location. This human activity resulted in the discard of potsherds and small animal bones, which subsequently became part of the geological accumulation. This reconstruction intimates that the original location and depositional context of the artifacts and ecofacts no longer exists, having been victimized by fluvial erosion and redeposition, particularly since the dredging of the Port Allen-Morgan City Intracoastal Canal.

EAST ATCHAFALAYA BASIN PROTECTION LEVEE: SECTION II, BAYOU BOEUF LOCK TO LEVEE END AT AVOCA ISLAND CUTOFF

This section of survey corridor, covering about 20.7km, extends westward from the Bayou Boeuf Lock along the right bank of Bayou Boeuf and then along the left bank of Bayou Shaffer. Near the entrance of Bayou Shaffer into Sweetbay Lake, the corridor deviates from the bankline and crosses an area of marsh lying between the Lower Atchafalaya River and Avoca Island Cutoff. The levee (and the survey corridor) terminates about 1.5km above the confluence of Avoca Island Cutoff and the Lower Atchafalaya River (Figure 1.5).

Part of this survey corridor was covered during an earlier, Corps-sponsored, cultural resource investigation (Gibson 1978a). However, resurvey was necessitated because of the broadened corridor size (30m perpendicular to stream banklines in the previous survey /Gibson 1978a:2/ to about 460m width centering on the levee crest). In addition, the levee section from the locks to the mouth of Bayou Shaffer was not covered in the prior work.

Despite these alignment changes, no additional sites were found during the present survey, and the six site descriptions that follow are presented verbatim from Gibson (1978a). Figures and references to figures have been omitted in the material quoted below and the order of appearance and the numbering of the tables has been changed to agree with the order of presentation used in the present report.

Brick (16SMY130)

The following description appears in Gibson (1978a:168-169):

> Brick (16SMY130). Left descending bank, Bayou Shaffer at junction with Bayou Boeuf; multiple component site with standing historic frame house and prehistoric component which produced several classes of artifacts (Tab.9.7); natural levee; about 3.5m above msl; never flooded; Cypremort silty loam; at point of land marking junction of bayous Boeuf and Shaffer; natural levee biotic community flanked on two sides by fresh-water aquatic and by back-swamp communities; nearest neighbor, Shaffer Oak Ridge (16SMY50), 300m distant, directly opposite bank; nearest neighbor of comparable age (prehistoric component), same; nearest neighbor of comparable age (historic component), poysibly Rip Rap (16SMY51), 1.2km downstream (Bayou Shaffer).
>
> Historic house well kept; used only as camp; no other data obtained; prehistoric and historic artifacts and rangia and oyster shells lightly scattered (not in situ) over an area about 320m long and 100m wide, no accumulated thickness; oriented parallel to stream (Bayou Shaffer) and to batture slope of natural levee; light artifact density; no cultural stratigraphy, shovel test holes failed to reveal in situ materials, but some historic (and possibly prehistoric) in place materials suspected around house itself where testing was not done; other than standing house, no cultural features were observed; most of site area has been lost to stream erosion but recently disused house remains in relatively good condition; age of house not ascertained.

TABLE 9.7 -- CULTURAL MATERIALS FROM BRICK (16SMY130)

Materials	Number
Aboriginal Pottery:	
plain body	3
(decorated):	
broad, strap, incised rim, similar to French Fork Incised	1
Historic Earthenware:	
stoneware, ("jimmy-john", yellow-brown banded	1
redware (?), lead glaze	1
Other:	
glass, olive-green (wine bottle, one "kickup" base)	4
glass, clear (pink tinge, bottle)	1
brick	1
asphalt	4
head frame, cast iron bed	1
padlocks	2

Rip Rap (16SMY51)

Gibson (1978a:159-160) described the Rip Rap site as follows:

> Rip Rap (16SMY51). Left descending bank, Bayou Shaffer, south of junction with Bayou Boeuf; nonmound site without remaining in situ midden marked by eroded and redeposited accumulation of rangia shells and other faunal materials, and aboriginal and historic artifacts (Table 9.8); well-drained swamp; 1.3m above msl; flooded during spring and perhaps for short periods during winter-fall; slope not calculated since no in situ areas remain; probably Iberia silt-loam; not at tributary mouth; wet hardwood interarea immediately flanked by fresh-water aquatic and poorly-drained backswamp communities.
>
> Nearest neighbor, Brick (16SMY130), 1100m north; nearest neighbor of comparable age (Plaquemine period) unspecified along Bayou Shaffer because of few classified artifacts; redeposited materials extend linearly 68m, averages about 8.0m wide, and in places rangia has accumulated to 10cm in thickness; however, shell is generally scattered; shovel-testing revealed no cultural stratigraphy; artifact densities moderate; no cultural features noted; site has been completely (in situ context) destroyed by bankline erosion; the southern end of the former site area is covered by rip rap and oyster shell marking a pipeline crossing.

TABLE 9.8 -- CULTURAL MATERIALS FROM RIP RAP (16SMY51)

Materials	Number
Aboriginal Pottery:	
plain body	31
plain rim	9
(decorated):	
Mazique Incised, var. Manchac	2
Plaquemine Brushed, var. Plaquemine (motif diagonal on one; diagonal meeting parallel on the other)	2
Avoyelles Punctated, var. Dupree	1
Other:	
brick fragments	2

Bayou Shaffer Water Locks (16SMY52)

The following description is lifted from Gibson (1978a:160-162):

> Bayou Shaffer Water Locks (16SMY52). Left descending bank, Bayou Shaffer; site consists of a standing concrete building with a red tile roof, smokestack, and existent water pumping machinery and steam boilers, built sometime after the turn of the 20th century to pump water into Avoca Island lake in connection with rice farming; it is one of two such pumping stations in the area, the other is Avoca Island Water Locks (16SMY60) near the bayous Shaffer-Penchant junction; building is rectangular with high pitched, gabled ceramic tile roof; water pumping machinery covers the floor and gathering and dispensing pipes enter the front and exit the back; it lacks internal partitions, save for the fire stack; the large front opening has a dual hinged cypress door, and the entire building is windowed; trademark on the roofing tile reads: The National Roofing Tile Co., Lima Oh, V26190 - June 2, 1909, and a brass plaque inside the front door reads: Amlockett Mechanical Engineering Co., New Orleans; artifacts retrieved include historic earthenware (Tab. 9.9), other artifacts (tile, etc) were left; well-drained swamp; 1.6m above msl; occasional spring flooding; slope less than 2.0°; probably Iberia silt-loam; not at tributary mouth; wet hardwood interarea immediately bordered by fresh-water aquatic and fresh-water marsh biotic communities.
>
> Nearest neighbor, New Site (16SMY53), about 300m

downstream; nearest neighbor of comparable age, same (16SMY53); nearest neighbor of comparable function, Avoca Island Water Locks (16SMY60), about 8.0km downstream; building plan described above; dimensions, about 35m by 25m and about 9.0m in height, stack extends about 10m above roof; cultural features are as previously described; building is deserted, crumbling, and has been subjected to some vandalism, but still retains its integrity to a large degree.

TABLE 9.9 -- CULTURAL MATERIALS FROM BAYOU SHAFFER WATER LOCKS (16SMY52)

Materials	Number
Historic Earthenware:	
whiteware, plain	2
whiteware, blue hand painted, floral	1
stoneware (brown glaze)	2
stoneware (brown-gray glaze, "jimmy-john")	1
Historic Glass:	
olive green (wine bottle "kickup")	1
blue (wine bottle rim strap)	1
Historic Metal:	
unidentified cast iron fragment	1

New Site (16SMY53)

This location was discovered during a previous survey, and the following description is taken from Gibson (1978a:162-163).

> New Site (16SMY53). Left descending bank, Bayou Shaffer; nonmound site consisting predominantly of eroded and redeposited rangia shells and artifacts (Tab. 9.10) and two small, thin lenses of *in situ* rangia shell midden in bayou bank; well-drained swamp; .91m above msl; subject to periodic flooding during spring and for shorter periods during fall-winter; slope undetermined since so little *in situ* area remains; Iberia or Jeanerette silty clay; cut-bank; not at tributary mouth; well-drained swamp conjoined with fresh-water aquatic and fresh-water marsh biotic communities.
>
> Nearest neighbor, Bayou Shaffer Water Locks (16SMY52), 300m upstream; nearest neighbor of comparable age (historic component), probably same as above; of comparable age (Coles Creek component), possibly Shaffer Oak Ridge (16SMY50), 2.7km upstream; remaining residual materials (rangia shells

and artifacts) lightly scattered over an area about 40m long and 4.0m wide and are confined to the immediate raw exposed bank of the bayou; the two small lenses of in situ rangia lies 12-15m below present ground surface and both are less than 2.0m in length; thickness varies from 2.0-5.0cm; since the site has so little remaining in situ materials, its shape and plan cannot be determined; probably oriented linearly along bayou bank; bank line profile revealed a stratigraphic sequence of 12-15cm thick A-horizon brown clay, 2.0-5.0cm thick rangia lenses at contact of underlying B-horizon (46cm thick) which is buff brown in upper part, grading to darker buff brown near water level; no organically enriched earth around rangia lenses; no cultural features noted, except the rangia lenses; site area undeveloped, but site practically destroyed through stream erosion.

TABLE 9.10 -- CULTURAL MATERIALS FROM NEW SITE (16SMY53)

Materials	Number
Aboriginal Pottery:	
plain body	23
plain base	1
plain rim	1
(decorated):	
Mazique Incised, var. Mazique	1
Historic Earthenware:	
whiteware, plain	1
whiteware, blue sponge	1
Historic Glass:	
brown (bottle sherd)	1
clear (bottle sherd)	1
Faunal:	
human (?), cranial fragment	1
fish, unidentified	1
mammal, unidentified	2

Lafitte Skiff (16SMY54)

This partially sunken vessel lay in Bayou Shaffer near the left bank. It was described by Gibson (1978a:163):

Lafitte Skiff (16SMY54). Left descending side of channel, Bayou Shaffer; partially emergent, mostly submerged, hull of boat, known as Lafitte skiff; only bow projects above normal water level; submerged portion probably embedded in muddy point bar; other underwater observations, e.g., sediment cover, depth, relief, bottom slope, water conditions, association with other relict features, underwater floral and faunal communities, not determined because underwater survey was not requisite part of contract.

Boat is probably 8.0-11.0m long, made of cypress planking; badly weathered and subjected to severe destructive stresses due to boat and ship traffic; nearest neighbor, New Site (16SMY53), 0.5km upstream; nearest underwater neighbor, Metal Cabin Boat (16SMY58), 3.2km downstream.

Bone Point (16SMY39)

This site lies very near the edge of the survey corridor, perhaps slightly outside of it, but is included here for sake of completeness. Concerning Bone Point, Gibson (1978a:169-172) states:

> Bone Point (16SMY39). Left descending bank, Bayou Shaffer, at immediate junction (former) of bayous Shaffer and Penchant; Bayou Penchant now cut off from Bayou Shaffer by Avoca Island Lake artificial levee; aboriginal and historic accumulation of wave-washed rangia shells (few oysters) and artifacts (Tab. 9.11) which is not in situ; some of the shell midden has been used to make a ring levee on the crest of the levee behind site; local informant (George Adams, personal communication, 1978) states that shell was barged to this location several years previously,and the lack of shell matrix underlying the root systems of several overturned trees would seem to support this contention; efforts to track down the original source of the shell were to no avail, and it is almost certain that if the shell had been transported to this spot, the site from which it was obtained was not discovered in the surveyed areas; additionally, there are suspicions that this location might correspond to the Civil War post, known as Fort Chene, but this possibility could not be conclusively determined by examining historic location data or by confirming the presence of artifacts of the appropriate age; natural levee; 0.76m above msl; periodic flooding, spring, fall-winter, longest duration in spring; slope undermined because of recent disturbance and lack of in situ materials; probably Iberia or Jeanerette clays; at former junction (northeast point) of bayous Shaffer and Penchant; natural levee biotic community flanked by fresh-water aquatic and fresh-water marsh communities; nearest neighbor, probably not applicable

since site seems to have been transported in historic or modern times from another location.

Residual shell and artifact accumulation extends for 111m around point, maximum width is 8.0m, and maximum depth revealed through shovel test holes is 50cm; orientation probably not pertinent but does conform to present bank line of bayou, except for that portion used to build the ring levee on the crest of the natural levee; high artifact and ecofact densities; five shovel test units disclosed that the shell matrix rested unconformably on a yellow clay and that prehistoric and historic artifacts were thoroughly mixed throughout the deposit (there is no remaining cultural stratigraphy); no cultural features observed, save the ring levee which is probably a modern construction; site is presently experiencing severe wave-washing.

TABLE 9.11 -- CULTURAL MATERIALS FROM BONE POINT (16SMY39)

Materials	Number
Aboriginal Pottery:	
plain body	260
plain rim (one triangular lug, one vertical castellation)	26
plain base (four bases have thickness between 19-22mm)	11
plain base-body (decorated):	6
Marksville Stamped, var. Troyville	1
Marksville Incised, var. Steele Bayou	1
Marksville Incised, var. Yokena	1
Evansville Punctated, var. Evansville	2
Avoyelles Punctated, var. Avoyelles	4
French Fork Incised, var. LaBorde	2
French Fork Incised, var. unspecified (complex curvilinear patterns outlined by drag and jab punctating but no stippling or punctating within zones)	3
Mazique Incised, var. Mazique	3
Coles Creek Incised, var. Hunt	2
unidentified incised (too badly wave-worn)	1
Historic Earthenware:	
whiteware, blue-white banded	1
whiteware, blue edged	1
stoneware, salt glaze (brown inside, gray outside)	1
stoneware, red and white banded	1
Other Historic:	
brick fragments	2
glass, blue (bottle sherd)	1

TABLE 9.11, (continued)

Materials	Number
asphalt	1
granite slab fragment (tombstone ?)	1
chain link	1
spike, square head	1
nail, machined, round	1
cotter pin	1
unmodified quartzite pebble	1
Faunal:	
Lepisosteus sp. (gar)	6
Myocaster coypus (nutria)	4
Odocoileus virginianus (deer)	9
Ondatra zibethicus (muskrat)	9
Sparidae (porgy)	3
Testudines (turtles)	1
Trionyx sp. (soft-shell turtle)	1
Mammalia (unidentified)	15
Bone (unidentified)	12

WEST ATCHAFALAYA BASIN PROTECTION LEVEE: JUNCTION OF GULF INTRACOASTAL WATERWAY AND LOWER ATCHAFALAYA RIVER TO U.S. HIGHWAY 190

From south to north, this survey segment extends along the West Atchafalaya Basin Protection Levee from near the junction of the Gulf Intracoastal Waterway and the Lower Atchafalaya River below Berwick, Louisiana, to U.S. Highway 190 at Courtableu, Louisiana (Figures 1.3-1.5). It covers approximately 145.5km. A detailed description of this corridor segment is given in Chapter 1. Thirteen sites are described for the segment.

Smith Place (16SMY108)

Description

The Smith Place is located on the right descending bank of Berwick Bay near what was originally the mouth of Bayou Teche (now termed the Lower Atchafalaya River). The site was previously recorded by the Louisiana State University Atchafalaya survey (Neuman and Servello 1976).

At present, a sizeable mud flat lies between the site and Berwick Bay. The West Atchafalaya Basin Protection Levee runs across the site area and has disturbed a large section of the mixed earth-shell midden. On the outside of the protection levee is a residence (Neuten Smith) and a well-manicured lawn. The bay side of the levee bears the residual midden exposure. Whether the midden extends under or outcrops on the residential side of the levee was not ascertained. Except for a few live oak trees, including one whose root system is helping to stabilize the remaining midden area, the natural vegetation has been cleared. The solum represents the zone of contact between Baldwin silt loam of the natural levee crest and the Iberia clay of the levee slopes (Lytle et al. 1959:Sheet 35). The existent landform at the time of prehistoric occupancy was a natural levee (crest) paralleling the Mississippi River-created, but by then abandoned, channel. The paleogeography of the location almost certainly included the underfit Bayou Teche, flowing down the old Mississippi course, and an old Lower Atchafalaya River emerging out of Six Mile and Flat lakes. The location, then as now, probably lay below the Teche-Atchafalaya confluence. Elevations at the spot today are greater than 1.5m above msl, and slope decreases gently in the direction of the bay.

The present exposure of rangia shells and artifacts parallels the protection levee flank for about 25m and extends downslope for an average width of 5.0m. Most of this exposure has been created by erosion and by disturbances associated with levee construction. However, small pockets of apparently in situ midden (rangia shells), 10-25cm thick, were noted around the base of a large live oak tree, where the original surface has been less disturbed.

The nondesirability of digging holes along the levee flank under the watchful eye of apprehensive residents prevented determinations of the dimensions and extent of the surviving in situ materials. It was learned, however, from one of the residents that a "mound" had formerly stood at the location but had been dug up many years previously. What was found and who did the digging was unfortunately not known, but a possibility is proposed later.

Artifacts

The site form included in Neuman and Servello's report (1976) notes the collection of a "limited number of plain sherds." The present collection, believe it or not, can add little to that information.

One prehistoric sherd, an example of Coles Creek Incised, var. Mott (Phillips 1970:75-76), was retrieved. It was the only artifact of certain aboriginal origin found.

A piece of coal, a flat piece of cast iron, and a glass sherd from the base of a square, light green bottle bearing the embossed letters, ". . . NRE," complete the artifact collection from the Smith Place.

Interpretations

The lack of stratigraphic and site dimensional data and the artifact collection, which can be described as neither extensive nor highly revealing, prevent even the most tenuous of speculations or, preferably, interpretations.

One concluding note, however, is worthy of mention. The site is, or lies very near, a location portrayed on the 1863 Confederate map (Edmonds 1979:17) as a mound. The concentric "radiant star" mound symbol bears the caption (Edmonds 1979:17):

> Mound From which the . . . /illegible/ can be seen from the camp /handwritten in mixed print and script/.

The camp in this notation is the 1863 Union Army bivouac area from whence the Great Texas Overland Expedition (Edmonds 1979; Gramling, this report) was launched. It is evidently the same Indian mound on which summit a Confederate semaphore station was manned to inform on Union troop movements (Edmonds 1979:11).

It is also probable that this may be one of the mounds of the Rice Berwick complex observed by Cathcart in 1819 (Prichard, Kniffen, and Brown 1945:61-63) and possibly by Collins in 1926 (Collins 1927). If this is indeed Collins' Fairview Plantation site, it is conceivably the same mound from which he excavated seven fire pits from a burned earth stratum almost 2.0m below the summit (Collins 1927: Figure 198). This may be the excavation and excavator recalled by the local resident. This location seems more likely than another mound, also shown on the 1863 plat, which was leveled to serve as a Union campsite (Edmonds 1979:

16-17). The location of the leveled mound seems to be a kilometer or two downstream from the first, closer to present-day Berwick. Needless to say, there is no presently known site at or near the latter location.

Stouts Pass (16SMY106)

Description

This site is located on the right descending bank of Stouts Pass about 2.0km downstream from its head at a constricted opening of Six Mile Lake, formed by Riverside Pass and the west bank of Drew's Island. It was previously found and recorded during the Louisiana State University Atchafalaya survey (Neuman and Servello 1976).

The site environs represent disturbed habitat, a situation no doubt produced by the same activities which resulted in the accumulation of cultural residue. The landform on which the cultural zone rests seems to have been an old swamp surface but is now surmounted by wash from and alluvium accreted around the base of an apparently artificial levee which forms the present ground surface. The elevation atop the bank is less than 1.5m above msl. A thick, nearly impenetrable thicket of second-growth saplings and vines covers the higher elevations paralleling this bankline exposure. Surfacial sediments are composed of mixed cap alluvium (Lytle et al. 1959:Sheet 28) and levee slope wash.

The site consists of a zone of brick rubble, rangia shells, asphalt, and other artifacts and ecofacts exposed for a distance of about 30m in the sheer river bank. Its width perpendicular to this axis was not determined. Incorporated in the talus accumulated at the base of several small erosional nicks (including one pipeline crossing) in the bank are piles of water-sorted rangia and other cultural residues.

Stratigraphy

Observations made of the stratigraphy at the location pictured in Figure 9.10 provided the following description.

TABLE 9.12 -- STRATIGRAPHY ALONG BANKLINE SECTION AT STOUTS PASS (16SMY106)

Stratum	Description	Depth (below surface)
A	Clay, silty; dark brown; highly organic replete with roots-rootlets and capped by leaf mold-humus; stratified; weathers into small, irregular, silt-coated clods; brick and shell fragments are included and become more numerous near contact with Stratum B; inclusions follow stratification planes; bottom contact wavy, irregular, and unconformable.	0 to 10-20cm
B	Shell and brick set in dark brown silty clay; stratified; shell largely confined to a 5.0-7.0cm thick band overlying the pavement of bricks; a layer of whole and broken bricks, one brick thick (ca. 10cm) forms the bottom boundary of this stratum; bottom contact is irregular and unconformable.	10-20 to 35-37cm
C	Clay, silty; mottled blue and light brown; seemingly massive structure; weathers into irregular polygons with silt-faced peds; some organic materials including roots and rootlets; bottom contact unobserved (below water level)	35-37 to 70cm +

Artifacts and Ecofacts

In addition to the shells, bricks, and asphalt present in Stratum B, a few other artifacts were collected, all from the scree along the river bank. Prehistoric and historic materials were present.

Prehistoric Pottery.

Four undiagnostic pieces of undecorated Indian pottery were collected. Three sherds were body fragments and one was a rim. The pieces were severely weathered and water-worn. Grog was the only noticeable aplastic, but the rim sherd also contained small ochre-like particles. The body sherds were uniformly gray to black with colors extending completely through the cores. The rim fragment exhibited orange (oxidized) exterior surfaces and a yellow core.

The rim sherd was slightly thickened by turning over the final coil

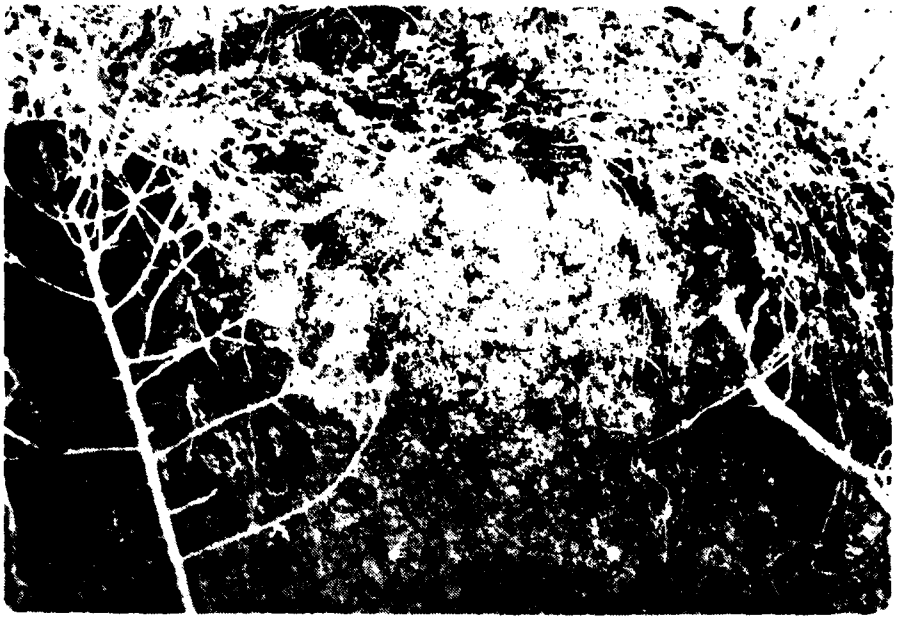


Figure 9.10. View of River Bank Profile at Stouts Pass.

and smoothing it onto the vessel exterior. The lip profile was uniformly rounded.

Historic Ceramics.

Two stoneware sherds, one bearing a brown interior glaze, the other a gray inside glaze, represented the total historic ceramic assemblage retrieved from Stouts Pass. Both sherds derived from large crocks.

Metal.

A solitary, round-headed, machined nail, about four penny size, was found.

Fauna.

Without including the abundant rangia shells, only one unidentified splinter of an animal bone was discovered.

Interpretations

Cultural materials indicative of at least two distinctive origins occur at Stouts Pass. However, the on-site accumulation of the materials

comprising Stratum B seems to have resulted from historic construction. Although prehistoric artifacts were present, there is no evidence that the location was ever a site of aboriginal activity. While no potsherds were recovered in situ, the rangia shell zone atop the brick pavement was probably the source of the dislodged sherds, and that zone was certainly laid down as a part of the historic building activity. This implies that the paving material was transported from a probably nearby midden.

Neither the precise age nor function of the constructed feature is known. The bricks have not been traced to their distribution source, so no suggestions are forthcoming from that possible investigative avenue. The stoneware sherds provide no relevant hints because of the extended period of stoneware use in South Louisiana. The best guess as to the age of the facility is sometime after the 1850s when modern wire nails of the type found here came into widespread use (cf. Smith 1974:53).

One speculation on the possible function and context of the facility is that it may have been a plantation wharf, or docking area. An 1863 Confederate map (Edmonds 1979:17) does show a burned-out plantation house, belonging to an H. Gibbons, in the immediate vicinity of 16SMY106. The proximity of the shell and brick pavement to the Gibbons house does provide a most convenient access point to water, capable of accomodating steamer-size vessels. Certainly, docking and the loading and unloading of cargo and supplies would have been considerably facilitated (especially with respect to the plantation house) by the preparation of an all-weather pavement at this precise location.

Counter-arguments to the possibility that the construction represented a building foundation can be developed from the mortarless setting of the bricks, their considerably irregular alinement, and the covering of shells (which would have made a poor flooring material).

Beaver Lodge (16SMY164)

Description

About 4.0km upstream from Stouts Pass (16SMY106) on the right descending bank of Riverside Pass is another small location bearing cultural materials. The site takes its name from a beaver lodge built

on the location (Figure 9.11).

The site is positioned on the downstream side of the mouth of a small drain and is incorporated in a low natural levee ridge standing less than 1.3m above msl. Relief is thus on the order of greater than a meter. Ground surfaces slope downward in all directions away from the immediate river bank. Behind the low bankline ridge is a cut-over backswamp reclaimed by woody second-growth, predominantly privet and young tupelo. Privet and water locust line the river bank and the clogged channel of the little drain. Surfacial sediments are mixed cap alluvium (Lytle et al. 1959).

A light scatter of rangia shells and prehistoric and historic artifacts occur along the narrow mud flat between the face of the bank and the edge of the water (Figure 9.12). Shells were confined to an area about 15m long. Subsurface testing was inhibited because of the extensive, thick and tangled, root system of a black locust tree and the beaver den complex. Probing failed to disclose a subsurface shell stratum outside the area of den and roots. However, inspection of the walls of one of the subterranean beaver tunnels revealed a thin (4.0-6.0cm) shell layer buried about 40-50cm below present ground surface. The lateral and linear extent of this zone could not be determined, but it certainly appears not to carry beyond 2.0-3.0m in any direction from the exposure. As a matter of note, the shell scattered at the foot of the river bank appears to have emanated from the beaver's excavations, allowing for some lateral reworking by the stream.

About 5.0-6.0m behind the river bank runs the same ring levee, to be described later (cf. Henry Knight site), constructed to protect the sugar cane fields of several large, early nineteenth century plantations lying between Riverside Pass and Bayou Teche.

Artifacts

The artifactual inventory is dominated by metal, earthenware, and glass objects, probably relating to the pre-Civil War period. Only one prehistoric potsherd was found.

Prehistoric Pottery.

A solitary aboriginal potsherd was recovered amid the shells along the river bank. It is a basal fragment.

Historic Metal Objects.

Five metal objects are included in this category: a cast iron door hinge, a belt buckle, a square nail (about eight penny size), a square spike (about 20 penny size), and a thin, unidentified bar of cast iron.

Historic Ceramics.

Three sherds of plain whiteware are included in this group. One derives from a coffee cup, another from the base of a saucer, and the third from the bottom of a large bowl.

Additionally, a large sherd of glazed stoneware is placed in the kitchenware assemblage. It represents the base of a "crock," possibly a churn.

Glass.

Glass is represented in the collection by a single sherd, a basal fragment of a green wine bottle bearing a "kickup."

Baked Clay Object.

The final object in the collection from Beaver Lodge is an amorphous lump of fired clay of unspecified origin and function.

Interpretations

It is apparent that 16SMY164 derived from at least two distinctive periods and kinds of activities.

The earlier activity was aboriginal and produced the rangia shell discard. Neither age nor cultural affiliation of this component can be specified. Beyond the obvious fact that the Indians threw away some shells at the location, the nature and range of the prehistoric activities represented here are unknown.

After alluviation buried the shell zone, the spot was again utilized by people. The character of this later activity set is entirely domestic and has many of the essential features of a household or, at least, of a range of activities normally associated with households. That some type of wooden structure stood on or near the spot is evidenced by the metal door or shutter hinge and the nails. Food preparation and consumption is indicated by the kitchen assemblage of cups, saucers, and bowls. Production of butter and buttermilk is



Figure 9.11. View of Beaver Lodge Looking East from Riverside Pass.



Figure 9.12. View of Beaver Lodge Showing Scattered Rangia. Crewman LaHaye Checking for Buried Midden.

suggested by the stoneware crock, and, by projection, the presence of milk cows is indicated. Further evidence of kitchenfare may reside in the wine bottle, although drinking of spirits in South Louisiana has traditionally been neither confined to mealtime nor to the kitchen. The presence of at least one male at the location is proved by the belt buckle.

Putting these evidences together, it is possible to conclude that 16SMY153 supported a house, in and around which typical maintenance activities were conducted. The character of the artifact assemblage is such as might be expected from a monetarily impoverished, rural family of whites or blacks of low social standing. It is unknown whether the situation at 16SMY164 was in any way connected with the extensive sugar plantation activities of the several larger planters occupying the higher and better ground along the Bayou Teche levee some 2.0 to 5.0km south of the location. An 1863 map of the area (Edmonds 1979:17) shows no houses in the area. However, the once extensive cane fields of these plantations came right down to the river bank, immediately behind the site. The protective ring levee, which buffered the fields along Riverside Pass, passes immediately behind the concentration of household refuse.

It is tempting to draw more specific conclusions, such as family removal and house demolition during the levee work or the house furnishing in-field support and maintenance of the levee-building slave labor crew, but these kinds of specific interpretations have absolutely no factual bases.

Clay Root (16SMY165)

Description

This spot is located on the right descending bank of Riverside Pass about 0.4km downstream from 16SMY104 and 0.4km upstream from 16SMY163. The site had not been previously recorded.

Its environmental situation was quite similar to 16SMY104. The "site" consisted of a light scatter of rangia shells and potsherds around the roots of a fallen tree (Figure 9.13). Closer inspection of the sides of the hole gouged out by the uprooted tree revealed a pocket

of in situ shells. This was simply a lense measuring less than 2.0m in length and 4.0-6.0cm in maximum thickness. Despite careful search, probing, and profile-shaving along the river bank above and below the shell lense, no additional shells or artifacts were found. The ring levee, noted at 16SMY107 and 16SMY104, follows the crest of the low bankline ridge at this location.

Stratigraphy

The pocket of shells lay 25-30cm beneath present ground surface. The lense was overlain by a stratum of reddish-brown silty clay exhibiting considerable mottling in the upper sections and becoming less mottled and darker in color with increasing depth. The shell lense was actually included in this upper clay stratum. The base of the stratum and the shell lense were coincident and represented an unconformity (i.e., an old erosional surface). Below the upper stratum was another unit of silty clay, mottled yellowish-brown in color, which carried to depths below water level.

Artifacts

The collection from Clay Root consists of only four pieces of prehistoric pottery, unassignable to type categories. The sherds are black to dark brown in color, and colors are generally uniform from surfaces through cores. The major aplastic is grog and some grit. Surfaces though worn do exhibit cracking.

Interpretations

Neither the age nor the cultural affiliation of the site can be assigned. There would seem to be at least two distinctive interpretations of how the "site" came to be and neither inspires staunch believability.

One guess is that the shell pocket in the river bank represents a minor geological, not cultural, event. It is conceivable that a tree torn from the bankline at the Moccasin site, only 400m upstream, lodged against the downstream corner of the little intervening cove and came to be incorporated in the accreting natural levee; a tree



Figure 9.13. View of Clay Root Showing Rangia Affixed to Uprooted Tree.

bearing a small section of midden in the clay fixed to its root system. Such a specific event, while seemingly far-fetched, was probably not uncommon and could account for the somtimes numerous little isolated scatters of shells along stream banks in South Louisiana (cf. Gibson 1978:151). As a matter of fact, if the situation at 16SMY152 could be closely monitored, we would eventually see the same thing repeated, as the clay root incorporating the midden materials becomes eventually dislodged and carried downstream.

Another guess is that the shell lense could represent a singular shell-dumping event by possibly a solitary shellfisherman. Such minor historical events must have happened often in the past but recording them archeologically stretches the interpretive capacity of the current state of the art into pure speculation.

Moccasin (16SMY104)

Description

This location is a sealed, partially intact, prehistoric shell

midden located on the right descending bank of Riverside Pass about 0.4km upstream from 16SMY165. It was previously recorded by the Louisiana State University survey team (Neuman and Servello 1976).

The site is incorporated into the natural levee along Riverside Pass and is being subjected to intensive and rapid stream erosion, accelerated by heavy boat and barge traffic. Elevations on the levee crest are less than 1.6m above msl and atop the highest shell stratum, about 1.0m above msl. Present ground surface slopes away from the river bank to a mature cypress-tupelo backswamp behind the levee, where water is ponded. Surfacial soils are undifferentiated silty clays, called mixed cap alluvium (Lytle et al. 1959:Sheet 27). Vine- and moss-draped cypress line the bank, and palmetto provides a dense understory along the better-drained bankline ridge. The river bank is deeply scalloped at this location, forming a cove-like indention. Shell strata follow the cove line, implying its existence at the time of prehistoric utilization or more probably a post-depositional erosional event which cut away the downstream end of the midden.

The site consists of a series of rangia shell strata and lenses traceable for a distance of 60m along the bankline profile (Figure 9.14-9.15). Perpendicular to the linear axis (i.e., to the present river bank), the top of the upper shell stratum seems to rise slightly and then quickly slopes into nonexistence 15m away. Atop the present ground surface is the same small ring levee described at the Henry Knight site.

Stratigraphy

The topographic shape and dimension, visible in bankline profile, were confirmed by a string of probe holes punched along axes perpendicular to the present river bank. Shell zones along the long axis of the site present a complicated stratigraphic profile (cf. Table 9.13; Figure 9.14). From the upstream point of origin, two separate shell strata are recognizable (Figure 9.14). Beginning as thin layers made up of scattered valves and generally becoming thicker and denser, these strata seem to merge into one thicker stratum near the downstream end of the site (Figure 9.15). However, it is apparent (around the exposed section paralleling the little cove) that this solitary, thicker unit is nothing more than a series of inter-

fingering and overlapping shell lenses, apparently conforming to the topographic expression of the old levee surface on which they were deposited and to individualized (possibly event-specific) dumping episodes. The posterior edge of the midden (better protected from erosion) also shows the discreteness of the lenses in this apparent stratum. Near site midpoint, a third and lower shell stratum appears (Table 9.13). However, its confinement to a small talus area and the broken and water-sorted nature of the shells indicates that this stratum may be a post-occupational, geological deposition; i.e., shells eroded and broken by water action being redeposited as scree at the base of the uneroded profile. Table 9.13 details the stratigraphic profile along a 60cm wide face troweled along the face of the bankline near site midpoint. The entire bankline profile is depicted in Figure 9.16.

TABLE 9.13 -- STRATIGRAPHY IN BANKLINE PROFILE SECTION AT MOCCASIN

Stratum	Description	Depth (below surface)
A	Clay, silty; reddish-brown; no visible stratification, massive; culturally sterile; bioturbated and filled with roots and rootlets; weathers into fine silty face; capped by mat of leaf mold; bottom contact, unconformable, top of shell midden.	0-60cm
B	Shell, rangia set in black clayey silt; lensatic structure; shells mostly whole; potsherds and animal bones are inclusions; bottom contact, unconformable.	60-78cm
C	Clay, silty; light reddish-brown; apparently massive structure; somewhat more indurated than Stratum C and more clayey; some shells from overlying unit intruded into upper few centimeters; culturally sterile; bottom contact, unconformable.	78-89cm
D	As in Stratum B	89-99cm
F	Clay, silty; light reddish-brown; massive (?) structure; broken shells occasionally scattered throughout and some "dusting" noted on weathered surface; harder than Stratum A; bottom contact (if observed), unconformable.	99-106cm



Figure 9.14. View of Bank Profile at Moccasin, Cove Bank.



Figure 9.15. View of Bank Profile at Moccasin, Bank of Riverside Pass.

TABLE 9.13, (continued)

Stratum	Description	Depth (below surface
F	Shell, rangia; broken to pulverized; size-sorting evident; shells free to loosely "set" in calcareous "dirt" (i.e., finely weathered shells); potsherds and bones worn and wave polished; bottom contact, not observed, below water level; this stratum may not be a basal midden accumulation at all but simply a geological talus deposited at the base of the observable stratigraphic section; the necessary trenching into the profile which would have revealed the nature of the contact with the profile was not conducted.	106-131cm

Artifacts

Pottery.

A total of 86 prehistoric potsherds and one historic glass sherd was recovered from Moccasin (Table 9.14). Fourteen of the sherds are decorated, the remainder, plain. Four ware groups were recognized, separated on the basis of distinctive combinations of surface and core colors.

Ware A.

A total of 42 undecorated sherds, 36 body, four bases, and two rims (Figure 9.17) was included in Ware A. In addition, five of the decorated sherds (i.e., two French Fork Incised, one Hardy, one Manchac, and one Plaquemine Brushed) were typed as Ware A. This grouping is distinguished by virtue of uniformly dark surface and core colors with hues ranging from black to grayish brown. The fabric is smooth, contorted, or foliated. Aplastics include grog, grit, some vegetal matter, and some sparce fine sand. A few sherds have surfacial integuments, i.e., washes, slips, or floats, but the majority does not.

A "grab-bag" sample of 10 sherds showed thicknesses ranging from 3.5 to 8.0mm; average thickness, 5.7mm; median, 5.5m; and mode, 6.0mm (three sherds).

Both rims in Ware A were broken from deep, almost straight-sided

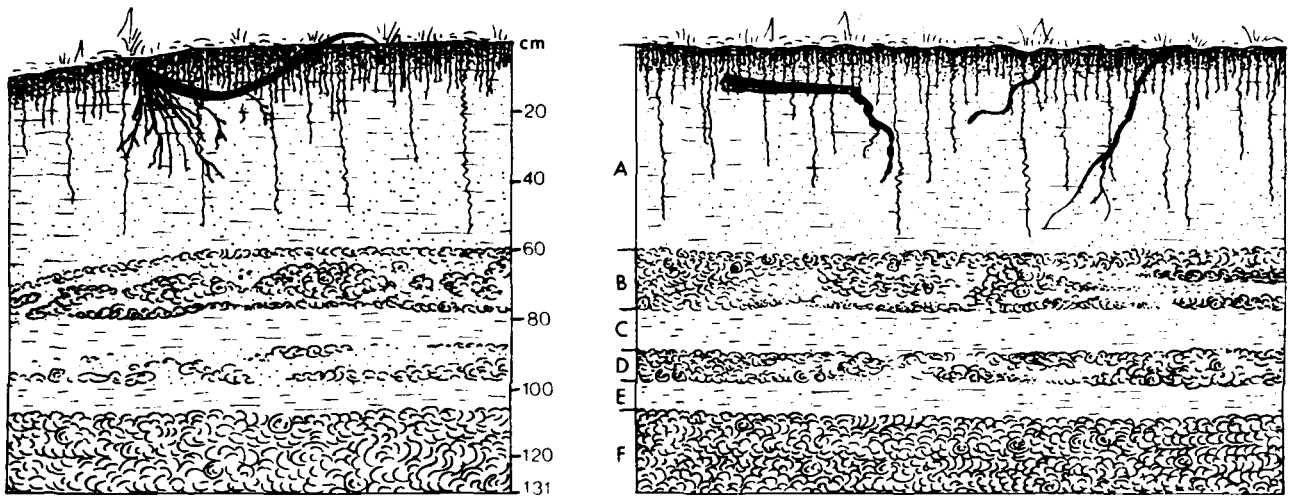


Figure 9.16. Stratigraphic Profile of Moccasin Showing Cove Section (left) and Riverside Pass Section (right).

TABLE 9.14 -- ARTIFACTS FROM MOCCASIN (16SMY104)

Materials	Number
POTTERY	
Plain:	
body	64
rims	5
bases	4
Decorated:	
Plaquemine Brushed, var. Plaquemine	6
Plaquemine Brushed, var. unspecified	1
French Fork Incised, var. unspecified	2
Lake Borgne Incised, var. Lake Borgne	1
Churupa Punctated, var. Churupa	1
Coles Creek Incised, var. Hardy	1
Mazique Incised, var. Manchac	1
unclassified incised (single line)	1
HISTORIC	
glass, dark green (wine bottle)	1

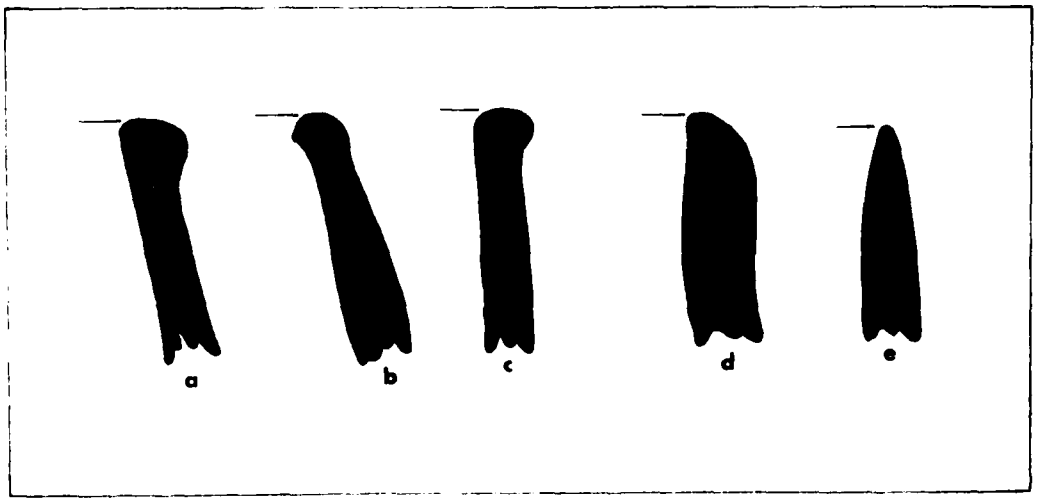


Figure 9.17. Rim Profiles from Moccasin (inside of vessel to left: a-b, ware A; c, ware B; d-e, ware D.

pots with mouth openings, 36cm in diameter. One rim is direct and thinned with a lip profile gently rounded on the exterior and pulled over into a slight overhang on the interior (Figure 9.17b). The other is direct, somewhat thickened (though not by the addition of an extra strap of clay), and bears a flat lip with a bulbous exterior contour and a sharp 90 degree contour on the interior (Figure 9.17a). The basal sherds recognized were all flattened. Two were thickened and round. The other two were unthickened and of indeterminate shape.

Ware B.

The category is comprised of 17 undecorated body sherds and one undecorated rim. Three decorated sherds, one Churupa Punctated and two Plaquemine Brushed sherds, also fall into Ware B. The sorting criterion is uniformly light surface and core color; that is, the color of the surfaces extends completely through the core. Colors are light brown to light reddish-brown. Grog, grit, vegetal material, and sparce fine sand are included in the paste. Surface integuments are not present. Surfaces tend to be smooth but bumpy, although a few are cracked. Paste morphology ranges from smooth through contorted to foliated.

Ten sherds were measured for wall thickness values: range, 5.5 to 8.0mm; mean, 6.4mm; mode, 6.0mm (three sherds); and median, 6.0mm.

The one Ware B rim was direct and unthickened-unthinned. The lip was flattened, and the excess clay from the flattening was pulled out into a slight, rounded, exterior overhang (Figure 9.17c).

Ware C.

Only three undecorated body sherds were included in this category, distinguished by the presence of dark (black to dark brown) exterior colors and light (buff to light reddish-brown) interior ones. All three sherds have films or washes. Otherwise, the sherds fall entirely within the descriptive parameters of the first two ware categories.

Ware D.

Seven undecorated body sherds, two undecorated rims, and five decorated (four Plaquemine Brushed and one unclassified incised) sherds are members of this ware class. Exterior surface colors are light, light gray to orange. Interior surface colors are dark (black

to dark reddish-brown). Core colors are variable, but usually the lighter shade only penetrates a millimeter or so into the core. Surfaces seem to have been slipped, washed, or floated, and some are cracked and sluffed. Cores are generally compact and smooth, but two are slightly contorted. Aplastics are grog, grit, and sparce fine sand.

Wall thicknesses (seven plain sherds measured) ranged from 5.0 to 10mm, averaged 7.1mm. Half of the sherds were 7.0mm thick or less, while the most numerous thickness was 5.0mm (two sherds).

The two plain rims were direct, broken from deep straight-sided pots. One was thinned with a rounded lip profile (Figure 9.17e). Mouth diameter was about 30cm. The other rim was unthickened and unthinned. The flattened lip was beveled, sloping from the interior edge downward to the exterior (Figure 9.17d). The vessel mouth measured about 28cm across.

Decorated Pottery.

Six decorated pottery types and one unclassifiable sherd were detected in the Moccasin materials (Table 9.14; Figure 9.18). Judging from the recognized types, it appears that the site supported occupation or activities during at least two temporally separated culture periods, Late Troyville-Early Coles Creek and Plaquemine.

Churupa Punctated, var. Churupa. One sherd. Conforms to Ford's (1951:52-53) original description and to Phillips' (1970:67-68) revised variety description. The fabric falls into Ware B.

French Fork Incised. Two sherds. Both sherds fall into the description range of this type given by Ford (1951:62-67) and by Phillips (1970:83-84) for the varietal designation French Fork. However, more finite sorting criteria for varieties within this type have recently been proposed (Gibson 1976b:34; Weinstein et al. 1978). While neither of these sherds falls into any of the varieites exised out of Phillips' French Fork variety, they do not yet demand variety names and will simply be left in an unspecified category.

One of the French Fork sherds exhibits a linear punctated border, outlining fields of random triangular punctates. The other bears a simple narrow incised line enclosing fields of random triangular punctates.

Both sherds possess Ware A fabric.

Plaquemine Brushed, var. Plaquemine. Six sherds. Diagonal brushing conforms to type descriptions (Ford 1951:85-86; Phillips 1970: 152-153). Ware A is represented by one sherd, Ware B by two, and Ware D by three.

Plaquemine Brushed, var. unspecified. One sherd. This sherd was not classified in the Plaquemine variety (though published sorting criteria would permit it) because the brushing is not an all-over treatment but is confined to diagonal bands forming open-ended triangular motifs around the upper vessel walls. Its fabric is Ware D.

Coles Creek Incised, var. Hardy. One sherd. Conforms to Phillips' (1970:73-74) description. It falls in the Ware A class.

Mazique Incised, var. Manchac. One sherd. Conforms to Phillips' (1970:129-130) description. It is a Ware A sherd.

Unclassified Incised. One sherd. This small piece bears a single, nondiagnostic, narrow incision which runs parallel to the upright axis of the vessel from which it was broken.

Glass.

Dark green.

One fragment of dark green glass was found at Moccasin. It derived from a relatively thin-walled, blown bottle, probably a wine container.

Ecofacts

Aside from the omnipresent rangia shells, a total of nine animal bone fragments were included in the collections.

Deer.

One bone splinter was recognized as deriving from the articular end of a deer femur.

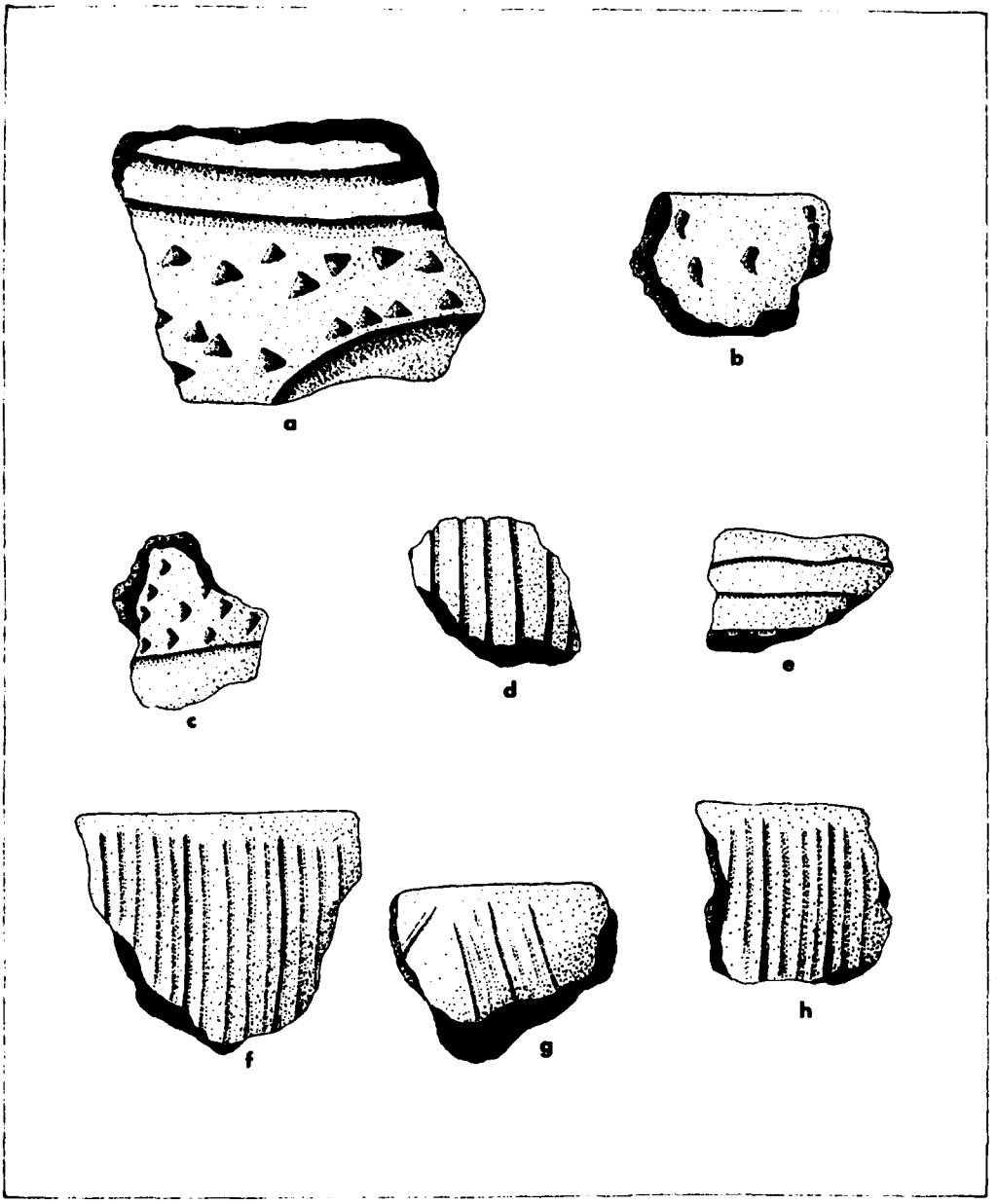


Figure 9.18. Decorated Pottery From Moccasin: a, Churupa Punctated, var. Churupa; b-c, French Fork Incised; d, Mazique Incised, var. Manchac; e, Coles Creek Incised, var. Hardy; f-h, Plaquemine Brushed, var. Plaquemine.

Turtle.

Two plastron plate sections from unidentified species of turtles were included.

Unidentified.

A total of six pieces of bone were unidentified; five, because of small fragmented sizes, could not be classified or attributed to family or genus. The other unspecified bone was a thoratic vertebra from a small animal.

Interpretations

The small size of the Moccasin site tends to convey the impression of simplistic development. Such obviously was not the case.

The stratigraphy was observably complicated; two and possibly three culturally deposited shell zones sandwiched between sterile layers of silty overflow clay. Even the structure within the shell midden strata was complex. Lenses, pockets, and thinner discontinuous bands of shells interfingered and overlapped to produce the thicker strata. However, this stratigraphic complexity can be interpretively resolved in simple terms, to wit: A group of shellfishermen used the spot to prepare their catch, returning on different occasions after floods had deposited layers of mud over the discarded shells. While this reconstruction continues to have parsimonious value, some of its details require elaboration and new data.

Decorated pottery suggests human occupation or use of the Moccasin locality during two separate temporal episodes. Three sherds of Churupa Punctated and French Fork Incised suggest a Late Troyville-Early Coles Creek component (A.D. 500-800). The majority of the decorated types, Plaquemine, Hardy, and Manchac, suggest the most intensive activity during the Plaquemine Period, perhaps after A.D. 1200 and before A.D. 1500.

There are at least three shell strata at Moccasin, two definite midden zones (Stratum B and Stratum D) and a third (Stratum F) which may represent a basal, erosionally reworked midden or simply talus derived of the two upper middens. Since there are two presumed occupations and two definite midden strata, it is reasonable to

equate them: Stratum D, stratigraphically intermediate, would represent Late Troyville-Early Coles Creek leavings and Stratum B, the highest, would presumably equate to Plaquemine activity. There is, unfortunately, not one shred (or sherd) of evidence to support this developmental sequence. None of the diagnostic sherds were retrieved *in situ*.

One thing does seem rather certain. Whatever the age or cultural origin of the various midden zones, the activity represented by each was interrupted by or, more realistically, was followed by a period of overbank flooding which left layers of sediment over the cultural refuse. Although sedimentation rates are extremely variable, one could envision the nearly equal thicknesses of the alluvial strata (11cm, Stratum C; 7.0cm, Stratum E) as representing approximately equal spans of time. If the cultural historical reconstruction, posited above, is brought into the picture, we could be looking at flood depositional spans covering some 700-odd years, or an accretion rate of around 1.0 to 1.5cm per century. The thicker stratum (A) of mixed cap alluvium might represent a depositional rate of between 7.5 and 12cm per century; a rapid pace corresponding to the heightened rate of sedimentation on-going over the last century and a half as a result of human-induced and natural changes in Atchafalaya Basin sedimentary ecology.

The point to be made in this argument of seemingly only geological relevance is that the Atchafalaya Basin, at least in the Moccasin locality (and probably other similar zones along the flank of the Teche-Mississippi meanderbelt ridge), has represented a relatively stable, swamp environment for hundreds if not thousands of years. This can be presented in cultural terms in the form of a law-like generalization. When environments remain stable and are dominated by familiar and predictable endemic natural processes, culture is apt to be dominated by tried and proven processes. Familiar technologies and economies are likely to exhibit long-standing, traditional continuities. Changes, e.g., technological innovations or improvements, recognition of new foods, new raw materials, and new source areas, are usually integrated into familiar cultural systems without major interruptions or disruptions to the functioning and organizations of those systems.

In the case of 16SMY104, this generalization serves to accommodate the reconstructed historical possibilities quite adequately. If two separate periods of utilization are indeed indicated, several conclusions are implied: a) shellfish were a desirable source of food from Troyville through Plaquemine times; b) the Moccasin locality was a source of this essential food for possibly more than 1000 years; c) no detectible differences in deposition (implicative of processing and other functional tasks) seem to be indicated, suggesting that the set of activities which resulted in the formation of the separate midden zones remained similar; d) the same area of land which supported the first period of cultural activities was exactly the same as that which supported the following ones; 3) the size of the shell accumulation (in terms of lateral extent) remained constant during the two utilization intervals suggesting a work force of similar proportions.

These implications support the view that the human activities represented at Moccasin, though covering at least two different spans during a 1000-odd year period, were quite similar and reflect a long-established economic adaptation to a swamp environment that seems to have changed little, if at all, during the entire time.

Henry Knight Place (16SMY107)

Description

This site is located on the right descending bank of Riverside Pass about 0.4km upstream from 16SMY104. The location was previously visited and recorded by Kathy Chaisson, Robert Murry, and Frank Servello in December of 1975 during the Louisiana State University survey of the Atchafalaya Basin (Neuman and Servello 1976).

The site is presently situated along the low crest and backslope of the narrow bankline ridge of Riverside Pass. A series of narrow ditches, apparently hand-dug, converge at the locality and enter the river through a now, largely, filled-in opening through the natural levee. The area lying behind the river bank is low and inundated and is covered by a mat of thick grass and second-growth, sapling-size privets and water oaks. The riverbank supports a thick growth of moss-

draped hackberry, water oak, and small live oak on its crest and a cypress-dominated fringe along the water edge (Figure 9.20). Elevations are less than 1.0m above msl and slope gradually away from the river bank. The solum is simply described as mixed cap alluvium (Lytle et al. 1959:Sheet 27), reflecting recent deposition. The entire area is presently subject to periodic overflow (note high-water marks on trees, Figure 9.20).

The site is multi-componential. A thin stratum of rangia shells is visible in the river bank. In December 1980 when the site was first visited and on two subsequent trips, this shell stratum lay at and below water level. The shell zone was traced linearly along the river bank for a distance of 16m. Its width was not determined but must be less than 3.0m, as the stratum did not appear in the sides of a sump pond, dug immediately behind the river bank. It was about 3.0-7.0cm thick and obviously represented a prehistoric accumulation, as judged from the one potsherd recovered during the present survey and from others reported by Neuman and Servello (1976).

A zone of culturally sterile, reddish-brown, silty clay covers the shell midden. Its thickness was undetermined (no testing was done along the river bank) but is certainly greater than 40-50cm. This alluvium is capped along the immediate river edge by a low, sinuous, artificial levee, composed of the same sediment (Figure 9.20). The embankment is actually only a segment of a levee system stretching for more than 4.0km along Riverside Pass. The levee is about a meter high (more or less), about 3.0-4.0m wide at the base, and has a crest width of a little over 1.0m. The crest is flat and its slightly concave cross-section intimates its use as a foot path for both people and draft animals (Figure 9.19).

Immediately behind the levee are the remnants of the second major site component--an historic pump station (Figures 9.21a-9.21b). Three small ditches (one emanating from the southeast, one from the south, and the third from the west; the latter actually being the levee borrow ditch) converge on a pond, measuring about 15m across. The pond, like the little canals, appears to have been hand-excavated (Figure 9.21a). A neck of land separates the pond from a larger ditch which once connected with the river through a now nearly closed gap (Figure 9.19).

This narrow strip once supported a steam-driven water pumping

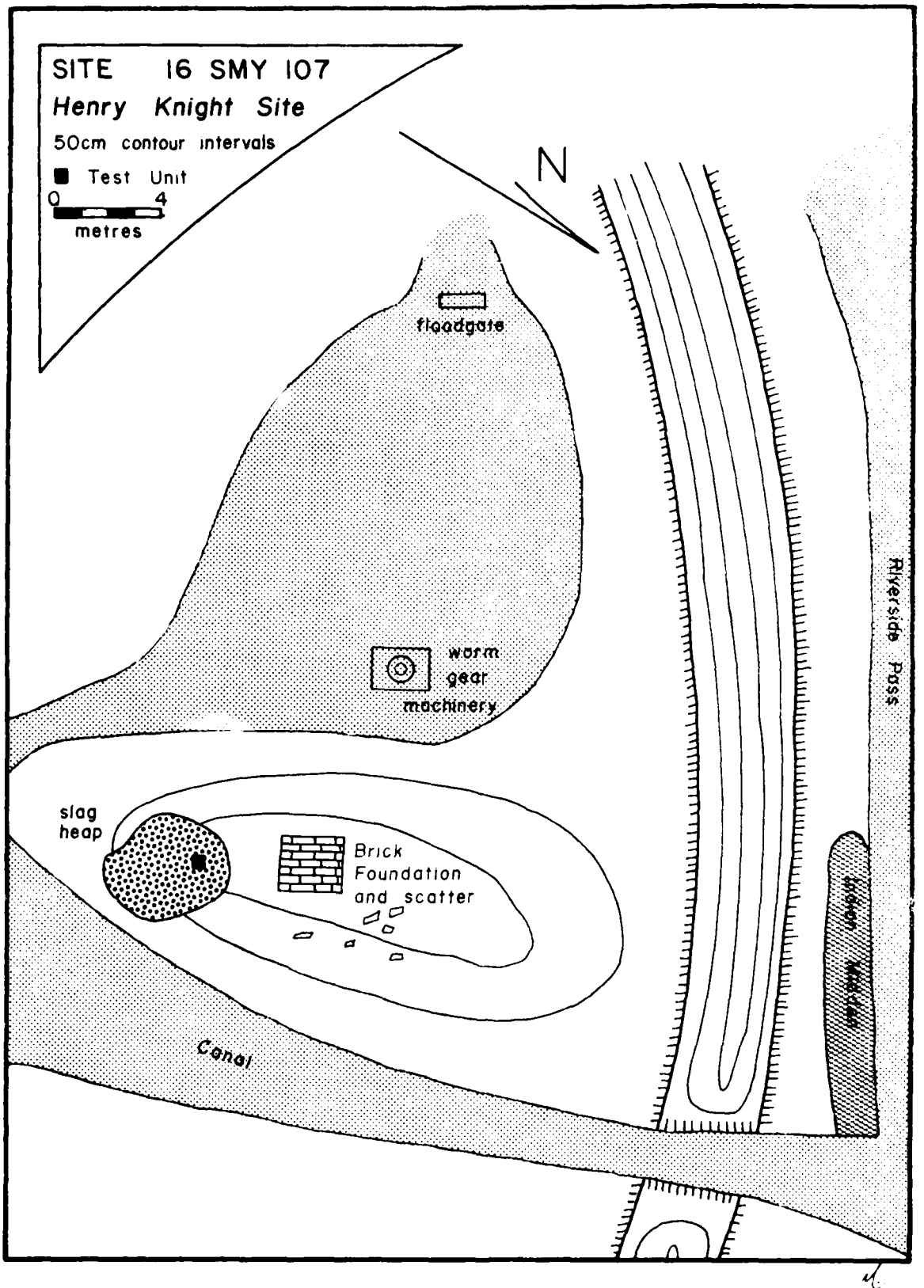


Figure 9.19. Henry Knight Site Showing Pond, Canals, Levee, and Other Features.



Figure 9.20. Henry Knight Site Looking North. Note Artificial Levee and High Water Marks.

facility. A pyramidal block of mortared bricks rises above the ground surface (other sections are buried) and appears to have been the foundation for the coal-run steam engine and/or its protective building (Figure 9.21a). Approximately 5.0m west of the exposed corner of bricks in the edge of the sump pond is a cast iron pipe about 5.2cm in diameter bearing a gear wheel near its upper end (Figure 9.21b). On the opposite end of the pond at the point of ingress of the levee borrow ditch are three cypress boards nailed together, which were evidently used to regulate water flow into or out of the pond (Figure 9.21b).

Between the gear pipe and the brick foundation corner is a brace made of two upright press posts joined by two cypress planks (Figure 9.21b). This device evidently supported an off-the-ground connection between the gear and the steam engine. Surrounding the brick foundation and brick rubble is a thick deposit of coal and slag, reaching depths behind the foundation of greater than 50cm. This is evidently the fuel and slag pile.

The boiler, engine, and other parts of the pumping apparatus may have been dismantled and carried away. However, the intact and well-



Figure 9.21a. Henry Knight Site looking West. Note Foundations and Slag Heaps.



Figure 9.21b. Henry Knight Site Looking North. Note Foundation, Gear Machinery, and Water Control Gate.

preserved nature of the site ruled out extensive destructive testing in an effort to simply confirm if they were present. In fact, aside from a single, 60 by 60cm square test unit excavated to a depth of 50cm (by shovel) in the coal pile, no subsurface testing was done.

Artifacts and Ecofacts

Aside from one prehistoric potsherd and one fragment of a hog mandible, obviously dislodged from original contexts and found along water's edge, no other items were retrieved from the Henry Knight site during this survey. Bricks, mortar, cypress posts and boards, nails, pipe, gear, coal and slag and no doubt many other artifacts are present, but since they complement and give added dimensions to the standing constructions and probable surface facilities, it was decided to leave them. Their collection would have compromized the integrity and well-preserved condition of the site.

The aboriginal sherd is an unclassified rim fragment from a plain vessel. The fabric is dark brown with grit and grog inclusions. Tooling marks show on the surfaces. Wall thickness was only 5.0mm, which seems somewhat thin for a vessel which measured about 36cm across the mouth. The rim was strongly out-turned creating a flange which seems to have exceeded the greatest diameter of the vessel. Form seems to have been a straight-sided or slightly globular pot. The ware and form characteristics of this sherd are similar to those from nearby Riverside Pass and may indicate a Plaquemine Period assignment to the otherwise unclassifiable sherd.

The pig mandible fragment is from a shoat-sized animal.

Interpretations

There is little to be said of prehistoric activity at the Henry Knight site that will not be mentioned in the discussion of the Riverside Pass site. The shell zone probably accumulated during a temporary, short-lived but intensive shellfish meat processing activity, possibly conducted by a small work group of Plaquemine folks.

After the prehistoric site was alluviated, the locale again experienced human activity of a different nature. This latter activity, which

probably transpired in the immediate pre-Civil War era, was related to agriculture and the development of several large plantations along the Lower Bayou Teche levee.

The location under consideration was part of one of several plantations shown on an 1863 Confederate map (Edmonds 1979:17). Three manors and associated slave quarters, belonging to Henry Knight, J. Knight, and William Rochal, are depicted on the map. These homes were burned and grounds ravaged during the Teche campaign of the Union Army in the spring of 1863 (Edmonds 1979:17,24). The mansions and surrounding grounds were located along the river road paralleling Bayou Teche over 1.5km from the archeological site. However, the ring levee, drainage ditches, and pump station were apparently built by these plantation-owners, probably under some sort of cooperative arrangement, to protect their sugar cane fields from overflow. The levee actually stretches for more than 4.0km along the bank of Riverside Pass, apparently traversing the properties of several plantations.

A local resident reported that the levee had been built by slaves before the Civil War, and this information certainly seems compatible with available archeological and historical data. The pumping facility and the network of drainage ditches must have been installed to rid the sugar cane fields of those periodic high waters which did occasionally top the levee.

Whether the steam-powered pump was destroyed by Union marauders during the Teche invasion, whether it simply fell into disuse and collapsed after the plantations were sacked, or whether it was simply and less eventfully dismantled after the war remain unanswered possibilities. Whatever the reason, sometime after 1863, the facility was abandoned. The fields were allowed to grow up. The levee fell into disrepair. The old fields, surrounded by a still functional ring levee became watery impoundments. Since the pump station was rendered disfunctional, there was nothing else for the ponded rain water or backwater to do but to stand until evaporated or perolated away.

In a very real sense, 16SMY107 provides an excellent time capsule of human activities separated by many hundreds of years; activities as widely different as the ethnic groups which conducted them. It is a

capsule of space, a scene of very specialized kinds of labor which are understandable as small nodes in a very intricate pattern of relationships involving distinctive technologies, economies, social and political systems, and ideological and attitudinal conditions. It also is an incapsulation of history, of events and peoples, whose lives were played out in a small section of southern Louisiana.

Riverside Pass (16SMY163)

Description

This small site is located on Berwick Island along the right descending bank of Riverside Pass and across from the southern tip of Morgan Island at the southern end of Six-Mile Lake.

The site consists of a thin stratum of rangia shells exposed in the bankline profile (Figures 9.22-9.23). The stratum could be traced along the stream bank for a taped distance of 26m. Probing indicated that the shell zone extended only 5.0m perpendicular to the bank. Two prehistoric potsherds were the only artifacts recovered.

The site is positioned along a low natural levee flanking Riverside Pass, the crest of which (i.e., the occupational surface) is now buried some 60-70cm below present ground surface. Surface elevations are everywhere less than 1.0 above msl. Relief is on the order of about a meter and is most pronounced along the river bank. The low bankline ridge (if it can be so pretentiously dignified) slopes quickly away from the bank to a saturated backswamp behind the site. The wet swamp seems to have been cut-over in the past and reclaimed by a thick, tangled, mass of tupelo saplings, privet, and vines. The bankline (and also the midden remnant) is rapidly eroding and slumping into the channel (Figures 9.22-9.23); erosion accelerated by the heavy boat traffic and wind- and tidal-influenced water fluctuations.

Stratigraphy

Two excavation units, 60 by 60cm squares, and a profile shaved along the river bank gave practically identical stratigraphy. All test units were excavated with shovels and trowels and matrices were unscreened. Stratigraphy revealed in the river bank profile is described

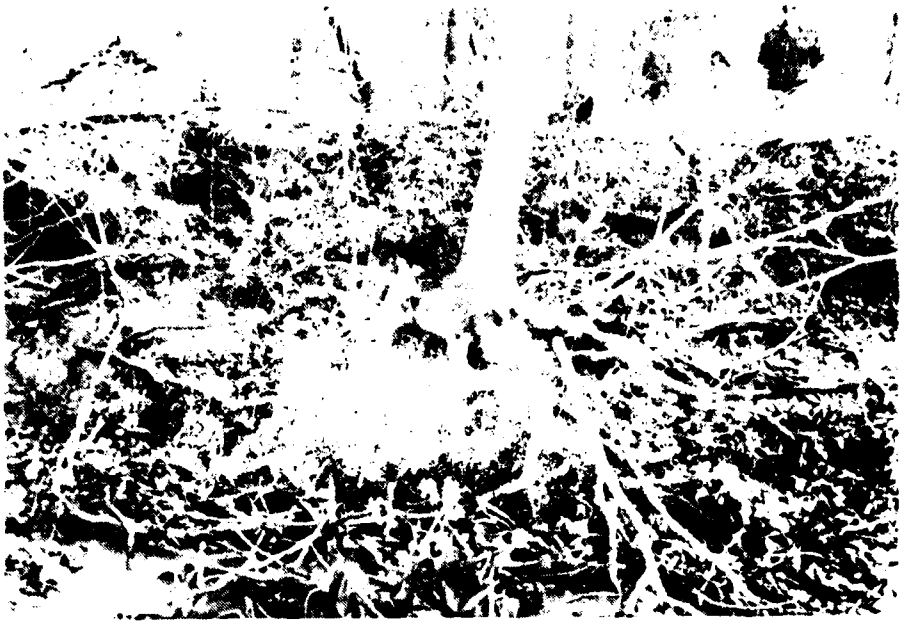


Figure 9.22. Closeup View of Riverside Pass Showing Rangia Stratum.



Figure 9.23. Riverside Pass Showing Scattered Rangia around Tree Roots.

in Table 9.15.

TABLE 9.15 -- STRATIGRAPHY IN RIVER BANK PROFILE AT RIVERSIDE PASS

Stratum	Description	Depth (below surface)
A	Clay, silty; reddish-brown; thin laminar stratification; considerable mottling and bioturbated; darker in upper part near humus cap, becoming lighter in color near contact with Stratum B; bottom contact represents cultural unconformity but probably *not* lengthy geomorphic hiatus.	0 to 60-70cm
B	Shell, rangia; set in grayish-reddish-brown silty clay; shells mostly whole; clay darker and slightly more organically enriched than basal part of Stratum A; represents cultural discard of shells; two potsherds recovered.	65-75cm
C	Clay, silty; reddish-brown; laminar stratification; mottled and oxidized; culturally sterile; bottom contact not observed, below water level; top contact with shell midden sharp but apparently geomorphically conformable; some shell dust in upper few centimeters.	75-100+ cm

Cultural Materials

Two artifacts, both potsherds, were found at Riverside Pass. One is a weathered rim sherd exhibiting a mottled blue and orange fabric and angular clay lumps (grog) in the paste. The rim is unthicked and sharply out-turned with a rounded lip profile. The small size of the sherd prevented diameter measurements, but the vessel from which it was broken seems to have been a straight-sided pot or flowerpot-like vase with a sharply flaring rim.

The other potsherd, also a rim, is classified as Plaquemine Brushed, var. Plaquemine. The vessel shape is similar to that described above, but the rim was even more out-flaring and the pot was larger.

Aside from the culturally deposited rangia shells, the only other

ecofact recovered was a deer tarsal bone.

Interpretations

The limited information from Riverside Pass minimizes possible interpretations. It is also evident that a part of the midden (of unknown dimensions) has been victimized by stream erosion, although the thin buried remnant is clearly in situ and undisturbed by modern surfacial activities. The site had apparently escaped detection by previous investigators (such as Kniffen, McIntire, Neuman and Servello), so no additional information is available.

Based on present data, a general picture of site development can be projected. Prior to human activity, the location appears to have been a low muddy bank subject to frequent and probably periodic overflow. Mottling and oxidation traces in this old bankline ridge (Stratum E), however, indicate its repeated subaerial exposure. Apparently drawn by a nearby supply of rangia clams along the river's edge, a group of Plaquemine peoples utilized the spot, their activities resulting in the discard of shell residue (Stratum B) and breakage of at least two ceramic containers. At least one deer was consumed during their tenure.

The exact nature, number and range of human activities ay Riverside Pass cannot be specified. It is suspected that this location, like so many other small shell middens, in coastal Louisiana, represented a fleeting visitation devoted largely to a singular procurative task--clam collection, shucking, and meat preparation. The meat and caloric value of rangia (cf. Byrd 1976b)is so low compared to many other animals that satiation of even daily food requirements would have required collection of large numbers of these shellfish. Byrd (1976b: 25) has, for example, determined that it would take over 25,000 clams to equal the meat yield from one 45kg deer. The residue from this number of clams would produce a midden volume of nearly a cubic meter (Byrd 1976b:25).

Calculating the midden volume at Riverside Pass (i.e., 26x5.0x.05m) produces a maximum figure of $6.5m^3$, or the equivalent of between six and seven deer. This is certainly insufficient to have sustained a large group of people for any great length of time, and though a

portion of the midden has been lost to erosion, the thinness of the shell stratum suggests a quick, short-term accumulation.

This interpretation is supported by other factors. The lack of significant organic staining, though possibly due to leaching, could be due to the rapid removal of clam meat from the location, rather than on-site consumption. If the Indians' olfactory senses were no less sensitive and if appreciation of smell is not totally culturally determined, it would have made good sense to process clams away from the village area, especially if the activity was conducted during summer low water conditions (as is expected) under the blazing hot South Louisiana sun.

Whatever the nature of human activity at Riverside Pass, its cessation was followed by a period of overbank alluviation which built up the upper 60-70cm of silty clay over the midden (Stratum A). It does not appear that ecological conditions, manifested in the stratigraphic column, differed significantly from Stratum C to Stratum A. The location seems to have been prior, during, and after the period of shell accumulation, a poorly drained bankswamp, subject to periodic overflow. The narrow, muddy riverbank, which reposed a few centimeters higher than the flanking wet swamp, was selected as a site of temporary human activity during the Plaquemine period, a spot probably chosen because of a nearby rangia bed and probably because of proximity to some nearby locale which functioned as a base camp or village.

Bisland (SMY166)

Bisland lies along both sides of Bayou Teche below the Wax Lake Outlet in the town of Calumet, Louisiana. This location was the site of the Confederate fort, Camp Bisland or Bethel Place, and the scene of one of the more memorable engagements in the Teche campaign of the Union army in the spring of 1863 (Raphael 1975:86-100). Here on April 12-13, 1863, Confederate and Union forces met in one of the bloodiest battles fought in the Trans-Mississippi Theater (cf. Gramling, this report).

Confederate troops, under command of General Richard Taylor, were attacked by Union forces, directed by General Nathaniel Banks. Though outnumbered more than four to one, Taylor held the fortified location for two days until, via a masterful tactical coup and a lot of luck, he managed an orderly retreat, a successful escape from the well-conceived

but poorly implemented Yankee pincer movement (cf. Gramling, this report).

The exact layout of Fort Bisland is not known. A map of troop placement during the actual battle (from Irwin's Nineteenth Corps, reproduced in Raphael 1975:93) does not show fortifications per se. Nevertheless, the following is learned from Raphael (1975:56):

> The position /Fort Bisland/ was well chosen since the line of embankment stretched across a narrow neck of Teche ridge with Grand Lake on the north and a reach of Vermilion Bay swamp /actually Atchafalaya Bay/ on the south (emphasis provided).

Further on, Raphael (1975:56-57) notes:

> The Wax Lake Outlet . . . skirts the western edge of the old battlefield. Much /sic/ of the redoubts and earthworks was destroyed when the channel was constructed in the late 1930's and early 1940's.

Thus it is evident that artificial earthworks and trenches were built at Fort Bisland, and Raphael gives us a solid reason why no apparent fortifications were detected during the present survey. That the grounds around the battlefield may still bear discoverable reminders of the battle was recorded in the memoirs of several Union and Confederate troops during the second Union expedition up the Teche, the so-called Great Texas Overland Expedition of fall 1863. Edmonds (1979: 26) relates:

> . . . the long blue columns /General Franklin's advancing Union troops/ came across an old Confederate fortress (Fort Bisland) and a long barricaded ditch angling away from the bayou toward swampy marshes on both sides. . . . "Marks of shot and shell were plainly visible on the adjoining trees and buildings," recalled a soldier in the 24th Indiana.

Further Edmonds (1979:27) quotes an account of the Bisland devastation given by a soldier from New York.

> The ground seemed not to have been trodden by human foot since the battle. Skeletons of horses lay where they had fallen, immense flocks of carrion birds hovered over the place, a luxuriant growth of weeds, ten feet high, covered the canefields--the whole scene was one of utter desolation.

Finally, Edmonds (1979:27) reproduces another eye-witness account of Bisland, this one made a few days before the Union advance by a Texas

Confederate who saw:

> here and there a part of Yankee uniforms and scattered about were legs and arms and heads which had escaped from their hastily dug graves. It was a ghastly sight indeed.

As previously indicated, the present survey failed to detect visible evidence of fortifications or other structures within the prescribed search corridor. No artifacts resulting from the fight were discovered, but coverage was done without the aid of metal-detecting instruments. The location of the fort is well-established from both written records and oral traditions, and the historical importance of the events that transpired here to the Civil War west of the Mississippi River and to the course of and eventual outcome of the conflict itself have been faithfully recorded.

Fort Bisland and the military action it witnessed in the spring of 1863 were of paramount significance to the war effort on both Confederate and Union fronts and to the 22,000 men who spent two eventful and, for some, terribly tragic days at this hastily constructed but bravely defended fort in the sugarcane fields of South Louisiana.

Charenton Beach (16SMY2)

Description

This site is located along the west shore of Grand Lake and on the eastern flank of the Teche Ridge below the Charenton floodgate on the CD and N Canal. It was previously recorded during Moore's (1913) expedition and again during the Louisiana State University Atchafalaya survey (Neuman and Servello 1976).

Contemporary land use as a recreational beach and permanent and temporary campsite has altered the natural environment considerably. Sand has been broadcast along the lake perimeter (Lytle et al. 1959: Sheet 7), but the greatest damage to both habitat and site integrity has been due to wave erosion. Exposed root systems of some of the larger trees show that, in some areas, as much as 1.5m of soil has been displaced, presumably during the last century or so (Figure 9.24). This severe deflation has without doubt been a consequence of the enormous siltation that has filled in Grand Lake since the early 1930s and the

concomitant heightened erosional severity of the wind-generated waves over the shallowed lake.

A beach strandline now covers much of the linear extent of the site and incorporates all manner of cultural materials, prehistoric, historic, and modern, and various high energy-transported sediments. Size-sorted materials, including artifacts, line the lake side of the strand and are covered with films and layers of mud. Behind the beach strand are midden deposits which seem to be *in situ* culturally, geologically, or both.

This part of the site also supports a zone of endemic, natural vegetation, dominated by large live oaks, water oaks, elm, ash, palmetto and bitter pecan. Nearest the water, this zone of drier mixed hardwood gives way to a fringe of privet, tupelo, and cypress. Elevations range from a few centimeters above mean sea level at water's edge to greater than 1.5m above msl. Slope is relatively pronounced (about 1.5m vertical drop over 100-150m) from south to north, or from highest part of lake perimeter to water's edge. Surface soils are simply referred to as undifferentiated swamp clays and mucky clays (Lytle *et al*. 1959:Sheet 7).

Paleogeographically, the location at the period(s) of site occupancy seems to have resembled its present situation, i.e., a lake beach developed along the lower flank of the Teche-Mississippi meander-belt ridge. Although demonstrative stratigraphic proof is lacking, there may have been a flowing stream about 0.3-0.4km east of the site. This presumed stream channel is marked by a band of Baldwin silt loam (Lytle *et al*.1959:Sheet 7) and almost certainly follows an old crevasse splay formed during the period of Mississippi River activity in the Teche course.

The midden consists of a linear accumulation of rangia shell and artifacts set in silty clay loam. The accumulation parallels the present lake shore and extends for about 365m; it averages about 50m wide but lobes and scatters of shell may reach widths of over 100m. Some areas reach thicknesses of nearly a meter. Midden topography is sculptured into a series of small mounds, or knolls, three of which are prominent today.

Moore, who visited the site in 1913, gave the following description



Figure 9.24. Clarenton Beach Showing Effects of Wave Erosion on Midden.

(Moore 1913:19-20):

> Immediately across the bayou /Bayou Teche/ from Charenton is the home of Mr. F.C. Viguerie. One mile across country from this gentleman's residence, in St. Mary parish, near the border of Grand Lake, are five mounds composed largely of shell, and various shell ridges.
>
> These mounds, with one exception, were covered with growing sugarcane, so that our investigation was restricted to this one, which was 7 feet high and about 125 feet in diameter.
>
> It had grown up under aboriginal occupancy and was composed largely of shells, Rangia cuneata, a clam very abundant in this region. No burials were found in it, though human bones are said to have been plowed up from some of the other mounds at this place.
>
> In midden debris was a sherd of inferior ware, on which was red pigment.

No subsurface testing was done during the present investigation.

Artifacts

Pottery.

A total of 57 potsherds was retrieved during the present investigation; 53 were plain and four were decorated (Table 9.16). Four ware categories were recognized, based on various combinations of surface and core colors and other fabric characteristics, and a fifth grouping was established to accomodate those residual sherds lacking diagnotic features due to severe weathering. In addition, decorated sherds were classified according to standard type-varieties (Phillips 1970).

Ware A.

This group, numbering 14 sherds, was sorted by dint of having light (orange to buff) exterior surface colors and dark (black to gray) interior surface colors. Twelve of the undecorated sherds placed in Ware A were vessel body fragments, one was a pseudo-annular base, and another was a thickened rim with a dihedrally beveled lip profile (Figure 9.25a). The rim derived from a deep bowl. Thickness measurements, made on a "grabbed" sample of 10 specimens, provided the following descriptive statistics: range, 5.0-8.0mm; mean, 6.3mm; mode, 6.0mm (five sherds); median, 6.0mm and less.

TABLE 9.16 -- ARTIFACTS FROM CHARENTON BEACH (16SMY2)

Materials	Number
POTTERY	
Plain:	
body	47
rims	4
bases	2
Decorated:	
Mazique Incised, var. Manchac	2
Pontchartrain Check Stamped, var. Pontchartrain	1
Marksville Incised, var. Yokena	1
STONE	
Cores:	
Multiple platform, lisse and faceted	1
Single platform, cortex	1
Bifacially Flaked Pebble:	
arrowpoint preform (?)	1

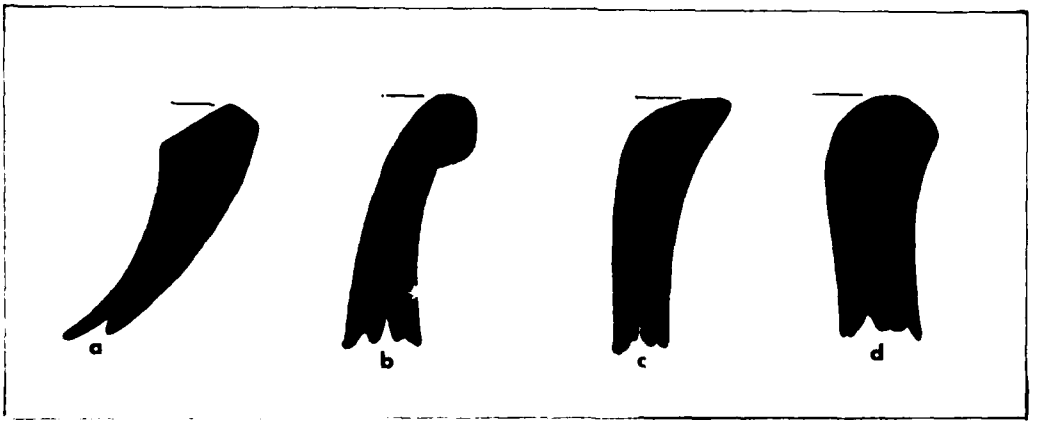


FIGURE 9.25. RIM PROFILES FROM CHARENTON BEACH (inside of vessel to left). a, ware A; b, ware B; c-d, ware C. Not to scale.

Ware B

A total of 15 undecorated sherds was included in this category distinguished by the presence of uniformly dark surface and core colors. In other words, surface and core colors were indistinguishable. Colors run through various hues in the black to gray range. Aside from a single rim sherd, all others are pieces of vessel bodies. The rim (Figure 9.25b) is from a slightly flaring, probably deep pot. It has an out-turned lip which is rounded in profile and is extruded outward on the exterior vessel wall. Thickness characteristics were determined on a "grabbed" sample of 10 sherds: range, 5.0-7.0mm; mean, 6.1mm; median, 6.0mm and less; mode, 7.0mm (four sherds).

Ware C.

Ware C is comprised of 14 plain sherds, including 12 body, one flattened and round base, and two rims. This group is separated from the other wares because surface and core colors are uniformly light, ranging from gray (almost white) to buff, apparently indicative of thorough firing under oxidizing conditions. One of the rims is thickened with a flattened lip extruded exteriorly beyond the plane of the wall (Figure 9.25c). The other rim is direct and only slightly thickened with a rounded lip profile that is somewhat more compressed on the exterior edge (Figure 9.25d). A "grabbed" group of 10 sherds showed thicknesses between 4.0 and 8.0mm and averaging 6.1mm. Half the sherds were 6.0mm thick and less. The sample was bimodal with three sherds having a thickness of 7.0mm and three, 6.0mm.

Fabric Characteristics of Wares A-C.

Aside from the variable color combination criterion, there are practically no other striking variations in fabric characteristics which would permit more finite sorting, at least at the gross macroscopic level of observation employed here. Intensely suspicious of plain "types" (actually wares) being raised to the level of historically-culturally significant categories (in most cases), this author has no qualms about not providing more clear-cut fabric sorting criteria. It has always been puzzling how traditional typologists so easily assign different type names to ceramics in which the only recognized difference is the addition of decoration. It is also the opinion of this author that, with some unusual exceptions, ware or fabric characteristics are

so dependent on local clay sources and poorly controlled, practically individualized, firing conditions as to be nearly useless in making cultural-historical generalizations. Types are types anyway you look at them, but archeologists have been far too "foot-loose and fancy-free" in imbuing them with cultural meaning, especially when such meaning is extended beyond the confines of contemporary areas within individual sites.

With this prelude aside, a general summary of other fabric characteristics of all three ware categories is provided. Surfaces tend to be smooth, lacking tooling marks. Vigorous rubbing (floating) or the addition of washes (or actual slips) has produced thin integuments. Though generally smoothed, surfaces tend to be bumpy where inclusions break the "skin" of the walls. Aplastics include grit and small grog particles. Fabric interiors (cores) range from smooth and compact to contorted.

Ungrouped.

Five sherds, whose badly weathered condition has left nothing but residual cores, have been placed in an ungrouped category.

Ware D.

After so much ado about the value of fabric qualities for typological purposes, Ware D provides a classic example of the opposite approach; i.e., undecorated wares being accorded cultural-historical meaning. This is not so much a question of a short memory span or of a confusing reversal of thinking but rather serves to point out one of those rare exceptions to the opinionated generalization of the localized, practically ungroupable nature of prehistoric pottery fabrics, or wares. The criteria used to sort Ware D have been demonstrably proven time and time again as useful attributes for segregating potteries made during the Tchefuncte culture period. Why Tchefuncte wares should be so easily recognizable even under the kind of casual observation used here is difficult to say. The subject is a suitable topic for intensive qualitative and quantitative research, but for now we must beg the issue and lay typological decisions squarely on the back of personal experience or "feel." While bowing to the culture and historical implications of this grouping, the author is still unwilling to go the full route and accord existing type or type-

variety nomenclature (cf. Phillips 1970; Weinstein and Rivet 1978) to the category.

Colors of Ware D sherds are variable from sherd to sherd and from surface to surface within single sherds. Color uniformity (surfaces through cores) is noted on three pieces, with colors ranging from orange to gray. One sherd has a dark exterior surface color and a light interior, while a fifth sherd exhibits an opposite coloration. Surfaces are smoothed, probably floated, but still bear tooling marks; cracking of the surfaces is prevalent. Fabric is highly contorted to foliated; the latter attribute is quite distinctive and involves fine, almost laminar, planes running at about 30 to 45 degree angles from one surface to the other through the core. Aside from black to bluish-black, sometimes lustrous, coatings along the laminations or contortions (which may be burned-out vegetal or other organic residues), there are no visible inclusions in the fabric. Contortions in the paste may represent inclusions of slightly harder clay particles (i.e., the so-called clay tempering) which could be a consequence of incomplete straining prior to coiling, differential drying or firing, or possibly even finger compression (i.e., molding) during coil joining. They might even be intentional additions (true temper).

In addition to the distinctive fabric characteristics, Ware D, although only represented by five examples, exhibits thickness parameters that differ from the three wares described above. Statistical details include: range, 6.0 to 11mm; average, 8.6mm; midpoint, 8.0mm; and most frequent thickness, 8.0mm (two sherds).

Decorated Types.

Four decorated sherds were included in the present collection (Table 9.16). They conform to existing type-variety descriptions (Phillips 1970). They include: Mazique Incised, var. Manchac (two sherds); Marksville Incised, var. Yokena (one sherd); and Pontchartrain Check Stamped, var. Pontchartrain (one sherd).

Stone Artifacts.

Three stone artifacts, all of small brown gravel, were retrieved from Charenton Beach (Table 9.16). Two of the objects were cores. One was a thermally altered multiple platform nucleus bearing one lisse and one faceted striking stages. The other was a cortex platform type.

The third artifact was a heat-treated flat pebble exhibiting bifacial flaking around the margins and represents an incomplete (pre-preform) stage in the production of an arrow point.

Interpretations

Using ceramics in their traditional guise as temporal and cultural indicators, it becomes apparent that Charenton Beach was used as a locus of aboriginal activity, stretching from the Tchefuncte period through late prehistoric (Plaquemine) and possibly early historic times. The nature of activities, their durations, their technological, economic, and socio-political implications, and their other myriad meanings for cultural understanding are obscure. These information voids are purely a function of present data acquisition (or rather the lack of acquisition), for Charenton Beach in its present in situ condition would seem to have great promise for increasing our understanding of lake side communities in the Atchafalaya Basin in particular and of prehistoric culture in the Lower Mississippi Valley in general.

Generality and future promise aside, there is an issue of an ethnohistoric nature on which 16SMY2 would appear to have considerable bearing, even given the short-fall of archeological information. That issue is an old one in historical archeology--the linking of archeological sites with recorded locations of Indian villages.

When Albert Gatschet visited the Chitimacha Indians at Charenton in 1881, he acquired, from an old Negro man (Angelique Baptiste) living on Grand Lake, a list of 15 Indian villages scattered throughout the Atchafalaya Basin (Gatschet 1883). These villages presumably existed around 1700 but almost certainly were occupied well after that date. John Swanton (1911:343-344) was subsequently able to confirm Gatschet's information in most cases and added six additional locations on the authority of his native informant, Benjamin Paul, then regarded as chief of the Chitimacha.

One of the villages, somewhat confusingly labeled Ama'tpan na'mu by Swanton (1911:343) though Gatschet had accorded the same name to an entirely different location, seems to have existed along the western shore of Grand Lake. Swanton learned from his Indian informant that Gatschet's placement of Ama'tpan na'mu in the Bayou Gris locality was probably accurate but that there was a better known village of that name on

Grand Lake. To heap confusion on top of confusion, there is no stream in the vicinity today called Bayou Gris (cf. USGS Jeanerette Quadrange, 15 minute series), and Gatschet's locational information plotting this village on Bayou Teche, three miles (4.8km) east of Charenton, cannot possibly be correct. Bayou Teche runs west, northwest of Charenton, not east. Nonetheless Swanton (1911:343) added a parenthetical note on the better known Ama'tpan na'mu location, placing it ". . . on the side of Grand Lake opposite Charenton." If this does not mean on the east shore (Charenton is on the west side of the lake), it could refer to the Charenton Beach site. This round-about conclusion would seem to be substantiated by a subsequent reference in Swanton which (if the same village is implied) confirms the west shore location; thus Swanton (1911:344), ". . . at the shell bank on the shore of Grand Lake close to Charenton, . . ."

While considerable historical research has been done (Gibson 1979c) and the correspondence between Ama'tpan na'mu and Charenton Beach seems quite likely, definitive proof in the form of land title transactions, unpublished family papers, or the like, is presently lacking. Until such time as the necessary research can be conducted (as it has in the case of two Chitimachan villages on the east side of the Atchafalaya Basin, i.e., the Plaquemine and Rio de los Indios villages; cf. Gibson 1980a), the Ama'tpan na'mu-Charenton Beach correspondence is presented only as a possibility and as a focal point on which to concentrate historical research.

Bayou Perronet (16SM50)

Description

The Bayou Perronet site is a small black earth midden situated on the right descending bank of the bayou of the same name near Henderson, Louisiana. Bayou Perronet, in this section, has been laterally widened by previous levee construction, i.e., the bayou was used for fill dirt, and the land surface above and surrounding the site is now a string of crawfish ponds. These land uses have drastically altered the natural environs and the former has damaged 16SM50 to an unknown extent.

The site today is in a poorly drained swamp, the so called Henderson Swamp section of the Atchafalaya Basin. It is isolated from the constantly inundated part of the swamp by the protection levee. The site lies in the path of the Cypremort Crevasse which occurred during the infamous 1927 flood, and the upper layers of clay which cover the occupational zone were possibly deposited, or at least added to, during that levee failure event. The Bayou Perronet site lies about a kilometer west of the mouth of the Bayou Berard Drainage Canal.

The land in the site vicinity is everywhere less than 1.5m above msl. Relief is slight, less than 1.5m, and is generally most pronounced along streams and across swampy depressions. However, elevations increase dramatically west of the site, where within a distance of less than 7.0km, elevations steadily rise to 10.7m above msl. This line of increasing elevation marks the backslope to crest morphology of an old Mississippi River natural levee, formed while the river was in its Teche meanderbelt. The stratigraphy at 16SM50 bears suggestive hints of a close relationship with the abandonment of this river course. Surface soils in the site area are Sharkey clays of the frequently saturated facies (Murphy et al. 1977:Sheet 14). This soil suite is another important factor in reconstructing geomorphic events during and after site occupation.

Vegetation in the area today is characterized by second-growth, replacement (pioneer) species. The bankline of Bayou Perronet is marked by small cypress, privet, cattails, and various sedges and grasses. Water oaks, bitter pecan, cypress, and willow occur sparcely along the edges on the crawfish ponds and increase into a full section of woods near Bayou Berard. The cleared areas and pond levees are covered by a rich growth of grasses, weeds, and sedges.

The site itself (actually what remains of it) is a band of black organic clay bearing moderate densities of artifacts and ecofacts, which are buried by more than 60cm of culturally sterile overflow alluvium. This layer of midden is 26cm thick at midpoint and pinches out at both ends. Where exposed in the bayou bank, the zone is 21.6m long and is less than 15m wide. A series of auger holes, 7.6cm in diameter were placed along a line perpendicular to the long axis of the midden. The midden was not encountered in the last hole dug 15m from the bayou bank, even though the hole was carried to a depth of greater than 1.6m.

Interestingly, the auger holes revealed that the organic band thinned and increased in depth away from the water's edge, indicating that it conformed to the slope of a low natural levee which paralleled the site along the same axis as present-day Bayou Perronet. The topographic expression also suggests that an unknown portion of the organic stratum, now truncated by the bayou bank, has been lost to stream erosion and previous dredging.

Nonetheless, the midden remnant is in a sealed, protected condition and appears to maintain considerable integrity. Animal bones and potsherds are not worn. Charcoal flecks are abundant throughout, and at least one feature, a shallow pit-like depression, laden with charcoal and potsherds, was exposed in the bankline. The feature, probably a hearth, was left intact. Stream erosion, heightened by the considerable boat and float plane traffic, is rapidly reducing the remaining site area. The continued existence of the site, for any extended period, is very much in doubt.

Stratigraphy

Because of the well-preserved condition of the midden remnant, subsurface testing was ruled out until a full-fledged research design could be formulated. Any removal, however small, of sections of the organic midden was viewed as being detrimental to an intensive full-scale excavation program. As a consequence, only a narrow, 25cm wide, stratigraphic profile was shaved on the face of the bayou bank (Figure 9.26). The stratigraphic sequence is described in Table 9.17.

TABLE 9.17 -- STRATIGRAPHY IN PROFILE AT THE BAYOU PERRONET SITE

Stratum	Description	Depth (below surface)
A	Clay, slight silt; reddish-brown; massive structure when wet; weathers into irregular polygons with ferrous coatings on ped faces; roots and rootlets abundant; culturally sterile; represents A-horizon soil.	0-15.5cm
B	Clay; reddish, yellow-brown; massive wet structure; weathers into irregular polygons with reddish silty coatings when dry;	

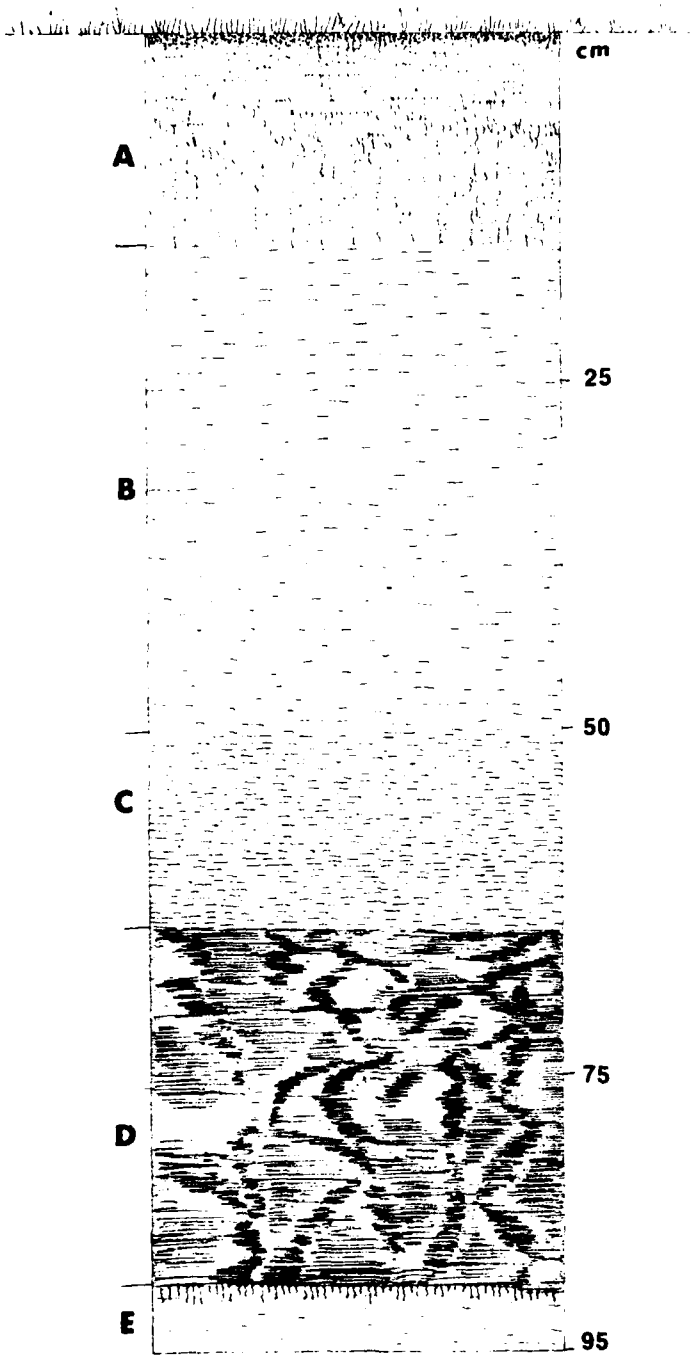


Figure 9.26. Stratigraphic Profile of West Wall of Shovel Test Unit at Bayou Perronet.

TABLE 9.17, (continued)

Stratum	Description	Depth (below surface)
	becomes more plastic and sticky with increasing depth; top contact gradational and conformable; bottom contact sharp but conformable (gradational); culturally sterile; B-horizon soil.	15.5-50.5cm
C	Clay, blue-gray; no visible structure; weathers into polygons with ferrous ped facings and breaks out into angular nodules which form scree at the water's edge; culturally sterile; top contact conformable with sharp color change; bottom contact with top of midden zone abrupt and presumably unconformable.	50.5-64.5cm
D	Clay, silty; black to rich dark brown; no visible structure; midden laden with artifacts, bones, charcoal, vegetal materials, and at least one hearth; weathers into small, pebble-like "clods," smaller than those of Stratum C; bottom contact sharp, indicating lithological and color change, but geologically conformable.	64.5-90.5cm
E	Clay; yellowish-brown; no visible structure; cracked in dry state; irregular peds faced with iron stains; replete with ferruginous concretions and small to large limy (calcareous ?) nodules; culturally sterile; upper few centimeters of this stratum exhibits some organic staining possibly through proximity to midden but conceivably reflecting growth of A-horizon soil; bottom contact not observed.	90.5-95cm+

Based on this stratigraphic profile, a tentative reconstruction of the geomorphic history of the location is presented. The earliest event, suggested in the profile, was the accumulation of Stratum E, a deposition probably reflecting an origin in a backswamp-natural levee backslope ecotone. Stratum E is interpreted as a depositional facies related to Mississippi River activity while in its Bayou Teche meanderbelt and more precisely while the river was occupying its very latest position in the giant meander which now forms the Teche Ridge (Fisk 1944) between Cecilia and Breaux Bridge. The cessation of Stratum E

deposition is believed to represent the diversionary event which caused the abandonment of the Teche-Mississippi meanderbelt and the adoption of the St. Bernard and Lafourche partial-flow meanderbelts (cf. Saucier 1974:21). The age of this diversion is uncertain. Earlier age estimates of ca. 3500-2500 B.P. are too conservative, and Saucier (1974:21) suggests it may have transpired around 5000 years ago. This is certainly compatible with radiocarbon ages indicating formation of the post-Teche, St. Bernard subdelta by 4700-4600 years ago (Saucier 1974:21).

If the origin of Stratum E is correctly attributed and the proposed age of the Mississippi diversion accurate, then the top of the stratum must have constituted the ground surface for at least two and a half millennia. The well developed soil characteristics in this stratum (Table 9.17) suggest just such a lengthy subaerial exposure. Well elevated (on the backslope of the Teche Ridge) and largely deprived of active sedimentation, this surface provided an attractive locale to Tchefuncte peoples who selected the spot as a village location after a small stream (i.e., Bayou Perronet) developed along the old levee flank and built a narrow bankline ridge on the ancient Mississippi sediments.

At the time of Indian occupancy, guessed to date sometime between 2500 and 2000 years ago, the locale was definitely in a bankline position, and the midden (Stratum D) formed in the silty clays laid down by occasional overflows of the bayou. Ecofacts present in the midden reflect an economic catchment zone which involved heavy exploitation of the flanking bayou and to a lesser (?) extent of the bankline ridge (and possibly the narrow backswamp lying between the bayou levee and the backslope of the large Teche-Mississippi levee west of the village).

Occupation ended, and the location was subjected to slack-water deposition (Stratum C) typifying periodically ponded, backswamp environments. As a matter of fact, the termination of human occupancy at the site may have been connected to the deteriorating (increasingly wetter) conditions at the location. The onset of swampy conditions may have been caused by nothing more extreme than continued accretion of the bayou levee which could have served to impound overflow waters and prevent rapid runoff. Another possibility is a meander cut-off

which would have removed the source of higher energy-transported sediments, subjecting the area to alluviation by finer-grained clastics, i.e., clays. Whatever the cause or causes, by the time of the onset of true swamp conditions, the Indians had abandoned the location.

The upper two strata (B and A) at the location are indicative of deposition in poorly drained sections of lowlands. Neither of the strata suggests conditions as moist as in Stratum C and probably reflect improving drainage efficiency and/or perhaps a slight influx of sediments brought from the Teche Ridge by local runoff. It is conceivable that some of the sediments in this upper unit may have been introduced by the Cypremort crevasse during the 1927 flood. This possibility is viewed as slight because of the obvious well developed, horizonal soil of strata A and B.

Artifacts from Bayou Perronet

Except for a single, cut and snapped, deer antler, all recovered artifacts from Bayou Perronet were of baked clay, potsherds and fragments of hearth walls (Table 9.18). A total of 52 sherds, including six decorated fragments, was retrieved from the talus slope at the foot of the bayou bank. Many more sherds were visible in the undisturbed midden zone but were not removed in order to preserve the integrity of the remaining section of midden.

Pottery.

Pottery has been separated into three ware classes, not including a catch-all category for badly weathered sherds. The bases for sorting were surface and core color differences produced by distinctive firing methods.

Ware A.

Ware A includes those sherds bearing uniformly dark surface and core colors (black to gray). Only two sherds (14.29 percent) of the undecorated sherds in this group contain noticeable inclusions in the fabric, and these are irregular hard lumps which may be grog or simply indurated clay pellets. The fabric ranges from contorted to foliated to smooth with the irregular sherds in the majority. Surface finish is

TABLE 9.18 -- ARTIFACTS FROM BAYOU PERRONET

Materials	Number
POTTERY	
Plain:	
body	44
rim	1
base	1
Decorated:	
Tchefuncte Incised, var. Tchefuncte	2
Tchefuncte Stamped, var. Vermilion	1
Lake Borgne Incised, var. Lake Borgne	1
Marksville Cross-Hatched Rim Mode	1
unclassified incised (single line)	1
OTHER FIRED CLAY	
Angular and Amorphous:	
fire pit lining	3
BONE	
Deer Antler base:	
cut and snapped	1

smooth but generally lumpy reflecting the contorted nature of the core. Unlike most Tchefuncte ceramics from elsewhere in the Lower Valley, slips or wet washes do not seem to have been applied nor have surfaces been floated by vigorous rubbing.

A "grabbed" sample of 10 Ware A sherds showed wall thicknesses between 4.0 and 10mm, averaging 7.5mm. Sherds with a thickness of 7.0mm occurred most frequently (four instances) and half of the sherds had thicknesses of 7.0mm or less.

One vessel rim was included among Ware A sherds. It was thinned and rounded in cross-section and flared slightly outward from a constricted area of the vessel immediately below the rim. It derived from a restricted mouth, globular pot measuring about 16cm across the outside of the orifice.

A total of 14 plain sherds were included in the Ware A category.

Ware B.

This ware group includes those sherds, numbering 13 undecorated pieces, which have light colored (tan to orange) exterior surfaces and dark (black, dark gray, dark brown) interior surfaces. Core colors are variable but tend toward the darker ranges. No aplastics were visible

except in three examples (23.1 percent) where grit (coarse silt or very fine sand) was noticeable. Fabric cores were contorted, or foliated, or smooth and compact. Four sherds (30.8 percent) bore exterior washes or floated integuments which tended to crack and sluff off. Nearly all surfaces, interior and exterior, showed signs of smoothing, i.e., scraping with a hard tool which left slight to marked striations. Thickness measurements made on all Ware B sherds ranged from 4.0 to 9.0mm; mean, 8.7mm; mode, 8.0mm (four sherds); and median, 7.0mm.

One basal sherd was numbered among Ware B examples. It was the proximal section of a teat-leg appendage.

Ware C.

This category was established to accomodate those sherds (i.e., six undecorated examples) which illustrated uniformly (surfaces through core) light colors. Colors included hues between buff and orange. Aside from hue and uniformity differences, Ware C falls entirely within the descriptive parameters of Ware B. The small sample fits within the wall thickness range of Wares A and B, but mean, median, and modal statistics suggest somewhat thinner vessel walls than in the other two categories. This, however, is no doubt inconsequential and a function of the small sample size.

Ungrouped.

A total of 13 sherds, presumably undecorated, are committed to an ungrouped category because weathering has removed all surface diagnostics leaving only residual cores.

Decorated Pottery.

Five sherds exhibited classifiable decorations on their exterior surfaces, and one bore only a single line obviating identification (Table 9.18).

Tchefuncte Incised, var. Tchefuncte. Two sherds. These sherds conformed to the revised description of this variety in Weinstein and Rivet (1978:36-40). One is on Ware A, the other on Ware B.

Tchefuncte Stamped, var. Vermilion. One sherd. Decoration conforms to abbreviated description of Vermilion variety first published by Gibson (1976b:33)and reiterated by Weinstein and Rivet (1978:50-51), that is, ". . . fully twisted, denticulated (tool with 2 or 3 points), rocker stamping" (Gibson 1976b:33). The decoration was applied on a

Ware C vessel.

Lake Borgne Incised, var. Lake Borgne. One sherd. Conforms to Weinstein and Rivet's (1978:64-68) revised description of this variety. The fabric corresponds to Ware B.

Marksville Cross-Hatched Rim Treatment. One sherd. This sherd falls within the range permitted under the original description of this decorative treatment in Ford and Willey (1940). Opponents of the historical type (and type-variety) classification schemes are asked to endure, along with this author, the obvious illogic in including a "treatment" (cf. Phillips 1970:29-30) along with standard "types." The Marksville Cross-Hatched rim is a rim and upper vessel wall mode which nearly always occurs on vessels bearing other decorations ("types") on their bodies. However, such mixed "mode" decorative combinations have often been reason to establish new distinctive varieties (cf. especially Wiseman et al. 1979) and sometimes entirely new "types." In this case at least, illogic has not been further compounded by creating a new "type" or "variety" out of sherds which bear the hatched rim treatment. The sherd derives from a Ware B vessel.

Unclassified Incised. One sherd. A rim sherd illustrates a single, narrowly incised line encircling the rim about a centimeter below the lip. It derives from a tecomate-like bowl form with an inside mouth diameter of 20cm.

Other Baked Clay Objects.

Four, angular and amorphous, baked clay fragments are included in this category. They may be pieces of puddled clay fire pit, or hearth, linings.

Deer Antler Reject.

This is a part of a deer antler which has been cut and snapped at a point immediately above the expanded, "knobby" base. It probably is a technological discard resulting from a successful operation to remove the tine portion of the antler (which probably furnished a projectile point blank).

Ecofacts from Bayou Perronet

Deer.

Aside from the antler base mentioned above, two technologically

unaltered deer metatarsals were collected.

Rabbit.

The left half of a lower mandible indicates that rabbits (Sylvilagus aquaticus) were included among the food bounty of the Tchefuncte occupants at Bayou Perronet.

Fish.

Unspecified fish remains were also collected at the site: three bony pieces of skull plates and six unidentified bones.

Turtle.

One carapace and three plastron fragments derive from unidentified species of turtles.

Unspecified and Unidentified.

A total of 15 tiny fragments of osseous material could be neither identified by anatomical structure nor specified as to orders, families, or genera. Five of these fragments have been burned, as evidenced by their pearly blue colors and crazed surfaces.

Interpretations

The limited information yielded by the stratigraphy and artifactual-ecofactual inventory from Bayou Perronet permits a number of educated guesses about the nature of cultural activity at the locale. However as important as what we know or can reconstruct is the unrealized potential for considerably expanded information acquisition and interpretation of the small but sealed and well-preserved midden remnant.

The locale seems to have furnished a place of residence and domestic activities for a small group of people living during a time known as the Tchefuncte Period (Ford and Quimby 1945). Length of residence is unknown but spanned a sufficient interval to change the soil composition by the addition of organics (animal proteins, etc.). Careful macroscopic inspection of midden lithology did not reveal minute strata such as might be expected if the location had been subjected to periodic overflow sufficient to cause abandonment of the village. Ecofactual indicators of season or seasons of residency are imprecise, but the occurrence of a deer antler and ecological arguments

suggest occupation certainly during the fall and/or winter. However, it cannot be ruled out for the other seasons.

The location seems to have been well chosen. An elevated natural levee of a small bayou flanking the edge of a huge Mississippi River levee and a large, constantly inundated swamp (i.e., Atchafalaya Basin) provided an inundation-free spot (and numerous other preferred habitable qualities) and immediate accesss to potable water and a rich ecotonal catchment zone. Why this particular location rather than others bearing precisely the same environmental qualities along the levee was chosen for residence is unclear. Perhaps, quantitative (rather than qualitative) differences may have caused it to be selected, or the reasons for site founding could have been entirely cultural or perhaps even whimsical.

The economic catchment zone surrounding Bayou Perronet involved several food resources and environments. Details of relative importance and complete composition of foods and raw materials are entirely unknown, although the potential for a comprehensive assessment of Tchefuncte economy (particularly involving subsistence) may reside in the buried midden. Fish and turtles hint of concentrated exploitation in the bayou and the swamp rabbit and deer, while possibly indicative of acquisition in the swamp, are more likely to have been natural levee resources. Their habitats embrace both environments.

Notable absences in the economic picture at Bayou Perronet are shellfish of any kind and stone. Bayou Perronet lies considerably above the natural distributional limits of the brackish-water clam, Rangia cuneata, and has probably been so during most of the last 8000-9000 years. Increasing evidences elsewhere, including the lowest sections of the Atchafalaya Basin, below Morgan City (cf. Gibson 1978a; also Gibson 1976a, 1978c), suggest that Rangia were processed at or very near their beds and probably were not transported very far in a "raw" condition. A possible reason for this apparent modus operandi was that the clams produce, by weight, a great deal of unuseable residue (i.e., the shells), compared to the yield of edible meat. Thus, considerable energy expenditures and hard work would have been saved by preparing clam meat near the harvest sources and simply carrying the edible fraction back home. These thoughts regarding rangia exploitation are not presented merely as an aside, for rangia were certainly not

expected to occur at Bayou Perronet. However, what does seem unusual, not only in this specific instance but in literally thousands of other sites in Lower Louisiana, is the general neglect of fresh-water mussels, even though these would certainly have been as easily available to the Indian as the sought-after rangia. There are a few scattered exceptions to this generalization in terms of sites (e.g., Lost Hill, this report) and at least one major river valley (i.e., the Ouachita Lowlands), but fresh-water shellfish in general were by-passed by Indians living next-door, so to speak, to other groups who were collecting rangia with a fervent passion.

The lack of lithic raw material is also interesting. Tchefuncte sites across the Teche Ridge from Bayou Perronet suffered no lack of rocks (Gibson 1974a,1976b). There, only a few kilometers away, Pleistocene gravels and older archeological debitage (evidently gotten from Archaic and Poverty Point components) furnished an important, if not primary, source of industrial raw materials. Neither side of the Teche Ridge in this vicinity has natural gravel outcrops, so even where lithic tools and residues occur, moderately distant procuration or trade is implied. The nearest known source of gravels is Avery Island, but more productive and widespread sources occur in the hill country around Bayou Chicot and Turkey Creek. Whether natural (e.g., Teche Ridge) or cultural (social or economic distance) barriers were responsible for the absence of stone artifacts at Bayou Perronet, is unknown, but one thing is certain. The fact that lithic raw materials did not penetrate most parts of the Atchafalaya Swamp and the marshes of southern Louisiana resulted in, or was a consequence of, the economic and socio-cultural independence of these lowland peoples; an independence which characterizes Atchafalaya prehistory for at least the last two and a half millennia. Gibson (1975; 1978a) has characterized this "isolationism" as a "settling-in" phenomenon, i.e., an increasingly intimate adaptive (technological and economic) relationship with the immediately available natural resources and environments.

A limited number of radiocarbon assays (Gibson 1979a:Table 4) suggests that the Tchefuncte period covered a span from slightly before 500 B.C. to perhaps within the first century of the Christian Era. No radiometric assays are available from Bayou Perronet, and the small number of decorated potsherds are not conducive to occurence or

frequency similiary seriation, a widely used relative aging technique (and one fraught with questionable methodological premises and operational mechanics). It could be argued traditionally that the presence of a Marksville Cross-Hatched rim is a key indicator for a relatively late Tchefuncte age or, more probably, that a separate Marksville period component was present. The first possibility is not out of the question, although the decorative elements that in combination formed this particular mode were present in the Tchefuncte design repertoire from the beginning. It is quite enlightening in this connection that practically every site which has produced the Marksville Cross-Hatched rim has also produced Tchefuncte wares and decorative types either in the majority or in substantial percentages. In other words, while the rim mode is traditionally viewed as a diagnostic hallmark of a Marksville culture period, it is almost never found in a ceramic assemblage that lacks Tchefuncte ceramics. This repeated co-occurrance is simply too frequent to draw any other conclusion, save that the mode is an integral facet of a "school" of ceramic design that also includes Tchefuncte decorations. So while probably indicative of an age late in the Tchefuncte span, there can be little question that the cultural context at Bayou Perronet is anything but Tchefuncte.

Long Island Bay (16SM11)

About 1.2km north of Henderson along the eastern berm of the West Atchafalaya Protection Levee is a spot which, several years previously, produced a few prehistoric potsherds. The collection was made by Thomas Markese, then a student at the University of Southwestern Louisiana. The author subsequently visited the location and recalls seeing a few potsherds which were not collected.

Intensive surface scrutinyof the location by the present survey team did not produce a single additional artifact. Probe, auger, and shovel holes were excavated along the apron of apparently original ground surface extending from under the protection levee. These subsurface tests failed to reveal any artifacts or cultural zones, despite being carried to depths, in some cases, of more than a meter.

Because no living surfaces or midden zones were detected, it is presumed that the few potsherds collected from this location years ago

were the last residues of a now completely destroyed prehistoric site. Pin-pointing the original source of the artifacts is presently impossible. The location has been subjected to numerous and massive earth-moving activities; e.g., construction of the protection levee, construction of oil supply dock and canal, and most recently the building of the interstate highway bridge.

WEST ATCHAFALAYA BASIN PROTECTION LEVEE: U.S. HIGHWAY 190 TO LEVEE END NEAR MOREAUVILLE, LOUISIANA

This section of survey corridor stretches from U.S. Highway 190 at Courtableau, Louisiana, to the beginning of the West Atchafalaya Basin Protection Levee at its intersection with the Bayou Des Glaises Levee at Moreauville, Louisiana (Figure 1.3). It covers about 55km.

O.G. Track (16SL64)

This "site" is located in the settlement of Darbonne between the east side of the West Atchafalaya Basin Protection Levee and Big Darbonne Bayou. Actually what is specified as 16SL64 is nothing more than a section of abandoned railroad track that falls within the survey corridor. The elevated bed of the old track actually stretches from Opelousas to Melville, a distance of over 40km.

On the opposite side of the levee west of the location specified as 16SL64, is a section of wooden trestle partially spanning the Bayou Des Glaises Diversion Channel.

The elevated track bed at 16SL64 measures about 30m across and rises to a height of about 1.7m above the surrounding terrain. The foundation consists of a red (5YR6/4) clayey fill, evidently transported to the location from a source outside of the immediate vicinity. It covers an in place brown silty clay, resulting from Teche-Mississippi River alluviation through the Big Darbonne Bayou crevasse (Gagliano et al. 1978:27).

No artifacts were retrieved from the location, although several iron spikes were noted on the flanks of the road bed. The landowner (Edward Duplechin of Port Barre) reports the discovery, several years ago while plowing, of a mallet-head ax, used to drive railroad spikes. The tracks have been dismantled; rails and crossties were taken up.

No information was obtained on the dates of construction, period of use, or dates of dismantling, though this is assuredly available. Similarly, the economic motivation behind the Opelousas-Melville rail connection has not been forthcoming. It must have had some unique advantage, because the section of track between the Bayou Des Glaises Diversion Channel and Melville crosses some of the wettest, swampy terrain in this section of the Atchafalaya Floodway. Inquiries made of local farmers and levee construction crews about the name of this line produced only the reference, OG Track (Opelousas and Gulf), and no information on the sponsoring rail company.

The wooden trestle, west of 16SL64, is difficult to explain. The span obviously crossed a water course, but the presently existing stream, Bayou Des Glaises Diversion Channel, is an excavated canal evidently associated with the construction of the Atchafalaya Floodway after 1927. The West Atchafalaya Basin Protection Levee cut across the track, indicating that the rail line was disfunctional (or perhaps rendered disfunctional) at the time of levee building. The only possible interpretation is that the trestle crossed some natural water body, a wet swamp or stream (perhaps an arm of nearby Hog Bayou), which was subsequently excavated (and channelized) during levee construction.

Answers to some of the questions, posed above, are probably available in untapped historical documents and oral traditions.

Rideau (16SL63)

Description

This location lies on the north bank of Bayou Petite Prairie and on the west side of the Bayou Des Glaises Diversion Channel which parallels the protection levee. It is presently under cultivation (soybeans), and the natural biotic environment has been considerably altered. Today, a thin zone of mixed hardwoods, dominated by oak, elm, and pecan, line the uncleared edge of the bayou and cypress grows along the water's edge.

The associated landform is a natural levee with crest elevations rising to 9.2m above msl. Relief is negligible, except along the stream bank. Surfacial soils are Gallion, or Gallion-like sandy silt loams

(Table 9.19), indicative of Red River origin (see discussion under 16SL62).

No evidence of organic staining, which normally accompanies residential or heavily utilized areas, was observed. Therefore, "site" dimensions, configuration, and orientation were undetermined. As a matter of fact, the only indication of prehistoric activity at this location takes the form of four stone artifacts.

Stratigraphy

To investigate the possibility of alluviated occupational levels, a stratigraphic profile was shovel-prepared along the north edge of a small gully which bisected the location. This profile is described in Table 9.19 and illustrated in Figure 9.27.

TABLE 9.19 -- STRATIGRAPHIC PROFILE AT RIDEAU (16SL63)

Stratum	Description	Depth (below surface)
A	Silt loam, sandy; pale brown (10YR6/3); contains fine clay laminae; bioturbated, roots and rootlets; represents A-horizon; bottom contact transitional and gradational, marked by slight color change.	0-10cm
B	Clayey silt, sandy; reddish-yellow (7.5YR6/6); stratified, interdigitated sands and clayey silts; some mottling due to bioturbation and soil growth; represents B-horizon; bottom contact gradual and transitional and conformable.	10-30cm
C	Silty sand; yellowish-red (5YR4/8); massive structure; small lensatic inclusions of glee-colored clay; bottom contact gradational and conformable with color change.	30-45cm
D	Silty sand; reddish-brown (5YR4/4); massive; bottom contact not observed, hole terminated at 50cm.	45-50cm

As is apparent from the lithology, neither buried occupational

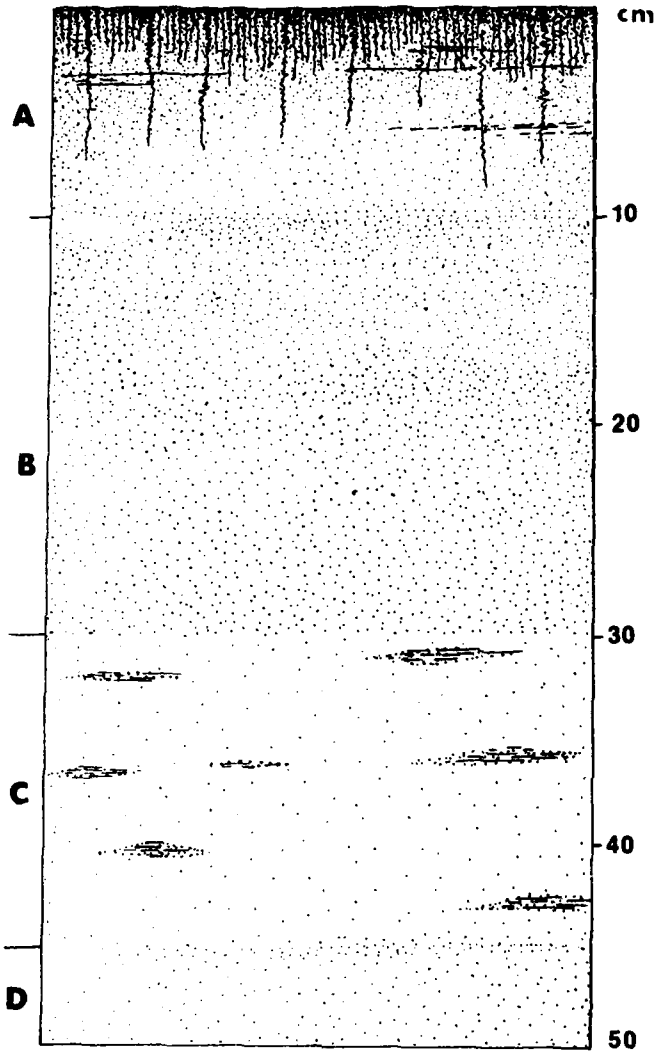


Figure 9.27. Stratigraphic Profile of East Wall of Shovel Test Unit at Rideau (16SL63).

surfaces nor artifacts were observed in the subsurface. Stratum A, which does exhibit some organic enrichment, is simply an A-horizon of the solum.

Artifacts

Only four stone artifacts were collected from the Rideau site. All were made from local gravels.

One of the objects represents a minimally chipped pebble, possibly a marginal core. One end of the pebble has been detached by a transverse blow, and several additional flakes have been struck from this platform and down one edge of the rock.

The other three objects constitute debitage; two are tertiary flakes with cortex platforms and the third, a chip (broken tertiary flake).

Neither age nor cultural affiliation can be determined from the present collection.

Interpretations

The small collection of debris and debitage at Rideau would seem to represent a fleeting, probably event-specific, activity. Further interpretations would be highly speculative, except for the probability that the prehistoric activity here transpired after the Red River had abandoned its Petite Prairie course.

Saizon Mask (16SL62)

Description

The Saizon Mask site is located on the east side of the West Atchafalaya Basin Protection Levee along both banks of a now completely sediment-choked stream, called Sandy Bayou. Prior to this investigation, artifacts had been found widely scattered in the soybean field through which the soggy depression (Sandy Bayou) runs and also rarely in the pasture and yard surrounding a deer camp south of the bean field (Paul LaHaye, personal communication, 1980). Artifact concentrations, if indeed they could be called that, were "heaviest" on the right (descending) bank of the ditch. Despite the fact that the Saizon deer

camp served as the survey field headquarters for nearly two months and practically daily trips were made across the site area, only one artifact was retrieved.

LaHaye, who was one of the field crew members, reports that his small collection of pottery (which unfortunately was unavailable for classification) was largely retrieved from an area measuring about 100m long and 20m wide paralleling the right sloping bank of the old stream channel. This area stretches from the fence line bording the south edge of the bean field to a farm pond, dug in the old stream depression and dammed by the protection levee.

Judging from the thick woods south of the fence line, the Saizon Mask site, before cultivation, supported a climax stand of mixed hardwood species: white, red, and water oaks, sweet and bitter pecan, sweetgum, elm, ash, and other wet-dry transitional species. Palmetto furnished a dense understory, and creepers, Spanish Moss, and vines, particularly Smilax, hung like shrouds from the trees. Cypress and privet filled the low areas.

The old natural levees on which the site was located repose nearly 8.5m above msl. Slope is gentle toward the flanking backswamps where elevations of only 5.9m occur. Surfacial sediments are composed of fine reddish sands and clays of undoubted Red River origin (Table 9.20).

Aside from the artifacts previously collected (plus the single potsherd recovered by the survey), there was nothing noticeable about the site area sufficient to distinguish it from the surrounding plowed ground. There was no detectible organic enrichment (i.e., midden), and if LaHaye's previous activities had been unknown, the area would have certainly escaped detection.

Stratigraphy

The construction of the protection levee cut off the water flow in the bayou, leaving three isolated segments. Deprived of the scouring action of flowing water, Sandy Bayou dried up and filled with sediment. Today it is an insignificant, intermittent depression, carrying water only during rainy periods. The rapidity of alluviation underscored the possibility that the scanty aboriginal materials present on the surface could have been brought up by plowing from a buried occupational

surface. This possibility was investigated by digging a small (60 by 60cm) test unit in a drainage ditch along the fence near the south end of the site. The profile and pit were prepared by shovel and trowel and matrix was unscreened. Stratigraphy is described in Table 9.20.

TABLE 9.20 -- STRATIGRAPHY IN FIELD DITCH TEST UNIT AT SANDY BAYOU (16SL62)

Stratum	Description	Depth (below surface)
A	Sand, fine; reddish yellow (7.5YR6/6); stratified, very thin laminae; interrupted by irregular dark (organic) inclusions; bottom contact, irregular and wavy, unconformable; no artifacts or occupationally induced organic staining detected.	0-43cm
B	Sand, clayey; red (2.5YR4/6); lithological gradation within unit, upper part being clayey sand, lower, sandy clay; gradation not marked by color or boundary changes; considerable bioturbation, but otherwise structure appears massive; lower contact not observed, hole terminated at 67cm; culturally sterile.	43-67cm

This test excavation did not reveal a buried occupational surface nor did the edges of the nearby pond, which exhibited more extensive subsurface profiles. One thing is quite certain. If plowing caused the vertical displacement of cultural materials, they would have had to derive from within Stratum A because the lower part of the zone, as well as the entirety of Stratum B, is below cultivation limits.

Artifacts

The solitary plain body sherd, containing grog and black inclusions in the fabric, is not culturally or temporally diagnostic. As previously mentioned, LaHaye's small collection was not available for classification.

A polished stone artifact was also retrieved from the site several

years prior to this survey and has been the subject of a published note (LaHaye 1978:18-20). The object has been identified as a "god mask" (Figure 9.28). It was made from a thin slab of brown and white streaked slate, an exotic material. Geometrical engraving forms a stylized human face (Figure 9.28). The brow and nose are represented by a T-shaped element, and the eyes are simple triangles with the apices pointing downward. The mouth is an ellipse. A small countersunk, conical perforation has been placed in the middle of the brow-nose element. The entire facial design is bilaterally symmetrical and presents a pleasing, though rigidly fixed, appearance.

LaHaye (1978:18-20) has drawn apt comparisons between the Saizon mask and a somewhat similar specimen from the Cross Bayou site near Larto Lake, about 115km to the northeast (cf. Baker 1974:83-85). The latter object, called the Catahoula mask, was retrieved from a Tchefuncte component, although Baker (1974:85) doubted it was a Tchefuncte manufacture, favoring instead a Plaquemine origin. This would have aligned the mask temporally, but not culturally, with its seemingly closest counterparts--the long- and short-nosed god masks (usually of copper) of Caddoan (Alto) origin (Webb 1959; Williams and Goggin 1956). However, the rarity of the stone masks and the out-of-context circumstances of discovery (i.e., surface finds) do not warrant pressing this temporal origin too strongly.

Interpretations

The apparent lack of midden areas at the location and the paucity of cultural materials do not provide bases for extensive interpretations. Nonetheless because we are convinced that these lacks are probably real and not simply a function of post-depositional destruction relating to levee construction or plowing, the skimpy archeological information can be viewed as a positive corpus of data, amenable to speculation if not more "dignified" interpretations.

The Saizon Mask site can be viewed as a light use area (cf. Gibson 1974a); a zone of nonresidential activities of a temporary and ranging nature. Such areas are conceived as the loci of fleeting procurative and/or processing tasks within the economic catchment area of a group of people. Since an apparent residential zone (stained earth midden)

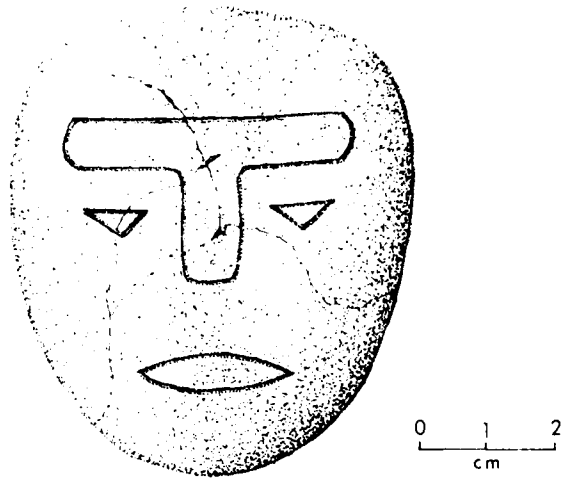


Figure 9.28. The Saizon Mask, Copied from Rubbing of Artifact in LaHaye (1978).

exists on the left bank of Sandy Bayou about 300m downstream from 16SL62, it is possible that the activities upstream may have been generated from there. The precise nature of the activities at 16SL62 is unknown, but it is evident that containers were essential to it and that some attrition (breakage, resulted. The bayou bank location suggests exploitation of aquatic resources though this need not necessarily be so. Many useable plant foods are found in bankline zones. The few potsherds at the Saizon Mask location could have resulted from something no more involved than getting drinking or cooking water from a section of stream above the residential locus, where waters may have been more potable.

The stone mask and the circumstances of its loss are enigmatic to the speculation advanced above.

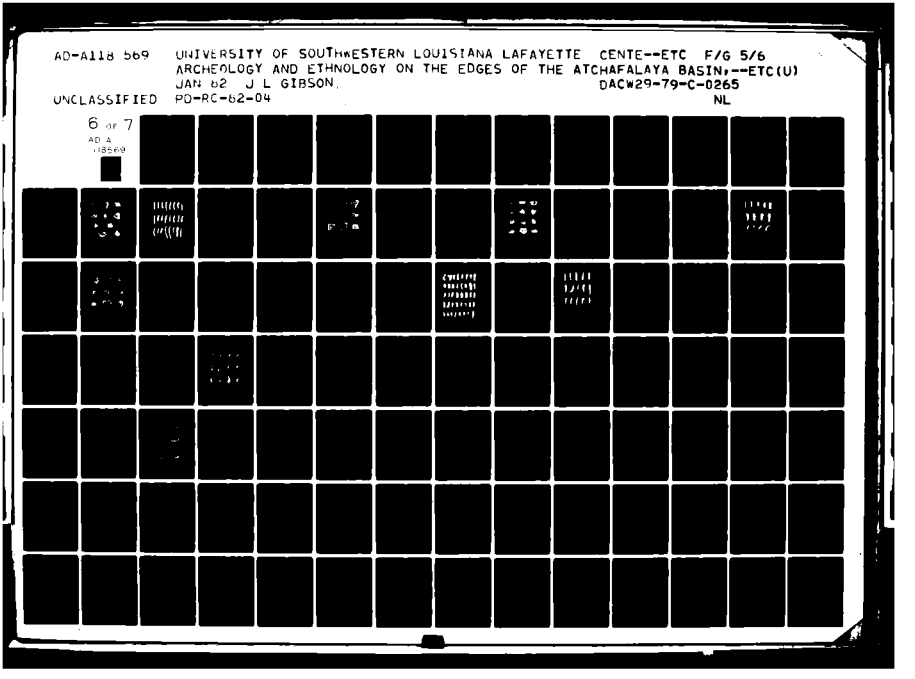
One further note of potential archeological relevance is mentioned in connection with 16SL62. The present appearance of Sandy Bayou fails admirably to belie its paleogeographic importance. Sandy Bayou generally parallels another stream, Bayou Petite Prairie, which bears meander radii and levee widths and crest elevations quite comparable to

Sandy Bayou. As a matter of fact, the source of Sandy Bayou emanates from the cut bank of a steeply convoluted turn in Bayou Petite Prairie about 8.5km north of 16SL62.

Petite Prairie has been identified as an abandoned course of the Red River, guessed to have been active between 4000-2200 years ago (Saucier 1974:Fig.3), an age supported by Gagliano et al. (1978:64-65). Gagliano et al. (1978:27) notes that the Red River during this stage broke through the earlier Teche-Mississippi meanderbelt ridge, north of 16SL62, as a series of small distributaries, one being the Sandy-Brushy Bayou system; another apparently marked by the lower segment of Petite Prairie itself. The high energy, red sands (Gallion-like soils) revealed in the stratigraphic profile at 16SL62 (Table 9.20) certainly support this conclusion.

The near geomorphic identity and comparable hydrologic regime of lower Petite Prairie and Sandy Bayou suggests that these two channels may have been coeval, partial flow outlets of the Red River; produced by river bifurcation upon entering the swampy, gradient-less, lowlands of the then-active Mississippi River, which lay east of the area. Although channel identity is lost beneath more recent alluvium in this vast swamp, somewhat comparable levee systems emerge on the south side of this lowland (i.e., Brushy-Two O'Clock bayous and Two Mile Bayou) and may represent lower segments of these channels.

Certainly other reconstructions of the paleogeography are possible given the same information, but whatever the real landscape was like, it is apparent that the cultural activities at 16SL62 transpired along a stream of Red River origin and perhaps one of its major arms. The surface and near-surface expression of both 16SL62 and the adjoining midden (i.e., the Saizon site, no no.), however, indicate that Sandy Bayou at the time of prehistoric activity had been abandoned by the Red River and though the channel probably still carried a substantial volume of water, it must have been quite stable and uninfluenced by extensive alluviation. In all likelihood, Sandy Bayou when used by the Indians at both Saizon sites was probably an active though sluggish stream, one of many similar little bayous winding their way through this section of the upper Atchafalaya Basin, streams whose elevated natural levees and successional mixed hardwood climax vegetation provided desirable locales for residence and work.


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ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN,--ETC(U)
JAN 82 J L GIBSON, DACW29-79-C-0265
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Fish Bayou (16SL61)

Description

The Fish Bayou site is located on the south bank of the bayou of the same name at its junction with the Bayou Des Glaises Diversion Channel. The site is positioned on a natural levee crest at an elevation about 8.1m above msl. Relief rises south of the location where a well-developed Mississippi meander ridge is now followed by Bayou Negro Foot; to the north, slope drops into the swampy ridge and swale terrain of the same meander complex. Fish Bayou actually appears to have originated as a crevasse stream, which issued from a levee break in the northern arm of the same meander and followed the concentric swales to the southwest. Surfacial soils have not been identified but are comprised of clays and silts of Mississippi River derivation. Although the location is now cleared and in soybean cultivation, residual natural vegetation along the Fish Bayou levee is dominated by water oaks, bitter pecan, elm, sweet gum, and palmetto. Cypress and privet line the bayou.

The area of artifact concentration is darker than the surrounding brown silty clays, due to organic enrichment. This area of dark brown soil and scattered artifacts was about 30m long (axis along bayou) and about 10m wide. The vertical extent of this midden was not determined. Ongoing cultivation prevented excavation of stratigraphic test units.

Artifacts and Ecofacts

Coles Creek potsherds and stone artifacts were retrieved from the plowed surface (Table 9.21). In addition, a few bones and a modern glass sherd were found.

Pottery.

Plain Ware.

The tiny pieces of badly weathered pottery have prevented the isolation of formal ware categories. The sherds have been reduced by long continued cultivation and have apparently been exposed and subjected to weathering for such an extended period that most of the diagnotic attributes have been lost.

Residual cores contain grog and vegetal matter inclusions. Colors

TABLE 9.21 -- ARTIFACTS FROM FISH BAYOU (16SL61)

Materials	Number
POTTERY	
Plain:	
body	58
rim	1
Decorated:	
Evansville Punctated, var. Rhinehart	2
Alligator Incised, var. Oxbow	1
Mazique Incised, var. Mazique	1
Pontchartrain Check Stamped, var. Pontchartrain	1
STONE	
Sandstone slab	1
Broken chert pebbles	2
Debitage:	
primary flake	1
secondary flake	1
biface thinning flakes (2 have missing platforms)	5
HISTORIC	
Clear bottle glass sherd	1

range from black to nearly white. Surface to core color combinations also seem to run the gamut from uniform to surface-core distinctiveness in all shades, but the few sherds which still retain areas of intact exterior surfaces are so few as to render classification rather meaningless.

A total of 59 undecorated sherds were collected at Fish Bayou. Of these, 58 are body wall fragments and one is a rim (Table 9.21). The rim was derived from globular, neckless vessel with a constricted orifice, known as a tecomate. The lip was rounded and exteriorly thickened.

Decorated Pottery.

There is nothing unusual or different to report of the six decorated sherds from Fish Bayou. Other than their small size and corroded surfaces which have eliminated some sorting criteria, they seem to conform to the following published type descriptions (Phillips 1970): Evansville Punctated, var. Rhinehart (two sherds); Alligator Incised, var. Oxbow (two sherds); Mazique Incised, var. Mazique (one sherd); and Pontchartrain Check Stamped, var. Pontchartrain (one sherd) (Table 9.21).

These types are hallmarks of the Coles Creek period. The age of the Fish Bayou component is uncertain, as is the span of popularity of these particular styles in this section of the Lower Mississippi Valley.

Stone Artifacts.

Sandstone slab. One small, tabular piece of Catahoula sandstone was found. Although it exhibits no tell-tale modifications, similar pieces of sandstone from other central Louisiana sites were often used as abraders and hones.

Broken pebbles. Two pieces of brown chert gravel were picked up. They are broken but otherwise unchipped.

Debitage. Seven flakes of brown gravel comprise this category. They are classified accordingly: primary flake (one example), secondary flake (one example), biface thinning flakes (five examples, two with broken platforms, i.e., "chips"). None show any sign of further modification.

Glass.

One piece of clear bottle glass is represented in the collection. It is culturally and temporally nondiagnostic but is almost assuredly modern.

Faunal Remains.

The Fish Bayou collection contains two gar scales, one fragment of turtle carapace (unidentified species), and three small unidentified pieces of animal bones.

Interpretations

Fish Bayou seems to represent a small Coles Creek hamlet positioned along the bank of a small, sluggish stream. The nature and duration of occupation cannot be determined, but the organically stained midden area suggests domestic maintenance and residence. The total site area, $300m^2$, is small, implying that the occupant group was small, perhaps a single nuclear family. Application of Cook and Trenganza's (1950) logarithmic regression scale, which purports to measure the relationship between site area and population size, results in an estimate of five to six people.

The economic catchment zone seems to have embraced the adjoining bayou where garfish and turtles were obtained and the edges of the terracelands to the northwest (15-20km distant) where stone industrial materials were secured.

Paleogeographically, the Fish Bayou site was founded along a crevasse distributary of Teche-Mississippi River origin, a distributary which followed an old swale produced by the lateral migration of the Bayou Negro Foot meander across the area. When functioning, the crevasse stream would have kept the area around the site quite wet (perhaps inundated for most of the year). With the abandonment of the Teche-Mississippi channel, natural vegetational succession would have rendered the economic potential of the area somewhat higher as drier-land hardwoods began to claim some of the higher ridges in the accretion belt (including, no doubt, the levees of Fish Bayou itself).

At some later point in the geomorphic development of the locale, the Red River in its Bayou Petite Prairie channel broke across the Teche-Mississippi levee ridge (Bayou Negro Foot meander) about 7.0km west of the site. This event seems to have had little impact on the site locality. No doubt, backwaters were periodically introduced into the area, but distinctive red sediments (i.e., Gallion soils) apparently settled out before reaching the site area. However, the intersection of these two levee systems created effective barriers to extensive flooding, except possibly from that rare "project" flood on the Mississippi, and the locale probably continued to shift from a constantly inundated swamp to a drier lowland. Local drainages were captured by the larger Mississippi and Red River meanderbelts and alluviation continued.

It was into this latter geomorphic and environmental situation that the Fish Bayou Coles Creek family was drawn. The conditions at the time of occupancy were probably little different from those that obtained prior to the construction of the Atchafalaya Basin floodway and modern farming.

Red Aggie (16SL60)

Description

The Red Aggie site is located on the left descending bank of Bayou Rouge, east of the point where the bayou is interrupted by the West Atchafalaya Basin Protection Levee. The location is marked today by an old abandoned farmhouse and soybean fields.

Historic artifacts were concentrated around the house, and prehistoric lithic materials were lightly scattered between the structure and the protection levee. Historic artifacts were spread over an area of about $300m^2$ (20m, east-west; 15m, north-south).

The site is positioned on the bank of Bayou Rouge, but it actually reposes on a natural levee crest of Teche-Mississippi River origin. On-site elevations reach nearly 11m above msl. To the north, slope decreases (down the levee backslope) rapidly to an area of accretion belt topography; elevations in the swales lie below 7.4m above msl. A similar situation obtains south of the site. The upper part of the solum (i.e., the upper 50cm visible in a road ditch) consists of brown, sandy silt loam, banded with yellowish-brown silty clay in the lower levels. Sediments are of Mississippi River derivation.

The site area is now cleared and serves as a soybean field. A fringe of woods, however, parallels the bayou, and dominant woody species include water oaks, elm, sweetgum, pecan, red and white oaks, and locust. The stream batture is lined with willow, cypress, and privet.

No stratigraphic excavations were done because the area, at the time of investigation, was being cultivated.

Artifacts

A very small collection of historic and prehistoric artifacts was made at Red Aggie. The marbles and stoneware ceramics relate to the twentieth century occupation of the still-standing house. The aboriginal artifacts were discarded during a late prehistoric (post-Troyville) interval, and possibly earlier (i.e., the Wells point).

Glass Marbles.

Two glass marbles are included in the collection. Both are small, "aggie," or "shooting taw" size (not "log-rollers"). One is made of brownish-red opaque glass. The other exhibits a white, blue, and yellow swirl, or flow, pattern. Marbles of the latter type were made as late as the 1950s.

Historic Earthenware.

Two sherds of stoneware were retrieved, both from bowls. One has a brown lead glaze; the other, a yellow glaze.

Stone Artifacts.

The stone artifacts were all made from brown gravel. They indicate that tool production, via pebble reduction, transpired on the site.

Debitage.

Debitage, or flakes, consisted of one secondary flake, three biface thinning flakes, and one chip. This series of debitage classes (though obviously quite limited) intimates a complete tool manufacturing cycle from pebble or selected debitage "blank" to finished form, i.e., projectile point.

Arrowhead Preform.

One secondary flake has been shaped by marginal retouch into an arrowpoint preform, or "blank." Except for the possible curvature, there appear to be no morphological, technological, or material difficulties with the artifact which would have hampered its transformation into an arrowpoint. Nonetheless, it was discarded or lost before that final technological stage was reached.

Arrowpoint.

One disfunctional arrowpoint was recovered. It lacks both distal and proximal ends, but the attribute of pronounced rectangular barbs permits it to be classified as a Catahoula point (Bell 1958).

Dart Point.

The only larger projectile point in the present collection is of the Wells type (Suhm and Jelks 1962).

Interpretations

The most recent human activities at Red Aggie were those associated with the rural farming family who occupied the standing wooden house on the location. The span of occupation is uncertain but certainly covers, or extended into, the mid-part of the twentieth century. Architecturally, the house is quite similar to still lived-in farm houses in the area and, as previously mentioned, marbles like those recovered from the house area, were still available during the 1950s.

The prehistoric artifacts are more enigmatic in terms of cultural or temporal assignment. The arrowpoint and arrowpoint preform implicate a post-Troyville (i.e., virtually any time within the Christian era) age, although, if a guess was critical for some reason, this author would venture to say, early to middle Coles Creek period (cf. Baker and Webb 1976), whatever its temporal and cultural parameters may be in southern Louisiana. Reliance on synchronic reasoning would obligate one to assign the Wells dart point to a pre-bow and arrow stage and perhaps as early as the span between 2500-500 B.C. (cf. Webb, Ford, and Gagliano 1971).

Uncertainty as to age or nature of the prehistoric activity represented at Red Aggie inhibits further speculation. But one thing seems rather clear. Even if Late Archaic folks utilized the location, their tasks, as well as those of all subsequent peoples, had nothing to do with the active Mississippi River, which produced the landform on which the site is located. The Teche-Mississippi River had long since changed courses to the eastern side of its present floodplain, and the Red Aggie locality was probably only one of the many higher and drier spots in the swamps, which early Native Americans found so desirable.

Savage (16AV68)

Description

The Savage site is located on the left descending side of Bayou Jack and on both sides of the Bayou Des Glaises Diversion Channel, a few kilometers south of Dupont, Louisiana.

The site is orientated along a filled-in (naturally and artificially) slough, which marks one of a series of swales lying between low ridges.

This accretion belt terrain was produced by the Mississippi River while in the Bayou Jack channel. Actually the geological picture in the immediate site vicinity is quite complex. The Savage site appears to lie at the exact cross-over point of two meanders, but the site terrain is associated with landforms produced by the lower meander, not the upper one. The slough, or swale, is oriented north-south but at the point where cultural materials are most densely concentrated, a secondary swale exits the main swale and runs in a west-east direction. The major occupational areas coincide with the mouth of this smaller swale. Cultural materials are thinly scattered along the east side of this larger, north-south slough but are heavily concentrated on both banks of the smaller one.

Elevations along the crest of the low ridge bearing cultural refuse reach 11.7m above msl, and relief from crest to slough bed is about 1.5m. Relief has been drastically reduced during the last few years by land-leveling. A 10 to 15m wide section of the ridge front flanking the smaller slough was pushed into slough and with it went the integrity of an extensive part of the site area. Natural vegetation has been removed and replaced with soybeans.

Size of the site is difficult to establish. Artifacts are generally confined to the crests of the low ridges flanking both slough beds, especially the smaller one. The densest concentrations occur at the junction of the old streams but extend along the west-east running channel. North-south along the larger slough, artifacts are more widely dispersed but small isolated concentrations separated by areas of light scatters stretch for more than 0.8km and extend northward to the vicinity of Paul Peg Slough. East of the slough junction, materials extend along both (north and south) slough banks for at least 0.6km. As a matter of fact, the Bayou Des Glaises Diversion Channel and the West Atchafalaya Basin Protection Levee cut across the site area and have isolated a fairly well preserved section of midden on the floodway side of the levee. The areas of heaviest occupation (10-50 artifacts per square meter) are confined to two fingers (flanking both sides of the small slough) which measure about 300m long by 70-80m wide.

Land leveling and cultivation have seriously impaired the preser-

vation of "midden" zones west of the diversion channel. However, in situ zones lie behind the sections where dirt was pushed into the slough, and a virtually intact segment of midden lies east of the protection levees.

Planting on-going at the time of investigation seriously hampered data recovery. Fortunately, a large collection from the Savage site had been amassed by James Fogleman and his sixth through eighth grade students from Morrow Elementary School. The collection represents several years of intensive surface sweeps of the area and is quite representative. Except for undecorated sherds which were neglected, every visible artifact was retrieved. In addition, photographs made by Fogleman, immediately after land-clearing and prior to leveling, vividly show subsurface stratigraphy; stratigraphy confirmed by examining the profile of a recently cut drainage ditch through the area of intact midden lying east of the protection levee. The Fogleman collection was generously loaned for classification and analysis.

Stratigraphy

In-field observations and pre-leveling photos permit a reconstruction of site stratigraphy (Table 9.22, Figure 9.29).

TABLE 9.22 -- STRATIGRAPHY IN SECTION OF HEAVY OCCUPATION WEST OF PROTECTION LEVEE

Stratum	Description	Depth (below surface)
A	Silt, clayey; light yellowish brown (2.5Y6/4); artifactual inclusions; structure seems massive; cracks irregularly upon weathering but weathered faces of peds are coated by silt dust and tiny round "balls" of clay; top contact is ground surface; bottom contact irregular and sharp but conformable	0-8.0cm
B	Clay, silty, light olive brown (2.5Y5/4); light artifact inclusions but scattered; structure massive but color mottling observed; weathers into irregular polygons with slick ped faces; bottom contact sharp but probably conformable	8.0-17cm
C	Silt, clayey; pale yellow (5Y7/3), but heavily mottled with brownish yellow (10YR6/6) and greenish gray (5G6/1); massive structure with	

TABLE 9.22, (continued)

Stratum	Description	Depth (below surface)
	concretionary inclusions; thick with Tchefuncte potsherds and stone refuse; cracks into regular polygons but peds rarely weather out; bottom contact gradational and conformable marked by gradual darking of color with increasing depth	17-40cm
D	Silt, clayey; more clayey than stratum C; light yellowish brown (2.5Y6/4) but mottled with pale yellow (2.5Y7/6) and greenish gray (5G6/1); mottling less extreme than stratum C; massive structure (?); weathers into irregular (large and small) polygons; cultural materials seem to be concentrated in upper few centimeters; bottom contact sharp, abrupt, and irregular	40-54cm
E	Clay, silty; light greenish gray (5G7/1); massive structure; culturally sterile; weathers into regular polygons with silt-coated ped faces; bottom contact not observed, below 75cm	54-75cm plus

Artifacts

The artifacts described below were collected by the Fogleman group. Only the collection from the north side of the slough is tabulated; an equally large number of artifacts were retrieved from the south side,but time exigencies have prevented description of these materials. As previously mentioned, the collections, except for plain body sherds, are representative and nonselective. Artifacts include a large number of classes, types, and raw materials and are detailed below.

Pottery.

Decorated Types (Table 9.23).

Plaquemine Brushed. A total of 42 sherds have been typed as Plaquemine Brushed, var. Plaquemine (Phillips 1970:153). Six decorative treatments have been recognized.

1. Treatment 1. Brushing or closely spaced shallow incising or trailing with all lines running parallel and forming no recognizable motif, other than overall exterior roughening; 34 sherds (Figure 9.30 d-e, g-i).

2. Treatment 2. As above, but "brushing" forms bands or panels which intersect at angles; 3 sherds (Figure 9.30a).

3. Treatment 3. Overbrushing, one "brushing" application overlain by subsequent "brushing" application running in a direction usually at right angles to first; second series of "brush" marks usually fewer in number than first and form bands rather than overall roughening; 2 sherds (Figure 9.30f).

4. Treatment 4. Brushing (overall application) overlain by cross-hatched incising (i.e., var. Harrison Bayou); one sherd (Figure 9.30b).

5. Treatment 5. Brushing set off into panels or bands by a simple incised line (i.e., var. Hardy) and a row of oval punctates; one sherd (Figure 9.30c).

6. Treatment 6. Brushing with hard tool, or nonresilient bundle of fibers, having three points; brushed areas pushed deeply into vessel surface; raised lands separate rows of "brushing"; one sherd (Figure 9.30j).

Rim profiles are illustrated in Figure 9.31. All profiles are from Treatment 1 sherds, no rims of the other treatment groups were found. While quite variable in appearance, only three of the 11 examples are thickened, and these were formed by folding over the uppermost coil, not by adding a separate strap of clay.

Wall thicknesses of Treatment 1 sherds range from 3.8 to 7.0mm; average, 5.5mm. Half of the sherds have a thickness of 5.5mm and less. Five sherds have a thickness of 5.0mm, more than in any other thickness interval.

Vessel forms as reconstructed from rim profiles (Treatment 1 vessels) seem to embrace a limited range of deep pots, from almost straight sided to slightly globular (with maximum diameters at or below vessel midpoint). The total paucity of recognizable basal sherds (of any "Addis" ware) implies that bases were rounded and unthickened to any recognizable degree. In other words, thickened flat bases, formed by a separate circular or square "pattie," were apparently not part of the Plaquemine ceramic technology. A total of eight rim sherds were large

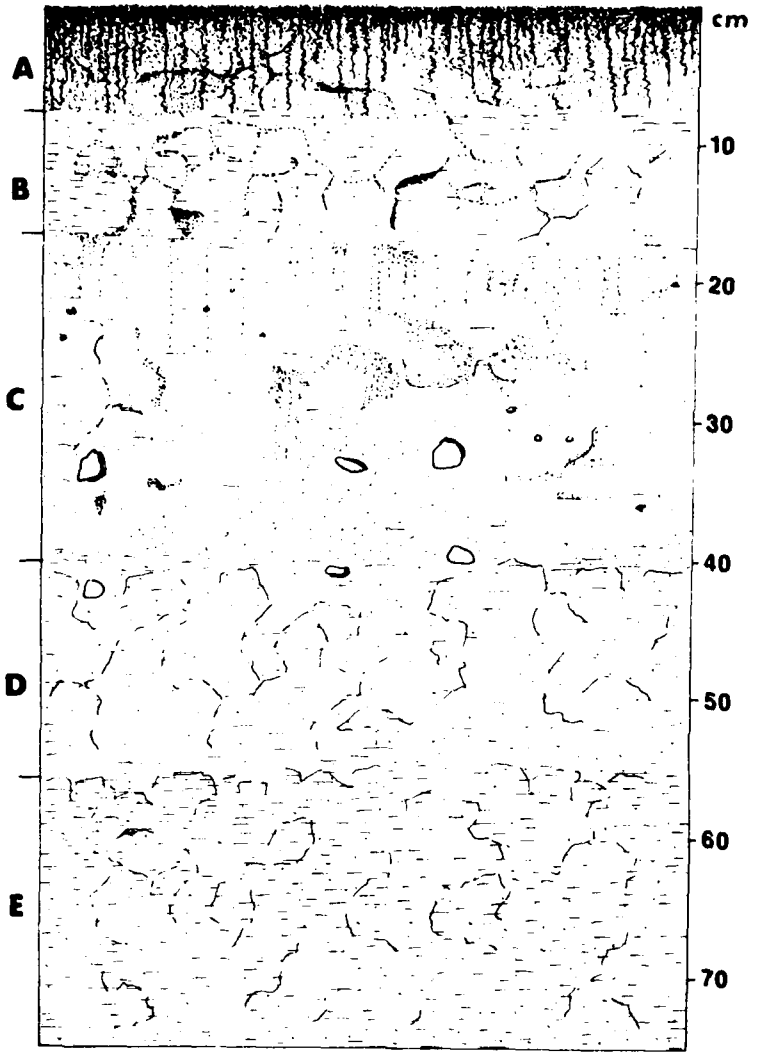


Figure 9.29. Stratigraphic Profile, Drawn from Color Photo of Drainage Ditch at Savage Prior to Leveling. Photo courtesy of James Fogleman.

enough to provide estimates of orifice diameters: range, 16 to 30cm; average, 24cm; median, 24cm; and mode, 24cm (three examples).

Pontchartrain Check Stamped, var. Pontchartrain. Seventeen sherds. All can be grouped under Phillips (1970) revised description of this type variety. Three different treatments are recognized.

1. Treatment 1. The so-called "classic" rendition with squarish (actually slightly rectangular) check impressions, 3.0mm or less in size; 12 sherds (two rims, Figure 9.31v-w) (Figure 9.32a).

2. Treatment 2. Pronounced rectangular check impressions with long axes, 5.0mm (give or take) and short axes, 3.0mm or so; three sherds (Figure 9.32b).

3. Treatment 3. Bold, squarish check impressions, 6.0-8.0mm in size; two sherds (one a rim, Figure 9.31x).

Wall thickness measurements, based on all 17 sherds, range from 4.0-7.3mm. Other thickness statistics include: mean, 5.8mm; median, 5.5mm; and mode, 6.0mm (four examples).

Profiles of the three rims (two Treatment 1; one, Treatment 3) are shown in Figure 9.31v-x. Deep, almost straight-sided pots are suggested, and the two measurable sherds gave orifice diameter estimates of 40 and 24mm.

Mazique Incised, var. Manchac. Fifteen sherds of this type-variety (Phillips 1970:129-130) have been broken down into five treatments.

1. Treatment 1. Simple, diagonal, parallel lines, apparently unbordered (Figure 9.32c); four sherds (one rim, Figure 9.31n).

2. Treatment 2. Line-filled, alternating triangles (Figure 9.31d); four sherds (one rim, Figure 9.31q).

3. Treatment 3. Simple, diagonal, parallel lines bordered (at least at bottom) by single incised line; two sherds.

4. Treatment 4. Simple, vertical, parallel lines, apparently unbordered; two sherds (both rims, Figure 9.31o-p).

5. Treatment 5. Simple parallel lines forming herringbone motif; angled panels separated by single incised line; one sherd (Figure 9.32e).

Wall thicknesses range from 4.0-8.0mm; average 5.6mm. Half are less that 5.5mm thick, and 6.0 is the most frequently occurring value. Rim profiles are pictured in Figure 9.31n-q. Vessel forms appear to include deep, slightly globular pots with out-turned rims and probably rounded bottoms; deep bowls with greatest diameter at orifice; and deep,

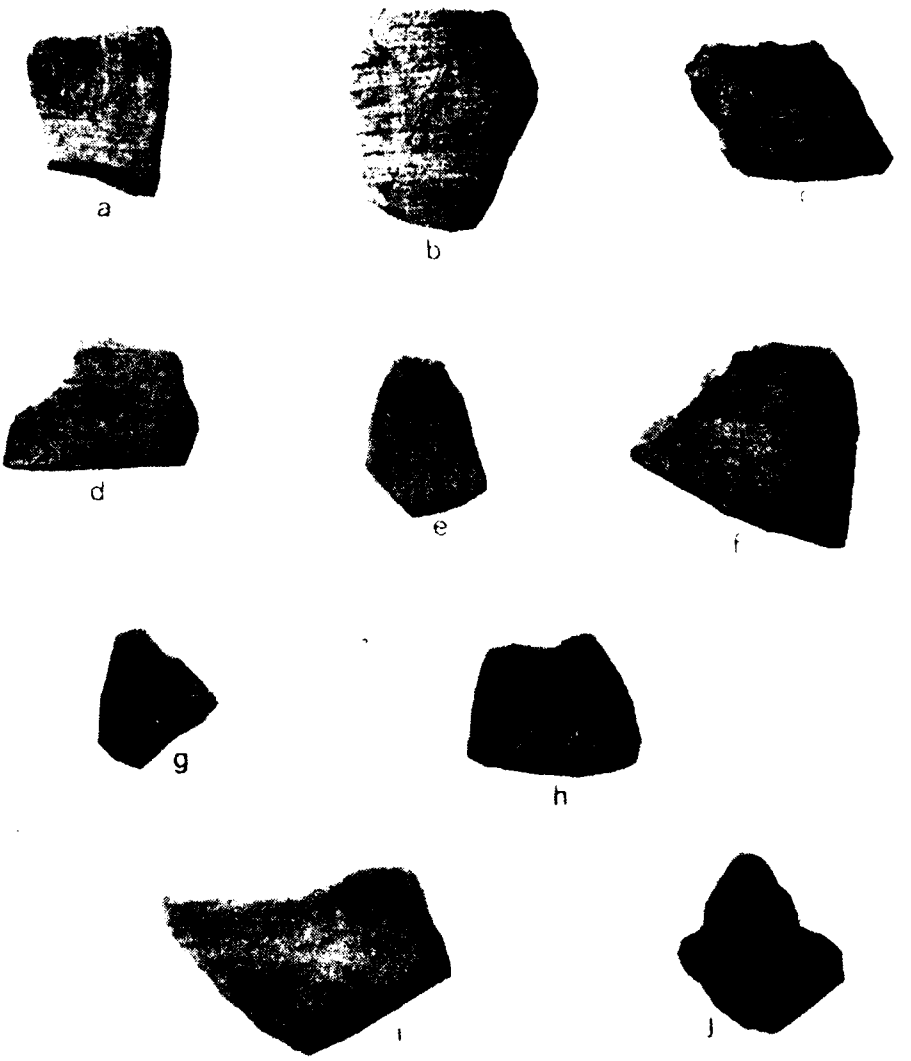


Figure 9.30. Plaquemine Brushed Pottery from Savage: a, Treatment 2; b, Treatment 4; c, Treatment 5; d-e, g-i, Treatment 1; j, Treatment 6.

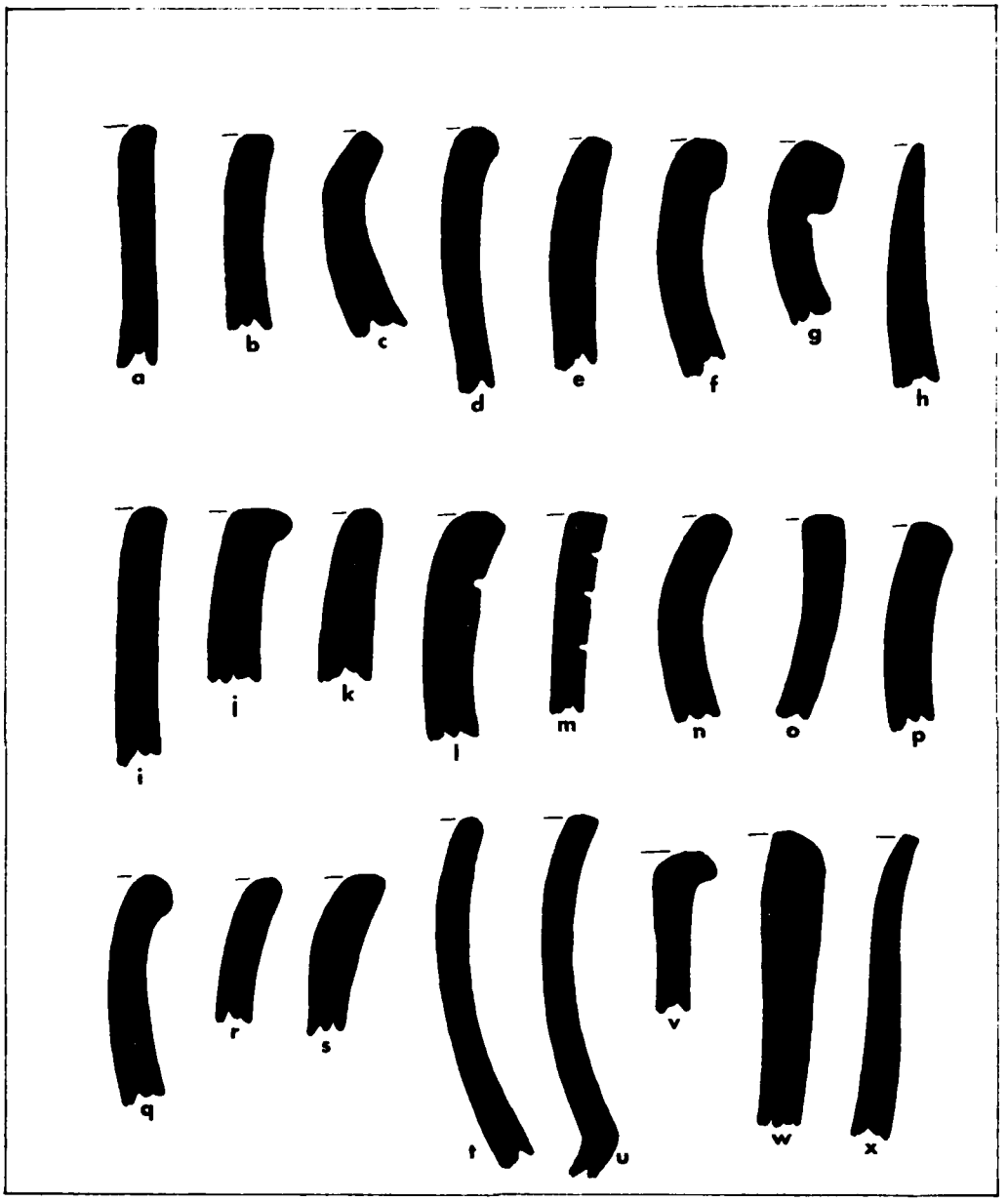


Figure 9.31. Plaquemine Rim Profiles from Savage (inside of vessel to left): a-k, Plaquemine Brushed, treatment A; l-m, Coles Creek Incised, var. Hardy; r-s, Harrison Bayou Incised; t-u, L'eau Noire Incised, var. L'eau Noire; v-x, Pontchartrain Check Stamped.

bulging-sided bowls with convex bottoms.

TABLE 9.23 -- DECORATED POTTERY TYPES FROM SAVAGE (16AV33)

Material	Number
Decorated:	
Plaquemine Brushed, var. Plaquemine	42
Pontchartrain Check Stamped, var. Pontchartrain	17
Mazique Incised, var. Manchac	15
Coles Creek Incised, var. Hardy	8
L'eau Noire Incised, var. L'eau Noire	3
L'eau Noire Incised,var. Australia	3
Harrison Bayou Incised, var. Harrison Bayou	2
Maddox Engraved, var. Baptiste	2
Coleman Incised, var. Coleman	1
Evansville Punctated, var. Wilkinson	1
unclassified incised (single lines on "Addis" ware)	5
unclassified incised (var. Greenhouse on slipped "Addis" ware)	1
unclassified incised (var. Hunt on "Addis" ware)	1
unclassified punctated	2
Withers Fabric Marked, var. Withers	1
Lake Borgne Incised, var. Lake Borgne	16
Lake Borgne Incised, var. Cross Bayou	1
Tchefuncte Stamped, var. Vermilion	7
Tchefuncte Stamped, var. Big Oak	5
Tchefuncte Stamped, var. Russell Landing	1
Tchefuncte Incised, var. Tchefuncte	8
Tchefuncte Incised, var. Bayou Braud	2
Orleans Punctated, var. Orleans	3
Orleans Punctated, var. Magenta	2
Tammany Punctated, var. Tammany	1
Group 1	1
Group 2	2
Group 3	1
Group 4	1
Group 5	5
Group 6	2

Coles Creek Incised, var. Hardy. The eight sherds of this variety (Phillips 1970:73-74) have been broken into three treatments.

Treatment 1. Simple parallel lines, closely spaced, encircling vessel parallel to lip, lacks other distinguishing attributes; four sherds (two rims, Figure 9.31m, Figure 9.32f).

Treatment 2. As above, but punctates (teardrop-, triangular-, and

irregular-shaped) included below last line in incised band; three sherds (Figure 9.32f).

Treatment 3. As in Treatment 1, but adds var. Manchac overlay in alternatingly angled bands composed of three lines. One sherd (Figure 9.32g).

Two rims are profiled in Figure 9.31l-m. Vessels seem to have been straight-sided, deep pots. Measurable sherds (eight) gave a wall thickness range between 3.8-8.5mm; average, 5.4mm; median, 5.0mm and less; and mode, 6.0mm (two sherds).

L'eau Noire Incised. Six sherds are placed in two varieties, based on Phillips' (1970:101-102) sorting criteria. Phillips' varieties are used, despite the lack of convincing demonstration that one of the varieties (Australia) belongs with the L'eau Noire type.

Var. L'eau Noire. As described in Phillips (1970:101-102); three sherds (two rims, Figure 9.31t-u); Figure 9.32h).

Var. Australia. As described in Phillips (1970:102); this design which consists of simple incised, parallel lines encircling vessel lip on the interior of shallow bowls and plates, bears few of the composite attributes of var. L'eau Noire, and its original type appelation, Australia Interior Incised (Quimby 1951:117-118) should probably be reinstated; three sherds (all rims) (Figure 9.32i).

The var. L'eau Noire sherds all derive from carinated bowls (cf. Figure 9.31u) with thin walls. Three measured sherds gave thickness values of 3.0, 3.0, and 4.0mm. Orifice diameters measured 20 and 28cm.

The Australia sherds were broken from shallow bowls or plates. Outside diameters were determined to be 26, 36, and 40cm. If three sherds are meaningful, the wall thickness values of 5.0, 6.0, and 7.5mm, exceed those of var. L'eau Noire and fall within the more typical range of the "Addis" wares from Savage.

Harrison Bayou Incised, var. Harrison Bayou. As described in Phillips (1970:87-88); two sherds (both rims [Figure 9.31r-s]). Deep, straight-sided pots are suggested; orifice diameters were 20 and 28cm.

Maddox Engraved, var. Baptiste. As described in Phillips (1970: 108); two sherds (both rims); one measured 18cm in orifice diameter.

Coleman Incised, var. Coleman. As described in Phillips (1970:69); one sherd.

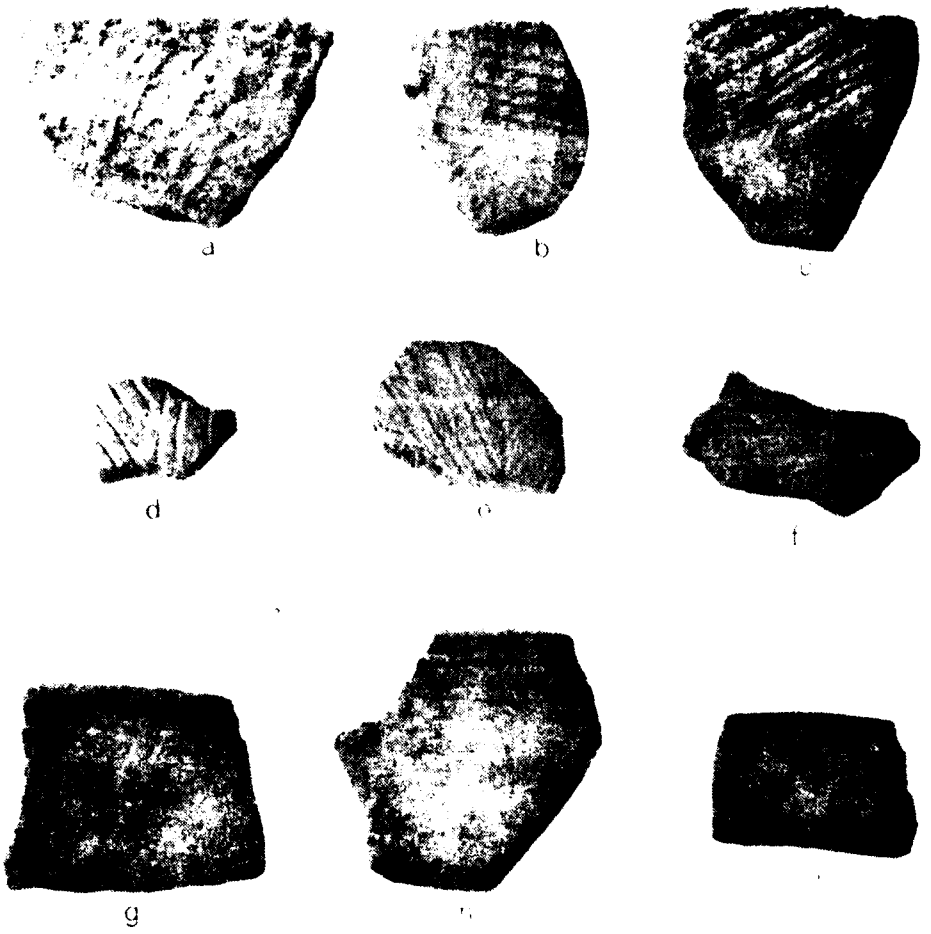


Figure 9.32. Other Plaquemine Decorated Types from Savage. a, Pontchartrain Check Stamped, Treatment 1; b, Pontchartrain Check Stamped, Treatment 2; c, Mazique Incised, var. Manchac, Treatment 1; d, Mazique Incised, var. Manchac, Treatment 2; e, Mazique Incised, var. Manchac, Treatment 5; f, Coles Creek Incised, var. Hardy, Treatment 1; g, Hardy, Treatment 3; h, L'eau Noire Incised, var. L'eau Noire; i, var. Australia.

Evansville Punctated, var. Wilkinson. As described in Phillips (1970:81); one sherd.

Unclassified incised. Single lines on small sherds of "Addis" paste; two rims.

Unclassified incised. Multiple lines, widely spaced (Coles Creek, var. Greenhouse-like incisions and motif) on slipped "Addis" fabric; one sherd. To preserve the consistency of classification (e.g., Phillips' type-variety scheme), this sherd cannot be classed as var. Greenhouse because the fabric is not of the Vicksburg or Little River varieties of Baytown Plain (cf. Phillips 1970:72).

Unclassified incised. Two parallel, narrow lines encircling lip parallel to rim; one sherd. As touted immediately above, placing this sherd in Coles Creek Incised, var. Hunt (Phillips 1970:74) is negated because the ware is an "Addis" fabric, not var. Reed of Baytown Plain.

Unclassified punctated. Apparently random, ovate, shallow punctations on small sherds of "Addis" fabric; two sherds.

Withers Fabric Marked, var. Withers. As described in Phillips (1970: 174-175); one sherd.

Lake Borgne Incised. Two named varieties and three treatments of one of them are present in the Savage collection; 17 sherds.

1. Var. Lake Borgne, Treatment 1. Drag and jab incising with deep and neat punctates ("jabs") of rectangular, rounded, or slightly lunate shapes; multiple parallel lines forming unknown motifs. Sorting criteria follow Weinstein and Rivet's (1978:64-68) revised description. A total of 10 sherds are included in this category (Figure 9.33a).

Three rims are numbered among these sherds, profiles are shown in Figure 9.34c-e. Two of the rims are decorated with short drag and jab; on one the incisions run perpendicularly across the lip; on the other, they are at a 45 degree angle. All seem to derive from deep, straight-sided pots. The one measurable orifice diameter was 36cm. Wall thicknesses (eight sherds) ranged from 6.0-11.0mm. Other thickness statistics include: mean, 7.5mm; median, 6.5mm and less; and mode, 6.0mm (three sherds).

2. Var. Lake Borgne, Treatment 2. As above, except line-filled rectangular and triangular, as well as open-centered triangular, motif elements are formed; four sherds (two rims) (Figure 9.32b).

Rim profiles are shown in Figure 9.34f-g. The rim (Figure 9.34f)

is decorated by short drag and jab incisions running across the lip at a 70 degree angle measured from the outside. Both rims seem to have broken from deep bowls; one measuring 30cm in mouth diameter, the other, 23cm.

3. Var. Lake Borgne, Treatment 3. Unlike the two treatments discussed above, which were separated because of recognizable vis-a-vis unrecognizable motifs, Treatment 3 is distinguished because the lines used to form the complex design patterns differ from those of Treatments 1 and 2. These lines are shallow and are not jabbed as deeply; the sharply pointed, flat tool used to make the lines was held at a low, oblique angle to the vessel surface, rather than high and direct as in the other treatments. This, in fact, is more like the so-called "wiggled line" incisions of Tchefuncte Incised (Ford and Quimby 1945) than more typical Lake Borgne. While it is conceivable that "wiggling" can mean up and down, as well as side to side, use of the rubric, "wiggled," is inappropriate in this context. Treatment 3 lines are definitely drag and jab incisions. Design patterns are incompletely recognized, but design elements join multiple, closely spaced lines meeting at various abrupt angles and at least one line-filled, U-shaped figure (Figure 9.33c).

Two sherds are included in var. Lake Borgne, Treatment 3. They have wall thicknesses of 8.5 and 9.5mm.

4. Var. Cross Bayou. One sherd (8.0mm thick) is included in this variety, established by Gibson (1976b:33). This linear punctated variation of Lake Borgne Incised is made up of teardrop-shaped impressions bearing little trail marks at the ends where the tool was lifted completely clear of the vessel surface. The resultant punctated "lines" are parallel and multiple but form no recognizable design element or pattern (Figure 9.33d).

Tchefuncte Stamped. Three named varieties and three treatments of the Vermilion variety are included in the Savage site material. A total of 13 sherds are typed as Tchefuncte Stamped.

1. Var. Big Oak. Five sherds (Figure 9.33e). This variety was established by Shenkel and Gibson in 1973 and defined in print by Shenkel (1974:49-50) and Gibson (1976b:33). Subsequently, Weinstein and Rivet (1978) dropped this variety in favor of a Tchefuncte variety.

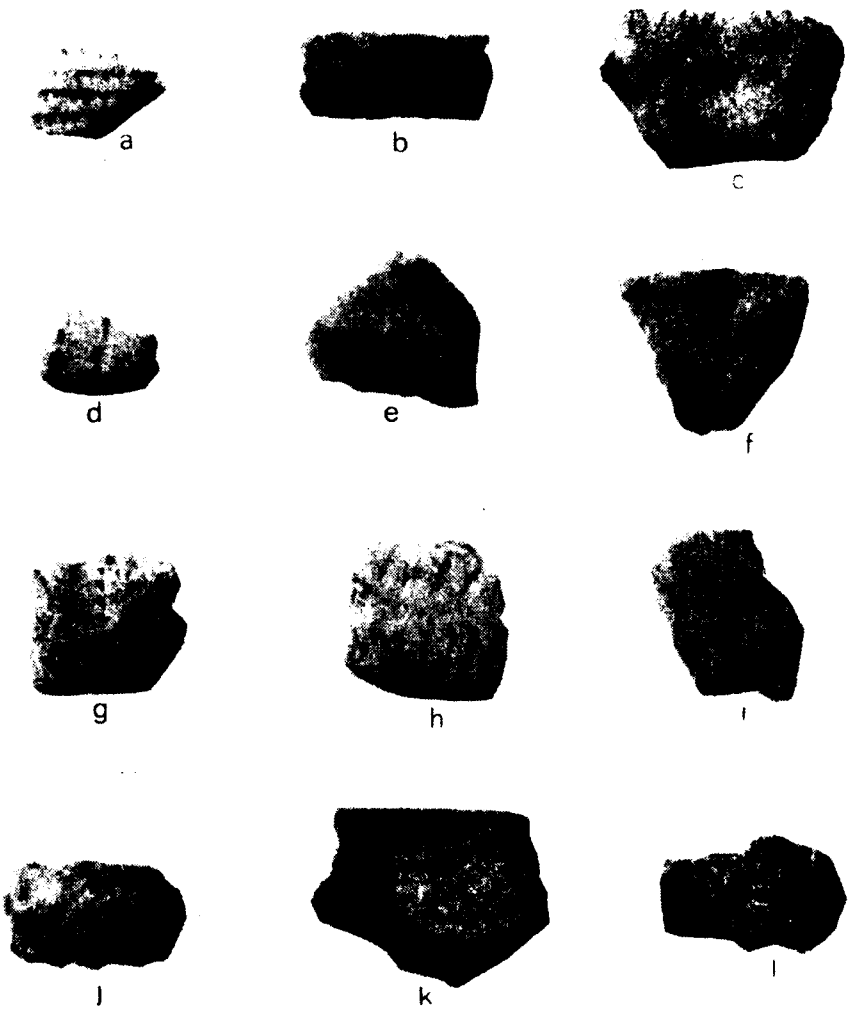


Figure 9.33. Decorated Tchefuncte Pottery from Savage, Drag and Jab, Rocker Stamped, and Incised Types. a, Lake Borgne Incised, var. Lake Borgne, Treatment 1; var. Lake Borgne, Treatment 2; c, var. Lake Borgne, Treatment 3; d, var. Cross Bayou; e, Tchefuncte Stamped, var. Big Oak; f, var. Vermilion, Treatment 1; g, var. Vermilion, Treatment 2; h, var. Russell Landing; i, Tchefuncte Incised, var. Tchefuncte, Treatment 1; j, l, var. Tchefuncte, Treatment 2; k, var. Bayou Braud, Treatment 1.

Their reasoning was that since the establishment of var. Big Oak, no sherds had been classified as var. Tchefuncte (Phillips 1970:162), even from the Tchefuncte sites in the Lake Pontchartrain region. Not only does this argument appear to be a non sequitur, it is based on a case of mistaken identity, or, more aptly, a case of mistaken classification. Apparently unknown to Weinstein and Rivet (1978), the main sorting criterion in the Shenkel and Gibson Big Oak variety was the so-called "lightning-bolt" line. The "lightning-bolt" line was used by Weinstein and Rivet (1978:40) to establish the Bogue Falaya variety of Tchefuncte Incised. The confusion, therefore, stems from Weinstein and Rivet's identification of the "lightning-bolt" line as an extreme form of Tchefuncte "wiggled" incising, and Shenkel and Gibson's determination that it was a loose, staggered, slightly twisted form of "rocker stamping." Even Weinstein and Rivet admit that their Bogue Falaya variety is borderline between "wiggled" incising and "rocker stamping."

This involved technical aside is mentioned only for the purpose of explaining why var. Big Oak has been revitalized herein. The "lightning-bolt" line can be easily produced (experimentally) by using a loose, twisting ("rocking") motion of the tool and dragging the tool across short distances between twists (Figure 9.33e). It cannot be experimentally reproduced by wiggling the tool. This entire discussion may be shortly dismissed as nongermane, if Shenkel's recent replicative experiments prove that twisted cords and strings were really the "incising" (impressing) agents (J. Richard Shenkel, personal communication, 1979).

Spacing of lines of semi-stamping (or cord impressions) is too broad to disclose design elements or patterns on sherds of the size recovered from Savage. All sherds, except one, have single lines of semi-stamping. The other sherd has one straight line and one V-ed line. Wall thickness values are: 6.5, 7.5, 8.0, and 9.0mm.

2. Var. Vermilion, Treatment 1. Four sherds (Figure 9.33f). Had logic prevailed during the years-ago frenzy to establish Tchefuncte type-varieties, the Vermilion variety should have been the most appropriate candidate to receive the var. Tchefuncte label, a point of considerable importance to Weinstein and Rivet (1978). Most of the Tchefuncte Stamped sherds illustrated by Ford and Quimby (1945:Plate 2h-c,

e-f) were of the variety now labeled Vermilion (Gibson 1976b:33). If the Ford and Quimby photograph is representative of the kinds of Tchefuncte Stamped varieties actually recovered from the Tchefuncte and Little Woods middens (Lake Pontchartrain region), then Weinstein and Rivet's (1978) push to bring var. Tchefuncte out of mothballs should have been directed at var. Vermilion, not var. Big Oak. However, the present author can agree with Weinstein and Rivet's sometimes followed logic in purging variety nomenclature of terms which have culture period, or phase meaning. In other words, since Tchefuncte already names a major culture period in Lower Valley prehistory (Ford and Quimby 1945), it should not be committed to name a pottery variety also. Actually this author would go much further, if so motivated; he would purge all ceramic types (and varieties) of names committed to other classifactory units of all sizes and all levels of inclusiveness.

Emerging from this methodological issue, the var. Vermilion, Treatment 1, sherds from Savage exhibit the sorting criteria specified in Gibson (1976b:33), that is, a two- or three-pronged (denticulated) tool leaving V-shaped "punctations" after being "walked" across the vessel surface. A land, or blank space, is left between the rows of "punctations" (which always shows signs of twisting). In the Savage material, the three-pronged example has left a faint trace of staggering (middle point) in the land, and in another example (two pronged tool), the land has been scarified by the edge of the tool intervening between the points on the outside edges.

Sherds in this category have wall thicknesses of: 6.0, 8.0, 8.5, and 9.0mm.

3. Var. Vermilion, Treatment 2 (Figure 9.33g). Two sherds. This is a form of Vermilion that is actually punctating but was done with a similar denticulated (usually two-pronged) tool. Close inspection reveals tiny trails where the prong was lifted from each impression as the tool was "walked" down or across the vessel surface. Patterns are not recognizable, and the paired rows of "punctates" seem to fill all areas in an attempt at overall roughening. Rows often cross each other.

The two sherds of this treatment have wall thicknesses of 8.0mm.

4. Var. Vermilion, Treatment 3. One sherd, 6.0mm thick. This is the most extreme form of punctating produced by the Vermilion application. Impressions are shallow and widely spaced (up to 5.0mm between

rows) and determining that the paired rows were produced by "walking" usually can be done by comparing the spacing between individual "punctates" alternating between rows. In other words, one row of "punctates" will show an alinement in which each impression occupies an open interval between two "punctates" in the paralleling paired row.

5. Var. Russell Landing. One sherd (Figure 9.33h), 7.5mm thick. As described in Gibson 1968 :33-35); smooth, unaccentuated rocker-stamping resulting in generally neat, uninterrupted, curving-sided "zig-zagged" lines. This stamping treatment was apparently produced by a small curved tool, shallowly pressed into the vessel surface as the hand was smoothly rotated while moved across surface. Motif is uncertain but involves parallel rows of stamping.

Tchefuncte Incised. Ten sherds of Tchefuncte Incised from the Savage site can be broken down into two varieties and six treatments. Description follows Weinstein and Rivet's (1978:36-40) recent refinement, that is, simple and plain lines forming a number of patterns.

1. Var. Tchefuncte, Treatment 1. Two sherds (Figure 9.33i). Variety as defined by Weinstein and Rivet (1978:36-40). In Treatment 1, the plain, narrow lines form a broad, cross-hatched pattern, similar to the "Harrison Bayou" mode. Wall thicknesses are 7.5 and 5.0mm.

2. Var. Tchefuncte, Treatment 2 (Figure 9.33j,1). Two sherds with thicknesses of 7.0 and 8.0mm. The plain, narrow lines form indeterminate motifs, but always involve bands of parallel, usually closely spaced lines, meeting at abrupt angles. On one sherd a band of encircling lines is touched by a panel filled with diagonal lines; on the other, the encircling incised band is joined to a panel of diagonal lines which alternate at 45 and 135 degree angles.

3. Var. Tchefuncte, Treatment 3. One sherd, 4.5mm thick. The simple, narrow, multiple incisions of this treatment form undetermined straight and parallel line patterns.

4. Var. Tchefuncte, Treatment 4. One sherd, a rim (Figure 9.34a), 4.5mm thick. The pattern is an alternating series of plain and line-filled triangular fields confined to the upper vessel walls. The band is bordered along the bottom by a single incised line. The line-filled triangles are actually formed by dual paired lines and are not completely hatched. The apices of the line-filled elements is toward

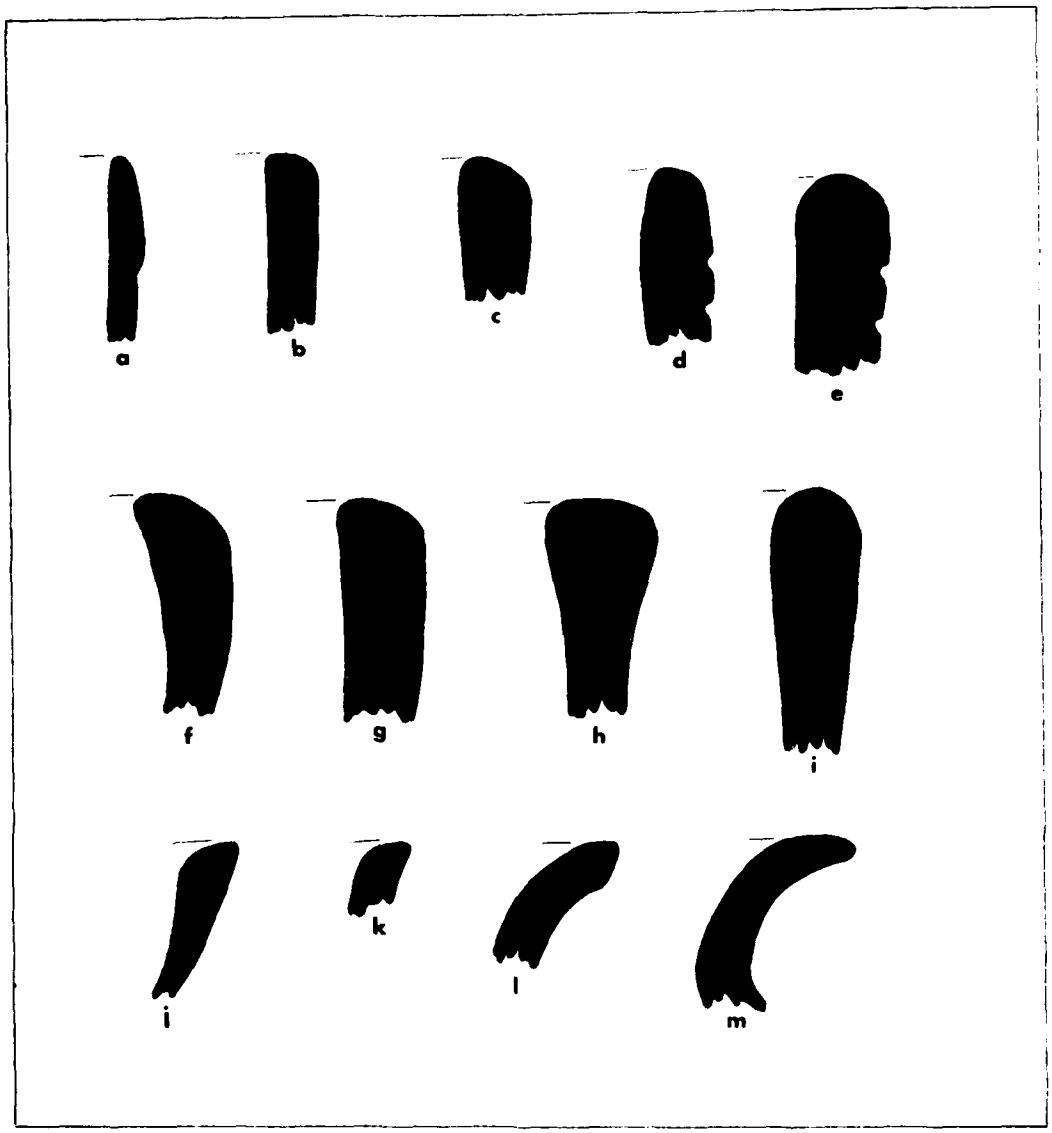


Figure 9.34. Tchefuncte Decorated Rim Profiles from Savage (inside of vessel to left). a, Tchefuncte Incised, var. Tchefuncte, Treatment 4; b, Tchefuncte Incised, var, Bayou Braud; c-e, Lake Borgne Incised, var. Lake Borgne, Treatment 1; f-g, Lake Borgne Incised, var. Lake Borgne, Treatment 2; h, Group 3; i, Group 5, Treatment 1; j, Group 5, Treatment 2; k-l, Orleans Punctated, var. Orleans; m, Orleans Punctated, var. Magnenta.

the rim, while the plain triangles point toward the vessel base.

The rim seems to derive from a deep bowl or bowl-like pot with the greatest diameter at the vessel mouth. The orifice is 22cm in diameter.

5. Var. Tchefuncte, Treatment undetermined. Two sherds. Single lines on these two badly weathered sherds (one of which bears a crack-lacing hole) do not permit placement in any of the recognized treatment categories.

6. Var. Bayou Braud, Treatment 1. One sherd (Figure 9.33k), a rim, 8.0mm thick with a vessel mouth measuring 36cm across. As defined in Weinstein and Rivet (1978:42-44), this variety is distinguished from other Tchefuncte Incised varieties by line width. Incisions of Bayou Braud are "wide," over 2.0mm, and resemble (are) those used in certain Marksville types. In the Savage sherd, the broad lines form alternating line-filled triangular elements (unbordered) in a band around the upper vessel walls. The lines terminate in almost heart-shaped indentions, similar to those of the Yokena mode.

7. Var. Bayou Braud, Treatment 2. One sherd, 8.5mm thick. Broad lines form a large interval, cross-hatched pattern, similar to the Harrison Bayou mode.

Orleans Punctated. This type conforms to the recent revised type descriptions and varietal segmentation of Weinstein and Rivet (1978:71-75) and Gibson (1976b:34). Two varieties are recognized in the Savage site collection. A total of five sherds are classed as Orleans Punctated.

1. Var. Orleans. Three sherds (Figure 9.35a). As defined by Weinstein and Rivet (1978:71-73) and Gibson (1976b:34), this variety is distinguished as a zoned treatment with simple, plain lines bordering random tool punctated areas. Punctations are usually pointed, and the punctated fields form (in the Savage material) a variety of design elements, which have not been identified.

The three sherds exhibit wall thicknesses of 7.0, 7.0, and 8.0mm. Two rims are depicted in Figure 9.34k-1. One derives from a straight, outslanting walled vessel with an orifice diameter of 20cm (Figure 9.34k). The lip has been notched across the top by a series of closely spaced fingernail punctations. The other rim was broken from a pot

with an outflaring rim (Figure 9.34l). The lip was tool notched. The reconstructed vessel form was a bulging-sided bowl with the greatest diameter (i.e., 24cm) occurring about the middle of the vessel.

2. Var. Magenta. Two sherds (Figure 9.35b). As defined by Gibson (1976b:34), this variety has narrow, simple incised borders defining fields of linear punctated zones. In the Savage material, the punctates are wedge-shaped or triangular and motifs are unrecognizable.

The sherds have wall thicknesses of 5.0 and 7.0mm. One is a rim (Figure 9.34m) from a tecomate-like bowl, having an outside diameter of 16cm.

Tammany Punctated, var. Tammany. One sherd (Figure 9.35c). As defined by Weinstein and Rivet (1978:53-55) and Gibson (1976b:33), this variety is a fingernail punctated treatment, which displaces little clay and forms a variety of overall randomized or linearly aligned patterns. This sherd is 6.5mm thick.

Unnamed Groups. The traditional type-variety approach to ceramic classification comes up considerably short when dealing with decorations that combine two or more design techniques; techniques which comprise the major sorting criteria for already formalized varieties. For example, should an incised design which combines Lake Borgne and Tchefuncte modes be made a variety of Lake Borgne Incised or of Tchefuncte Incised? This kind of problem is especially pronounced in the Tchefuncte ceramic complex when dealing with zoned designs which use one technique to produce borders and another to produce the filler. In the early 1970s, the present author established a number of type-varieties during an attribute analysis of Tchefuncte pottery from a number of regions in Louisiana (e.g., Vermilion River Basin, Lake Pontchartrain Basin, Catahoula-Larto Basin, Ouachita Lowlands, and Macon Ridge). Materials were compared and groups were subjectively established by dint of decorative differences and commonalities regardless of presumed age or area. The procedure was semi-analytical and was predicated on an appreciation of a wide range of techniques and application schemes. As a matter of fact, type-varieties were commonly set up to accomodate various kinds of technical or application combinations even though no actual sherds fitting that logical category were noted. A partial list of these categories (type-varieties) including some without real members, was subsequently published (Gibson 1976b:33-34). This list was

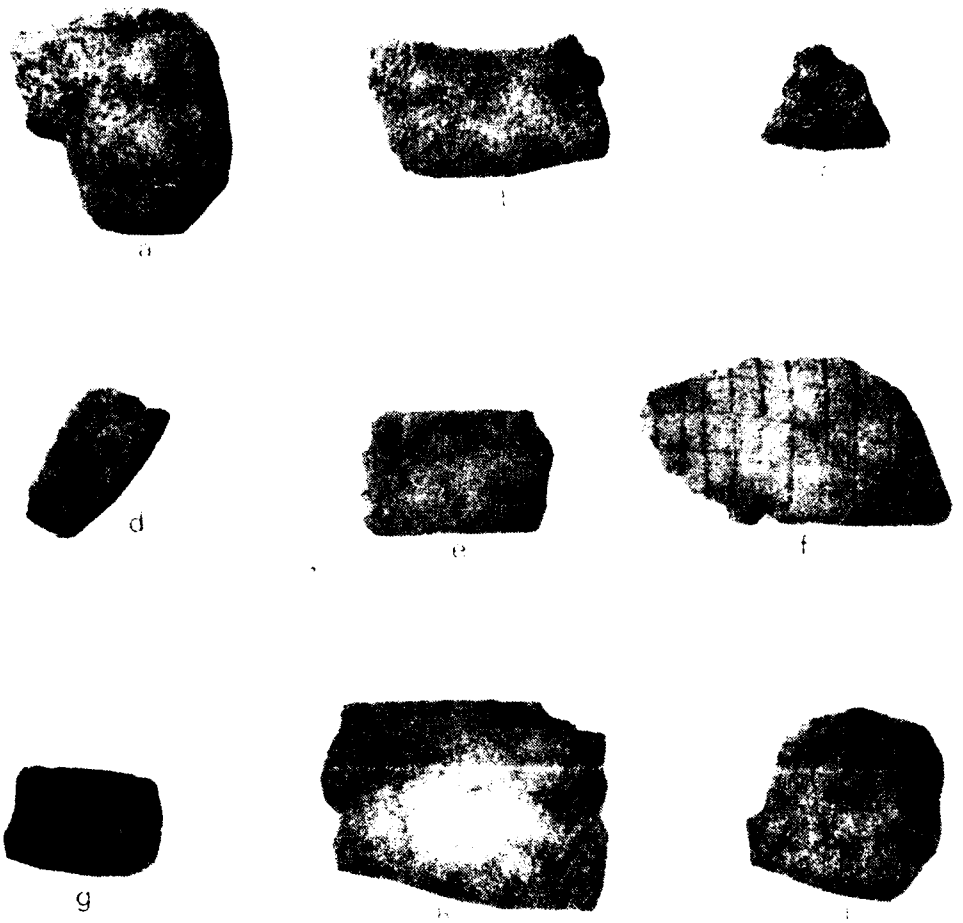


Figure 9.35 Decorated Tchefuncte Pottery from Savage, Combination Modes. a, Orleans Punctated, var. Orleans; b, var. Magenta; c, Tammany Punctated, var. Tammany; d, Group 2; e, Group 3; f, Group 4; g, Group 5, Treatment 1; h, Group 5, Treatment 2; i, Group 6, Treatment 2.

taken at face value without realization that, in some cases, the varieties were hypothetical and that the underlying organizational criteria were quite different from the traditional type-variety scheme (Phillips 1958, 1970). When sherds fitting some of the hypothetical varieties were subsequently recognized during traditional pottery classifying operations, the varieties then took on real, in addition to purely heuristic, value and have been used as "types" since (cf. Weinstein and Rivet 1978). Those hypothetical varieties for which no real sherds bearing the specified combination of attributes have been discovered, have been quite confusing and efforts to explain their "absence" have been tended.

To perhaps ease some of this confusion and still retain a semblance of typological organization, a number of groupings are recognized below. These groups all bear combinations of techniques which individually provide the sorting criteria for established varieties but which in combination cannot be fitted into named type-varieties without violating published descriptions.

1. Group 1. One sherd. Design consists of paneled Cross Bayou (linear punctating) diagonal hatching bordered by a narrow incised (Tchefuncte mode) line; sherd is 7.5mm thick.

2. Group 2. Two sherds (Figure 9.35d). Design consists of paneled Lake Borgne (drag and jab) diagonal hatching, bordered by paired Tchefuncte lines above and below panel. One motif comprises a herringbone pattern; the other may simply involve a hatched panel encircling vessel parallel to lip.

3. Group 3. One sherd (Figure 9.35e). Design consists of alternating lines of Cross Bayou and Tchefuncte modes, respectively, encircling vessel parallel to lip. The sherd, 5.5mm thick, bears fingernail punctations on the interior and exterior edges of the vessel lip (Figure 9.34h). These punctations do not extend across the roof of the lip.

Group 4. One sherd, 7.5mm thick. Design is a broad cross-hatching, resembling the Harrison Bayou mode, formed by an initial series of hatching (Lake Borgne mode) crossed by a subsequent series of hatching (Tchefuncte mode) (Figure 9.35f).

Group 5, Treatment 1. Gibson (1976b:33-34) has previously anticipated the existence of Group 5 treatments and even formalized one of the

treatments (Treatment 2) as a variety of Orleans Zoned Punctated (var. Grand Coteau). To accomodate the various combinations of modes that appeared on sherds or that might have existed, the general type appellation, Orleans Punctated, was used. However, use of that type name has proved confusing. Gibson used the Orleans rubric to refer to any zoned motif on Tchefuncte ware which had punctates (including drag and jab) in the application. Weinstein and Rivet (1978:69) pointed out that Orleans Punctated as originally defined (Ford and Quimby 1945:61-62) does not always have to be zoned, ". . . but only occur in alternating plain and decorated bands." Obviously if plain and decorated bands alternate, then the design elements are zoned. What Weinstein and Rivet apparently intended to say was that the decorated bands do not always have to be separated from plain bands by borders but may be unbordered. Just because Orleans design elements may be unbordered does not make it unzoned. In fact, if Orleans Punctated was not zoned, it would not be Orleans by definition (Ford and Quimby 1945:61-62). This confusion over the meaning of the word, "zone," caused Weinstein and Rivet (1978:69) to extract Gibson's (1976b) variety Grand Coteau from the type Orleans Zoned and place it as a variety of Lake Borgne. This redefinition is quite improper, as it is based on faulty reasoning. More legitimacy may be accorded differences of opinion regarding whether the drag and jab technique is incising or punctating, and this problem is of no easy resolve. One thing is for certain, drag and jab "incising," or "punctating," is not simple, plain incising. Lines are formed by closely spaced, conjoined impressions caused by pressing the decorating tool deeply into the vessel surface, lifting (or dragging) it across a short intervening space, and then depressing it again. In sum, Weinstein and Rivet's shift of var. Grand Coteau from Orleans Zoned to Lake Borgne is based on illogical arguments, but because similar kinds of reasoning dominate varietal recognition, the issue will not be pressed. Rather, the present author will simply accord a noncommital group number to those sherds whose assignment depends on which type definition one chooses to follow. In the most basic sense, it is not what type-variety category one places sherds in but what design elements comprise the decorative motifs themselves.

One sherd exhibits the plain vis-a-vis decorated bands ascribed

to var. Grand Coteau by Gibson (1976b:34) and Weinstein and Rivet (1978: 69); drag and jab borders enclosing drag and jab fillers (Figure 9.35g). It is a rim from a bowl with a mouth measuring 20cm across (Figure 9.30j). It is 7.0mm thick.

Group 5, Treatment 2. Four sherds (Figure 9.35h). This is a variety unrecognized by Weinstein and Rivet (1978) and postulated but not recorded by Gibson (1976b:33-34). The design consists of simple plain, narrow, incised lines forming borders around bands filled with drag and jab "incised," or "punctated," stippling. These sherds have wall thicknesses of 7.0, 7.0, and 8.0mm. One is a rim (Figure 9.34i), broken from a straight-sided pot measuring 34cm in orifice diameter.

Group 6, Treatment 1. One sherd. Pattern is undetermined, but motif elements consist of "zone" of plain, narrow, slanted incisions bordering "zone" of triangular punctates (uncertain whether random, linear, or some other patterned arrangement). Sherd is 7.5mm thick.

Group 6, Treatment 2. One sherd (Figure 9.35i). Pattern consists of at least one V-shaped element comprised of line (plain and narrow) filled-Vs, bordered by random punctates made with pointed tool. The sherd is 8.0mm thick.

Other Observations, Tchefuncte Wares.

As has been mentioned in connection with 16SMY2, Tchefuncte potteries are the easiest to recognize of all Lower Mississippi Valley potteries, even if no decorations are present. Why this should be so has not been quantified. Yet there is a feel, albeit subjective, that allows experienced typologists to effortlessly sort Tchefuncte wares from all other Lower Valley plain wares of all periods. Unquantified, and to a large degree unqualified, the Savage site Tchefuncte ceramics fit quite well within the "model" of Tchefuncte wares throughout the Lower Mississippi Valley.

Fabric is soft, chalky, and can be rubbed off with the fingers. Surfaces are usually cracked and are sometimes floated, or smoothed. Tooling marks are preserved on the interior of sherds (vessels). The Tchefuncte fabric from Savage has no visible inclusions (commonly called tempering). It is generally oxidized throughout (exterior surfaces through core) and varies in color from dark gray to buff or orange. Structure of paste varies from contorted to foliated.

Wall thicknesses (37 sherds, all rims, measured at fracture below lip) range between 5.0 and 11.0mm; average, 8.1; mode, 9.0mm; and median, 8.0mm and less.

Rim profiles of plain Tchefuncte sherds are illustrated in Figure 9.36. Most rims are direct and unthickened. Nearly all derive from deep, straight-sided pots or deep bowls, but several are from bulging-sided, deep pots (Figure 9.36m-o, gg) and from complex forms (Figure 9.36a-b). A total of six of 47 rims (plain) was decorated by transverse tool, or fingernail, notching: three exhibit V-shaped transverse notches; one, u-shaped, transverse notches; one square diagonal notches; and one has V-shaped notches on the interior of the lip.

Three rims have "crack-lacing holes," as do four plain body sherds. On the rim sherds, the holes have been cut (in leathery hard paste) from both surfaces but mainly from the exterior. On the wall sherds, cutting was entirely from the exterior surface in three sherds and mainly from the exterior in the other. Holes (on rim sherds) were placed (center of holes) 9.0, 14.0 and 14.0mm below lip. The fact that holes were cut in hardened but undried and unfired vessels intimates that they are *not* repair devices for cracked vessels but are, more likely, suspension features.

Vessel mouth diameters range from 18-40cm; average, 30.4cm; mode, 30cm; and median, 30cm.

Basal sherds among Savage Tchefuncte sherds number 23. Seven derive from simple flattened bases; two are the flat basal patties themselves, measuring 9.0 and 13.0mm thick respectively; one is from a base with rounded contours; three from pseudo-annular bases; and one from a sharply angled base. The other basal sherds exhibit appendages of one sort or another.

All of the appendage-type bases seem to be polypodal, rather than tri- or quadra-podal. Shapes of legs ("appendages") are square, wedge, cylindrical, round, teat, and unidentified. Square legs are of two types (projecting, 8 bases; and nonprojecting--legs coincident with flattened base, two sherds). Of the projecting legs two are large (up to 54mm long), two are medium (36 and 37mm long), and four are little (19-21mm long). The cylindrical pod is 26mm in bottom diameter. The round pod is a "nubbin," and the teat pod, is a perky "conical" mammiform

shape. Two sherds are lower vessel walls where polypods of unknown shape were attached, and the final form is unidentified (possibly fractured longitudinally along a "wedge"-shaped pod.

Other Observations, "Addis" Wares.

The residual plainware from Savage (all rim sherds) has for convenience been lumped in the "Addis" category. Addis is the general plainware of the Plaquemine period, and adoption of the term Addis is in keeping with Phillips' (1970:48-49) admission that the ware is not easily sortable from other varieties of Baytown Plain by dint of its own unique characteristics. Classification of Addis is usually dependent on a process of elimination, that is, anything left after more easily sortable plain varieties have been extracted from the sample, and, of course, validated by the co-occurrence of decorated Plaquemine types. Phillips (1970:49) reasons that Addis may be most easily distinguished from other clay-tempered Baytown wares on the basis of vessel forms, e.g., carinated bowls, jars, and bottles. This suspicion does not work in the Savage collection where all vessel forms seem to be variations of simple straight- or slightly globular-sided pots or bowls.

Nonetheless, all materials classified as Addis ware from Savage are quite easy to sort from Tchefuncte wares, and they do bear an internally similar appearance in general. As opposed to Tchefuncte Plain, Addis wares from Savage are harder, more compact, and grittier. The paste is grainy and angular in structure. Inclusions ("temper") are unidentified black specks, grit, and possibly some grog. Some surfaces have been floated or slipped, and these integuments sluff off readily revealing the core. Surfaces are pocked where inclusions have been leached or weathered out. Surface and core colors are quite variable, even on the same sherd, and range from black to nearly white. Most Addis ware, unlike Tchefuncte, tends to have cores that are darker (reduced) than the surfaces.

One striking difference between Addis and Tchefuncte wares from Savage is the thinness of vessel walls in the former. Fifteen measured sherds gave a wall thickness range from 4.2 to 8.5mm; central tendencies include mean, 5.8mm; median, 5.5mm; and mode, 5.0mm. Hence Addis sherds on the average are over 2.0mm thinner than their Tchefuncte counterparts.

Addis rim profiles (undecorated sherds) are depicted in Figure

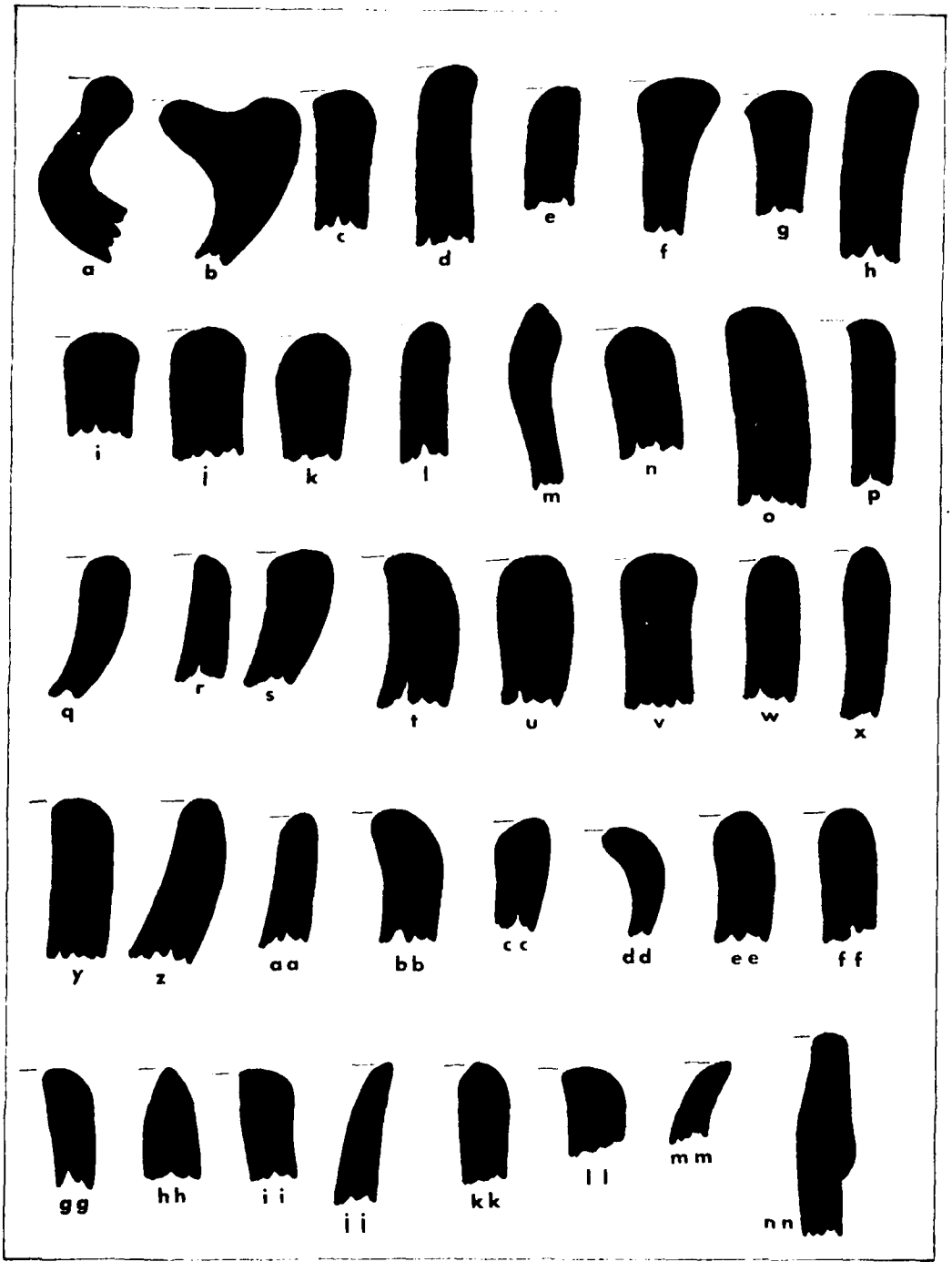


Figure 9.36. Tchefuncte Plain Rim Profiles from Savage.

9.37. Indicated vessel forms are deep, straight-sided jars with direct and slightly out-flaring rims, slightly globular pots, and bowls. The lack of identifiable bases in the Savage collection suggests that Addis vessels had rounded, convex bottoms which were not noticeably thicker than adjoining vessel walls. Rim profiles and vessel forms of the undecorated Addis vessels do not appear to differ from decorated vessels of Addis fabric (cf. Figure 9.31 and Figure 9.37).

Eleven measurable sherds provided orifice diameter ranges from 16-40cm; mean, 25.6cm; and median, 24cm. The sample was tri-modal at 22, 26, and 30cm (two sherds each value). Thus mouths of Addis vessels are smaller than those of plain Tchefuncte vessels by an average of 4.8cm.

Other Baked Clay Objects.

Cane Cores.

A total of nine fired clay objects have been identified as cane cores. These are cylinders of clay presumably produced when cane, or other hollow reeds, was stuck into the ground forcing clay into the hollow chambers between septae. Either sun-dried, or incidentally fired when the cane covering burned, the resulting clay plugs retained their tell-tale solid cylindrical shape with fine longitudinal striations marking their outer surfaces.

Ceramic Pipes.

Eleven fragments of clay pipes were counted in the Savage collection. Ten of these are pieces of tubular, cigar-like forms, characteristic of Tchefuncte pipes in general (cf. Ford and Quimby 1945). Wall fragments are represented by seven examples; medial cross-sectional fragments by two pieces; and mouthpieces by one example. Two variations seem apparent in the shape of pipe cross-sections, i.e., cylindrical and oval, but these differences could simply be a function of where along the pipe the fragment derived. The one mouthpiece is a flattened oval in cross-section with a squared end and slightly flaring sides above the end. The bore is cylindrical. The fabric of these pipes is characteristic of Tchefuncte plain ware, and none of the pipes are decorated.

The remaining fragment seems to have been part of a platform pipe, similar to those known for Marksville components (e.g., Crooks site, Ford and Quimby 1940). The fragment is the end of the flattened platform

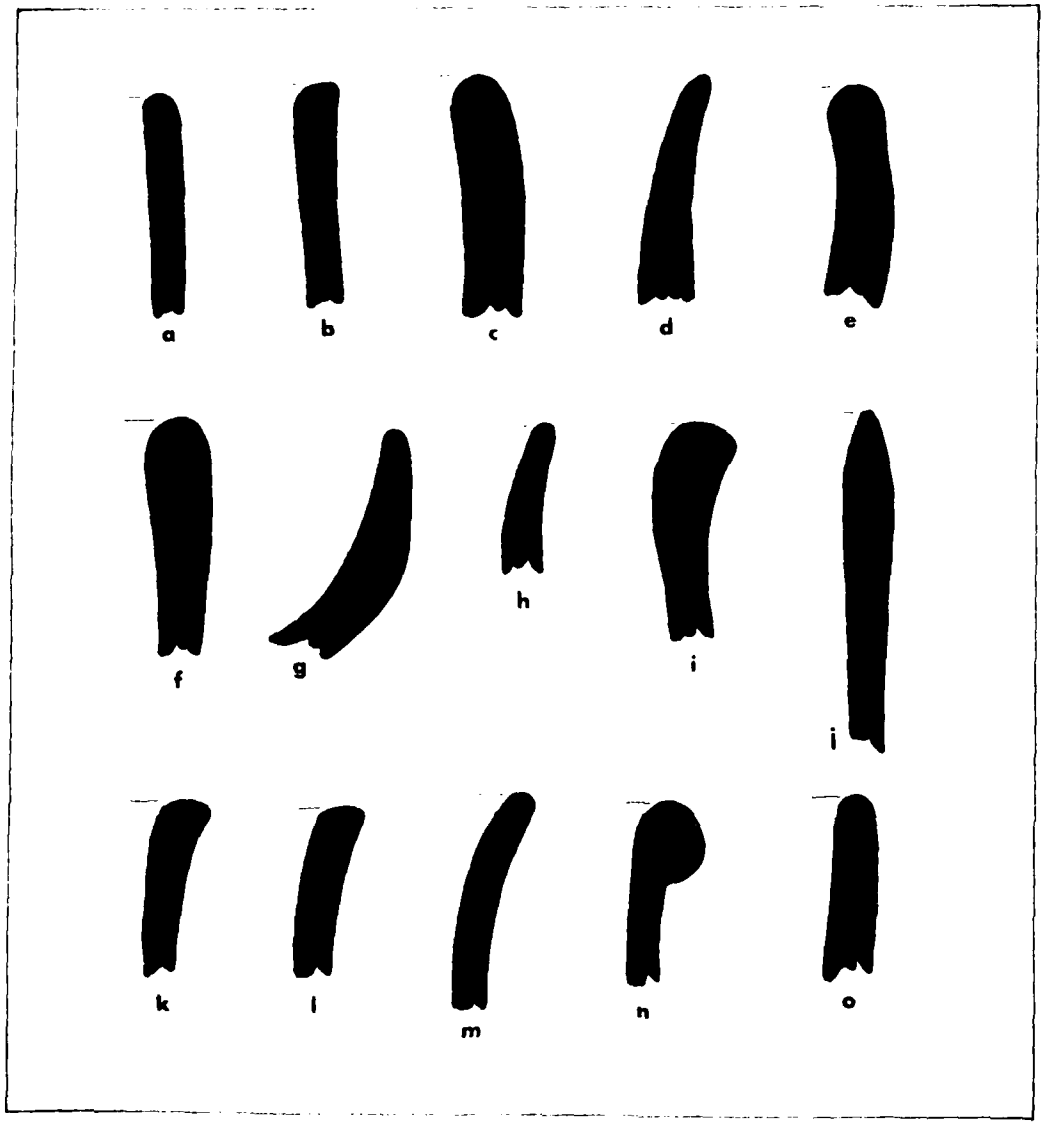


Figure 9.37. Addis Rim Profiles from Savage, Plain Wares.

base; it is rectangular in plan and plano-convex in cross-section. It is made of typical Tchefuncte ware.

Clay Bead.

One half of a clay bead was noted in the Savage collection. It was a round object, about 14mm in diameter with a central, cylindrical perforation, measuring 3.0mm in diameter. The fabric is Tchefuncte.

Clay Lip or Ear Plug.

One cylindrical baked clay object bearing an encircling medial groove has been classed as a lip or ear plug. It is 26mm in diameter, 20mm thick, and bears a central, cylindrical perforation, 7.0mm in diameter. Paste is reminiscent of Addis ware.

Pottery Coil.

One segment of an "accidentally" fired pottery coil of Tchefuncte ware was noted.

Amorphous Objects.

Thirteen chunks of fired clay were present in the Savage material. One is an irregular object with rounded contours bearing finger impressions on the surfaces, indicative of intentional manipulation and semi-shaping. Eight objects of amorphous shape have smoothly rounded exterior contours, and three have angular planes and irregular shapes. The former may have been hand-molded clay masses and the latter, fragments of fire basin, or hearth, walls.

The final object seems to have been a wad of clay applied around a section of cane and is possibly daub.

Stone Artifacts.

Stone artifacts from the Savage site are quite numerous and fall into a number of classes and types. Both ground and chipped stone artifacts occur with the latter considerably outnumbering the former. Local and exotic lithic materials were used in tool manufacture; local materials were almost wholly limited to the production of chipped stone tools, while exotic materials were used in the ground stone industry (Table 9.24).

Lithic artifacts were produced during all periods of occupation, and the difficulty of ascribing tool classes and types to the various components is especially pronounced. The majority of the artifacts have

a decided Archaic "flavor," but the apparent longevity of Archaic industrial technology prevents separation of temporally and historically meaningful assemblages at the present time.

Artifacts are classified according to a number of typological and processual schemes. Traditional "functional" categories and historical types, e.g., Gary dart points, Alba arrow points, celts, drills, etc., are employed for most categories of finished, or nearly finished, tools. Chipping debris and debitage, as well as various technologically unfinished chipped artifacts, are grouped by morphological attributes as stadial categories in a processual scheme designed to accomodate the various stages in lithic reduction from pebble to tool. The details of the scheme are published elsewhere (Gibson 1978c).

Unmodified Raw Materials.

Various kinds of rocks were used as industrial raw materials at Savage. Some of these materials were apparently brought to the site (i.e., manuports) but were never introduced into tool production processes or were "victims" of early stages of tool production which left no visible evidence of chipping or grinding. These unmodified raw materials are inventoried in Table 9.24.

TABLE 9.24 -- UNMODIFIED RAW MATERIALS FROM SAVAGE

Material	Number
Chert pebbles	15
Conglomerate, pebbles set in sandstone matrix, irregular chunks and tabular slabs	13
Rock crystal, or quartz crystalline masses (not geodes)	9
Green slate and shale (talcy), tabular pieces	7
Red Ochre lumps	5
Catahoula sandstone lumps	3
Quartz pebbles	3
Quartz crystals	2
Claystone, white	1
Granite, chunk	1

Other kinds of materials were converted into tools and will be identified under those categories, but Table 9.24 lists only those unmodified materials. Both local and "imported" exotic materials seem to be

present. While caution must be followed (cf. Lenzer 1979) in attributing "foreign" origins to the quartz crystals, green talcs, and granites, they are normally thought of as "exotics", and their presence is generally attributed to some form of long-distance commerce. Such materials may in fact occur in the local Pleistocene gravel beds in the nearby terracelands and hills but whether they occur in the abundance, which seems necessary to have promoted intentional selection seems, in this author's opinion, very remote. Until a representative sample of local gravel outcrops have been located, their compositions qualified and quantified, their accessibility during various paleogeographic intervals specified, and signs of aboriginal exploitation and selection proven, the argument about local vis-a-vis foreign sources of these exotics will remain unconvincing. Until such evidences are marshaled, the presence of exotic materials will be viewed as evidence of prehistoric commerce across sometimes large distances.

Chipped Stone Artifacts

Various production stages of chipped stone tools are described below. First to be described are the nucleus, or core, tools, followed by the chipping residues.

Minimally chipped pebbles-cobbles. Four groups are recognized among these nuclei, which represent initial reduction stages of local water-worn pebbles or cobbles.

1. Snapped and split nuclei. Seven examples. Flat pebbles which have been traversely snapped and longitudinally split usually forming at least one dihedral edge where snaps conjoin. Sometimes one of the split edges bears evidence of flaking. One of the examples has been thermally altered.

2. Nuclei with interrupted flaking platforms. Thirteen examples. These artifacts are pebbles or cobbles in which several isolated, natural platforms have been used to detach one to six consecutive flakes. These nuclei, all unifacial, are probably merely rejected efforts during primary decortification.

3. Primary unifacial nuclei. Twelve examples. These artifacts also seem to be primary decortification stages but have been carried further along in the reduction processes than the unifacial, interrupted platform, nuclei described immediately above. One face of the nuclei

has been completely removed by consecutive flaking around the entire periphery, forming a nucleus which is flat on the chipped face and rounded over the opposing face. Rarely a few flakes have been removed from suitable natural platforms on the cortex side of the nucleus. Three of the artifacts have been heat-treated.

4. Primary "bifacial" nuclei. Thirteen examples. These artifacts closely resemble the specimens described in category two above, but the flaking is bifacial. Generally four to eight flakes have been consecutively removed from multiple, isolated platforms on both faces of the parent rock. These nuclei, like those in category two, seem to represent abandoned stages of decortification, possibly texture-testing, operations.

Bifaces. This general category of chipped artifacts typologically consists of a number of morphological-technological classes and types, cross-cut by categories of completeness, i.e., whole or broken. Bifaces, as the term implies, are nuclei transformed from an unaltered state by removing flakes from both faces. Bifaces are more advanced stages in the reduction process than any of the categories of minimally chipped pebbles-cobbles, even though some of the latter may have undergone a slight degree of bifacial processing. Yet, the term biface is reserved for those artifacts which have not yet taken on shapes and degrees of refinement which permit them to be placed in some functional class. Bifaces, as typologically restricted here, are probably preforms, or blanks, for some tool whose identity cannot be recognized. They are distinguished from less refined bifacially worked nuclei because the area of flake removal is proportionally larger than the residual area of cortex.

1. Initial bifaces. These artifacts retain a sizable proportion of cortex compared with flake scar area, and cortex residues emanate from flake edges and are not isolated in patches along dorsal or ventral ridges. A total of 14 complete initial bifaces and three fragments were present in the Savage collection. All were made from local chert gravels (although one was on a large flake, not a pebble), and only one was heat-treated.

2. Secondary bifaces. These are advanced stage bifacial artifacts which still retain some cortex but always in amounts less than half of the surface area and which is normally detached (isolated) from

similar patches of original weathered surface. Flake scars are proportionally more numerous than in initial bifaces but refining retouch is absent or rare. Fourteen complete secondary bifaces and seven fragments are numbered in the Savage holdings. Two of the fragments have been thermally altered. All of the objects have begun to assume triangular or ovate shapes but are still relatively thick. Many seem to have "knots," concavities, crushed platform edges, breaks, etc., which were probably causes of their discard prior to reaching more refined technological stages.

3. Tertiary bifaces. Seven tertiary bifaces, two complete and five fragments, were tabulated. These artifacts are refined; they are usually thinner than secondary bifaces, have evidence of refining retouch, and lack cortex except as small isolated patches. All of these specimens are made of local chert pebbles, and two have been thermally altered.

Bifacial foliates, dart point preforms. A total of 41 dart point preforms were recognized in the Savage collection; 33 are whole and eight are fragments. Eight of the whole preforms are lozenge-shaped and stems are only slightly suggested. The remaining 25 are stemmed forms.

The fragments include four distal, two proximal, and two medial pieces. All, except one preform (made of orthoquartzite), are of local pebble chert, and 12 appear to have been heat-treated.

Most of these preforms, though considerably refined beyond any other bifacial stages mentioned above, exhibit some sort of technical problem which cut short completion of the dart point; various problems include material flaws, isolated platforms ("vugs"), extreme curvature, and simple fractures.

Bifacial foliates, arrowpoint preforms. Fifteen artifacts are classified as arrowpoint preforms; nine complete and six fragments. Three of the complete preforms are thin, elongated ovals, one is basically triangular, and five are triangular with slightly projecting stems. The latter, stemmed artifacts could be classified as Cliffton arrowpoints (Suhm and Jelks 1962), but they are obviously unfinished and should not be accorded a historical type designation.

All of the preforms are of pebble chert; 14 made from pebbles and

one from a flake. Two have been thermally altered.

Among the fragments are three proximal ends, two distal ends, and one lateral edge. Four of the complete preforms lack small sections of the distal ends.

Projectile points, complete. (Figures 9.38-9.39). Both dart and arrowpoints are included in the Savage collection. These objects seem to have been a principal end point (functional tool) of the bifacial reduction process. Types of points and other attributes are enumerated in Table 9.25.

TABLE 9.25 -- PROJECTILE POINT TYPES AND ATTRIBUTES

Type Name	Rock		Thermal	Stage				Total
	Local	Other		Unbroken	-distal	-prox	-other	
Dart Points:								
Gary	20	1 nova-culite	1	18	3			21
Pontchartrain	7		1	3	4			7
Carrollton	6		2	5			1	6
Palmillas	6		2	4	2			6
Macon	4	1 black 1 Talla-hatta		3	3			6
Elam	4		2	2	1		1	4
Epps-like	3		1	1	2			3
Bulverde	2			2				2
Ellis	2			2				2
Yarborough	2				2			2
Motley-like	2			2				2
Williams	1		1	1				1
Asymetrical	2			2				2
unclassified	6	1 nova-culite 1 Talla-hatta	1	6	2			8
subtotals	67	5	10	51	19	0	2	72
Arrowpoints:								
Alba	11		2	7	3	1		11
"Little Gary"	4			4				4
Ashley	1			1				1
Bonham	1			1				1
unclassified	4		1	2	1	1		4
subtotals	21	0	3	15	4	2	0	21
TOTALS	88	5	13	66	23	2	2	93

In addition to the type breakdown and other details provided in Table 9.25, there are some additional observations worthy of mention. These are observable features which are due to lateral cycling. Two of the dart points, one a Palmillas, the other unclassified, exhibit rotary abrasion of the distal ends. One of the Pontchartrain points has a peculiar scalar abrasion on the distal end produced by a process similar to that responsible for the so-called "Russell Landing" scaled pieces, described below. Another point of the Palmillas type exhibits distal grinding which has flattened the sharp end. These laterally cycled artifacts have been retained in the projectile point class, because the cycling has not changed the basic morphology of the forms. Several original projectile points have been modified to the point where the original shape (and no doubt, the primary function) has been changed, and these specimens have been placed in separate classes.

Projectile point fragments. Pieces of technologically finished projectile points occurred at Savage. All of the recovered fragments were from dart points. They were distributed as follows: distal (six), medial (two), lateral (four), and proximal (five). Two of the fragments are from thermally altered points. Fifteen are local pebble cherts, one is novaculite, and one is a nonlocal rose-colored material.

Two of the fragments have been laterally cycled into other tool categories. One lateral fragment has been converted into a bec de flute burin; one proximal piece has been shaped into a dihedral burin.

Bifacial scraper. One object of local pebble chert may be classed as a bifacial scraper. It is thin and disc-shaped and has fine finishing retouch around the entire periphery.

Bifacial "drills." A variety of morphological categories and technological stages are included in this general class of tools. The term drill implies a definite function but macroscopic observation of the presumed "drilling" end of these artifacts fails to show any signs of suspected rotary abrasion. Thus the term as used here pertains only to general morphology and should not be read as a functional attribution.

There are two main classifactory divisions recognized in this class: a) objects whose technological trajectory was entirely given to producing "drills," and b) objects produced by lateral cycling of other technological-functional forms. In the first division are "drills" of two primary shapes: "pencil," or "rod-like," forms and elongated

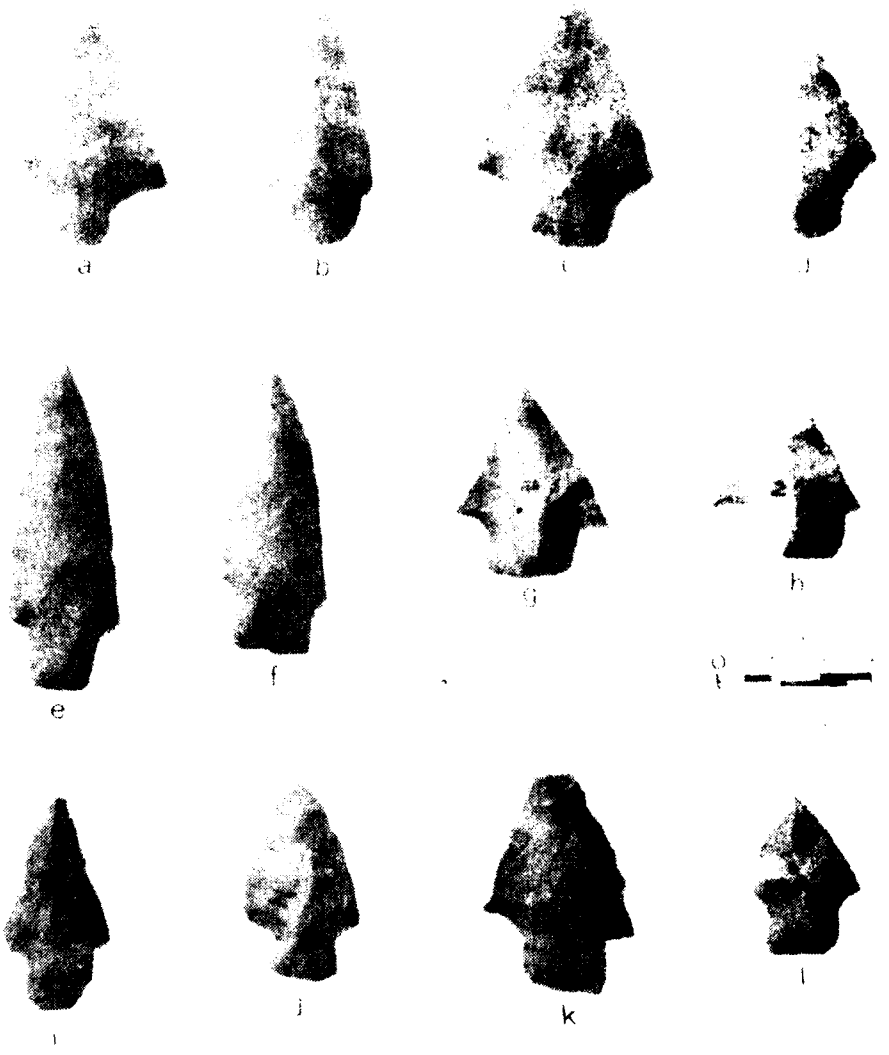


Figure 9.38. Dart Points from Savage. a-d, Gary; e-f, Pontchartrain; g-h, Carrollton; i-j, Palmillas; k, Macon; l, Elam.

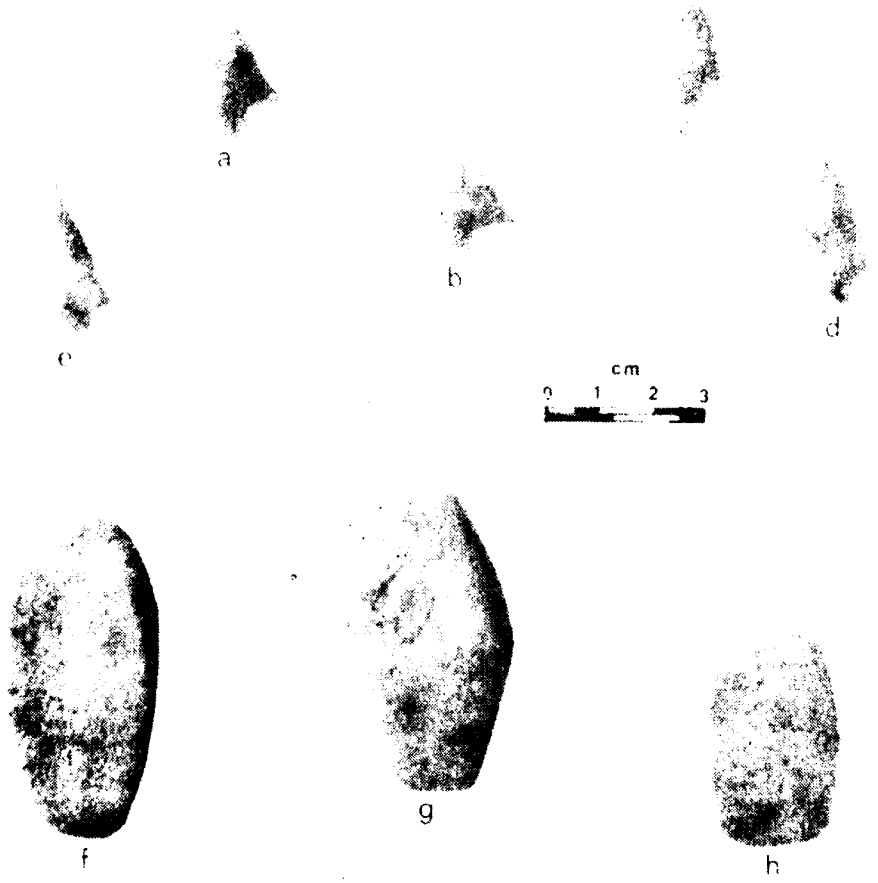


Figure 9.39. Arrow Points and Barweights from Savage. a-d, Alba; e, "Little Gary"; f, barweight 1; g, barweight 6; h, barweight 3.

triangular or ovate forms. The latter division (laterally cycled) embraces a variety of forms. Three technological stages--preform, finished and complete, and finished-broken--cross-cut the various divisions and morphological categories.

1. Drill preform fragment. One example of an unfinished "pencil"-shaped drill, bearing a transverse medial snap, was noted.

2. Complete, finished drills. Sixteen finished and unbroken drills are included in this category. Six of these artifacts are of the "pencil"-shaped variety; two have been thermally altered; two have rounded, semi-polished points, the other four have sharp, pointed ends. All are made of local pebble chert.

Ten other drills are elongated triangular or ovate forms. One has been thermally altered. Eight have rounded, semi-polished tips and two have sharp, pointed ends. All are of local pebble chert.

3. Drill fragment. One piece of an elongated triangular drill, exhibiting an "abused" tip and heat-treatment, was found.

4. Laterally cycled projectile point drills. Three projectile points were modified into drills. One of the specimens was a Carrollton dart point; one, a spike-like point; and the third, an unidentified square shouldered form. The distal ends of the dart points were modified in all cases, and the resulting "drills" show considerable abusing and some crushing of flake scar platforms.

5. Original drills, laterally cycled. Three original (technological and morphological) drills have been recycled into other tool categories. One "pencil"-shaped form, exhibits double lateral strangulation (i.e., opposed notches) and tip conversion (distal) into a bec de flute burin. Two of the elongated triangular drills have been laterally converted: one into a dihedral burin (distal tip); the other into a "Russell Landing" scaled piece.

Bifacial chipped celts. Ten artifacts, all of local pebble chert, are classified as bifacial chipped celts; eight are finished and complete and two are fragments of finished celts.

Six of the complete specimens have pseudo-ovate outlines, slightly wider at the bit end than at the poll end. Two are triangular. All but one exhibit heavy grinding-battering and polish ("sickle sheen") on the bit edge and onto the faces (polish). Two of the pseudo-ovate

forms have ground lateral edges, completely obliterating the sharp flake scars.

The fragments derive from one pseudo-ovate and one triangular celt. The triangular fragment is a bit end, broken transversely. It bears only a slight polished sheen. The other piece is a longitudinal fragment. It bears heavy polish on the bit end and onto the dorsal and ventral faces.

Russell Landing scaled pieces. These are unusual but easily recognized artifacts, first noted at the Russell Landing site on Little River near Catahoula Lake (Gibson 1968). All of the 10 artifacts included in this category are bifacial and most appear to be laterally cycled fragments of other bifacial groups, predominantly dart points. One of the objects, in fact, was a broken Macon point; another, an obvious dart point distal fragment; and the others, possibly sections of dart points. The distinguishing feature of this class of artifacts is the battered-ground edge which produces stepped, or finely hinged, flakes scars across the distal edges of the tool. The abrasion is more like a battering, or a crushing type of grinding, than it is an intentional flaking. Edges bearing a similar appearance are included among the hammerstones described below. However, this typological category is reserved for those pieces which were formerly parts of other refined bifaces.

Debris and Debitage. These categories comprise the chippage resulting from tool manufacture. The term debris refers to potentially nonuseable chippage, i.e., those artifacts whose size, morphology, or structure would have prevented, or compromised, their transformation into tools. Debitage, on the other hand, connotes that series of flakes which could have served as tool blanks. Actually this separation and point of division is not only quite argumentative; it is also necessarily arbitrary and changes from site to site. To render it more palatable, there are certain techno-morphological classes which are nearly always grouped with one division or the other and which can be typologically (heuristically) used to separate the two divisions without being too concerned with the really unknowable behavioral criterion of potential usefulness or nonusefulness.

Debris consists of technological chunks, chips, biface thinning

chips, and small broken pieces of flakes. Debitage from the Savage site may be classed as blades, flakes, biface thinning flakes, core trimming flakes, and large broken flakes. Table 9.26 presents an inventory of debris and debitage, as well as the distribution of debitage in various tool and other "used" categories. The classification was done by James Morehead of the University of Southwestern Louisiana Center for Archaeological Studies, using a scheme developed by Frank Servello (1980) for materials from the Fort Polk area of western Louisiana.

TABLE 9.26 -- DEBRIS AND DEBITAGE FROM THE SAVAGE SITE

Category	Modification			Totals
	None	"Used"	Tools	
Debris:				
Chips	130	0	0	130
Chunks	98	0	3	101
Chip fragments	34	0	0	34
Biface Thinning Chips	26	0	0	26
Subtotals	288	0	3	291
Debitage:				
Blades:				
primary	3	0	0	3
secondary	10	0	1	11
interior	4	0	0	4
Subtotals	17	0	1	18
Flakes:				
primary	64	2	4	70
secondary	401	35	32	468
interior	216	11	14	241
Subtotals	681	48	50	779
Biface Thinning Flakes:				
primary	4	0	0	4
secondary	27	6	12	45
interior	51	4	15	70
Subtotals	81	10	27	118
Core Trimming Flakes:				
primary	13	1	0	14
secondary	42	1	2	45
interior	13	1	2	16
Subtotals	68	3	4	75
Flake Fragments:	120	12	12	144
TOTALS	1255	73	97	1425

Cores. Morehead counted 187 cores among the nontool, chipped stone

artifacts and divided them accordingly: initial cores ("marginal" or split pebbles), 54; cores, 74; core fragments, 39; exhausted cores, 16; and cores with one edge battered and ground, four. A total of 33 "grabbed" cores were studied by the present author, resulting in the more finite classification presented in Table 9.27.

TABLE 9.27 -- CORE CLASSIFICATION AT SAVAGE

Type	Alteration		Totals
	None	Thermal	
Single Platform:			
Cortex	7	0	7
Lisse	5	1	6
Faceted	3	0	3
Subtotals	15	1	16
Multiple Platform:			
Globular	2	0	2
Opposed lisse/faceted	1	0	1
Opposed cortex/faceted	3	0	3
Opposed cortex/lisse	0	2	2
Opposed faceted/faceted	0	1	1
Opposed cortex/cortex	3	1	4
180° double faceted	2	0	2
90° lisse/lisse	1	1	2
Subtotals	12	5	17
TOTALS	27	6	33

Microlithic Tools. As shown in Table 9.26, Morehead recorded 97 tools and 73 "used" pieces of debitage among the debris and debitage from Savage. A "grabbed" sample of 22 tools were examined by this author; the following tool categories emerged.

1. Nibbled pieces. Four examples. Nibbing is a kind of intentional retouch or incidental abrasion resulting from use which forms a finely chipped edge. Three of the nibbled pieces are continuously modified on a single lateral margin, while four artifacts exhibit double lateral, but discontinuous, nibbling.

2. Denticulates. Three examples. Denticulates are slightly seriated, or "toothed," artifacts produced by a series of two or more conjoined chipped notches along the lateral margins of the tool. All three of the Savage denticulates are modified along only one lateral margin.

3. Jaketown Perforators. Eight examples. Jaketown perforator is

the name given by William Haag (Ford, Phillips, and Haag 1955) to a class of microlithic flake or blade tools produced by double lateral, converging backing (steep, almost vertical retouch). Three of the Savage examples are "typical," that is, they have an unmodified "bulbous" end and a sharp, pointed end. Two are blunt perforators. The remaining three examples are "rods," in which backing runs the full length of both lateral margins completely removing the bulbous portion of the tool.

4. Strangulated, Backed Piece. One example. One blade in the sample exhibits converging, double lateral backing and two opposed notches (strangulation).

5. Retouched Pieces. Three examples. Retouched pieces are distinguished by the presence of edge modification which is more extreme than nibbling yet not as steep as backing. It is a function of the acuteness of the debitage edge angle and of the angle of retouch. Retouching always carries from the edge, or margin, onto the face of the element being worked. Among the Savage specimens, two retouched pieces exhibit converging, double lateral retouch. These tools are morphologically similar to Jaketown perforators but differ from them technologically.

6. Truncation/Backed Piece. One example. One blade exhibits backing along a single lateral margin and backing (truncating) along a transverse snap.

7. Notch/Bifacially Retouched Piece. One example. One composite, or multiple, tool has a single marginal notch along a bifacially retouched edge. The retouched margin converges with the opposite, unaltered edge of the tool forming a pointed end which bears heavy polish (dulling and sheen).

8. Graver. One example. One graver was produced by backing one margin of the proximal extremity of a flake. The angle made by the backed edge and the opposite, unaltered edge of the flake forms a point, i.e., graver.

Before leaving the section on microlithic tools, it should be emphasized that the tool classes described above (as well as the cores) are not a total inventory of the specimens from the Savage site. They are samples and nonrandom at that. They are "grabbed," that is, a handful (or handfuls in the case of cores) of artifacts were extracted from

sorted piles. Extrapolation from these samples to the entire core and microlithic universes will not bear statistical scrutiny based on the principle of randomness.

Incidental Artifacts.

Four categories of incidental artifacts, defined as objects resulting from human activities but not made or manufactured through design, are included in this grouping.

Clinkers.

Six gray, porous, lighter-than-water, lumps have been identified as clinkers, or phytoliths. These are objects presumably produced by melting and fusion of the mineral opal during the burning of rigid grasses, such as cane. None of these objects appear to have been used for any purpose.

Hammerstones.

This is a catch-all category for all artifacts which show signs of heavy battering, presumably accruing from their use as "hammerstones." Twenty-three of the 38 artifacts so classified represent laterally cycled pieces of various tool or debris groups, and the remaining 15 are simply battered pebbles or cobbles.

The laterally cycled examples distribute accordingly: primary bifaces (three), secondary bifaces (eight complete, one fragment), projectile point preform (proximal fragment, one example), and 10 cores (all multiple platform--cortex, lisse, faceted, and dihedral). Thirteen pebbles and four cobbles are also classed as hammerstones. Except for one of the cobble hammerstones of a chunk of petrified wood, all of these tools were of local chert.

Abraders.

Artifacts used to grind or sharpen other tool forms are classed as abraders. These objects bear little or no evidence of intentional shaping, and the residual signs of use are those produced incidentally during their deployment as grinding or sharpening implements. They break down as follows: quartzite cobbles (three), chert cobbles (two), chert pebble (one), Catahoula sandstone lump (one), and orthoquartzite lumps (two). Additionally, two disc-shaped pieces of white quartzite,

one triangular slab of coarse rock, and one fine-grained igneous rock bearing a facial concavity are included in this group. These latter objects differ from the first described kind of abrader in that they seem to have been "passive" hones (the tool being produced was rubbed against them, rather than the reverse). The pebble or lump abraders seem to have been the "active" grinding objects.

Pitted Stone.

One disc-shaped object of quartzite has shallow depressions, or "pits," in both, slightly concave faces. Some rough shaping preceded the functional use of this object. It cannot be determined macroscopically if the "pits" were produced through design or through simple use.

Fire Cracked Rock.

A final category of incidental artifacts from Savage consists of fire cracked rock. Actually, this is a rather inclusive class of materials because it includes broken cobbles, gravels, pebbles, and chunky debris, as well as obvious industrial elements (chipped pieces), which have been exploded and pocked by intense heat. Some of these artifacts may have resulted from intentional thermal alteration of industrial raw materials as a preparatory step to chipping. Heat treated elements are included in the chipped stone inventory. Alternatively, or otherwise, thermal alteration could have resulted from anything ranging from winter heating hearths to natural or accidental conflagrations which raged through the villages.

Ground and Polished Stone Artifacts.

A variety of functional classes and technological stages of ground and polished stone artifacts have been recognized at the Savage site. These are classified according to traditional categories via a processual scheme.

Unidentified (Unfinished) Objects.

This classificatory group represents an amalgam of several "functional" types and preparatory manufacturing stages of ground and polished artifacts which cannot be placed in other categories.

Ground but unpolished pieces. Six fragments of ground but un-

polished quartzites are placed in this group. The end point(s) of their manufacturing trajectory is unrecognizable, and the fragments have obviously not progressed far along the path to "tool" completion.

Shaped Forms. Several unfinished ground and incompletely polished artifacts are included in this class. These objects have undergone more extensive technological preparation than the objects described immediately above but still remain unfinished.

1. Solid cylinders. One object of silty limonite and one of red quartzite are classed as solid cylinders. The former is too large (?) to have been a bead blank, which is suspected for the quartzite artifact, and its final "tool" form cannot be anticipated.

2. Convexo-Convex ground pebble. One small quartz pebble has been ground and polished on two faces producing a bulging-sided cylindrical form. It may have been an early stage in producing a stone bead.

3. Round, flat disc. One object of gray quartzite has been shaped into a flattened disc, presumably a bead blank.

4. Ovate tablet. One unfinished object has been ground and polished on the top and sides but has not been modified on the bottom. It is made of brown quartzite and is a flattened oval in outline.

Stone Beads.

Two unfinished stone beads are present in the Savage collection. Both are circular forms, convexo-convex in shape, and bearing incompleted conical, counter-sunk perforations. One is made of brown quartzite; the other, of a dark green granitic stone.

Boatstone.

One fragment of a boatstone of brownish granite was found. It is ovoid in plan with rounded ends. Cross-sectionally, it is plano-convex. The flat top has a shallow groove running from one end to the other. The object is broken across the middle, perpendicular to the long axis.

Plummets.

Two plummet fragments have been identified. One is a proximal fragment of a grooved form made of whitish granite. It has been slightly flattened (dorsally-ventrally). The other is also a proximal end from a plain (nongrooved, nonperforated) object of purple quartzite. It has

been fractured transversely-medially and longitudinally.

Barweights.

Six artifacts are classified as barweights, thought to represent components of atlatls (javelin-hurling devices). They are individually described below:

Barweights 1-2. Rectangular plan and cross-sectional views; ends rounded; gray quartzites (Figure 9.39f).

Barweight 3. Rectangular plan view; plano-convex cross-section; ends rounded; gray quartzite (Figure 9.39g).

Barweight 4. Ovoid plan; convexo-convex cross-section; rounded corners; purple quartzite.

Barweight 5. Ovoid plan; plano-convex cross-section; one end rounded, the other truncated and flattened; limonite concretion.

Barweight 6. Diamond-shaped plan; plano-dihedral cross-section; truncated, flattened ends; green talcy "greenstone" (Figure 9.39e).

Celts.

A virtually complete, technological series of ground-polished celts has been recovered from Savage (Figure 9.40). This includes unmodified flat cobbles, slightly ground preforms, advanced stage preforms, finished forms, and finished form fragments. The interesting thing about this series of artifacts is that it was confined to a small location, about $200m^2$ in diameter, obviously representing a localized activity area.

Unmodified rectangular cobbles or weathered slabs. Four unworked quartzite (two green, one gray, and one purple), roughly rectangular forms, were recovered in the celt-production area and are probably the selected unmodified nuclei which were to have been introduced into the celt manufacturing trajectory.

Slightly worked celt preforms. Three green and gray, weathered quartzite slabs have been minimally pecked, or ground, resulting in some shape modification (flat, rectangular). They represent initial celt preforms.

Advanced celt preforms. Two examples; one of brown siltstone, the other of a purple, porphyritic quartzite. These are simply incompletely shaped and polished celts which were, for some unknown reason, dropped

from the manufacturing trajectory. Neither material nor technological problems seem to have been the culprits in their discard.

Finished, complete celts. Seven, finished, whole celts are included in the Savage collection. All are flattened and assume two basic outlines, ovate (three examples) and triangular (three specimens). Two of the ovate forms are large; the third, small and miniature. The two large ones are made of buff and white quartzite, the little one, of a gray-green fine grained rock. The three triangular celts are large and are made of purple porphyritic quartzites (two examples) and a fine grained gray igneous rock (one artifact). The latter celt has a squared, blunted edge around the bit end. It is not honed to a narrow edge like the other finished celts.

Finished celts, fragments. Fifteen fragments of finished, broken celts are included in this category; two are polls, six are bits, and seven are small lateral fragments. The poll fragments apparently derived from triangular forms; one is of fine grained, gray-blue quartzite; the other, of crystalline, gray-blue igneous rock. The bit fragments include large sections of the bodies of the celts. Three were broken from triangular forms, three from ovate forms. Four of these pieces are quartzites (two tan, one gray, and one purple), one is grayish granite, and one is a magenta jasper.

Of the seven surfacial fragments (lateral edges or faces), four are gray quartzite, one is greenstone, one is gray gabbro, and one is a black igneous rock.

Bone Artifacts.

Awl.

One splinter of a deer long bone was converted into an awl (?) by whittling the fractured edges to a point. The whittling, or sawing, marks are clear and run successively toward the pointed end.

Projectile Point.

One projectile point fragment, made from a deer antler, was recovered.

Historic Artifacts.

Bottle Glass.

Two sherds of glass, both from wine bottles, were recovered. One is light green, the other dark green, and both are fragments of bottle necks bearing lips. The lips have laid-on annular rings. The annealed edges spread onto the bottle necks, and both necks bear twist marks.

Marbles.

Marbles are represented at Savage by two examples, both "aggie"-size (not "log-rollers"). One is of opaque glass bearing a blue and green swirl pattern. The other is red baked clay.

Cast Iron Shot or Bearing.

A solid, round object of cast iron, 33mm in diameter, may be a grape shot, or perhaps a large bearing.

Ecofacts

Several small bone fragments were collected at Savage. Ten of the pieces are tiny and show blue colors, shiny surfaces, and minute crazing resulting from burning. Other ecofacts were unburned, and include deer remains; one tooth, a tarsal bone, and the articular end of a humerus showing butchering marks. One squirrel mandible, one femur of an unidentified bird, and three teeth from a large mammal, probably a pig, complete the faunal inventory.

Reported Human Burial

One human burial was reported for the Savage site. According to James Fogleman, the shallowly interred skeleton was exposed by erosion. During the short interval between discovery and return to the burial location with excavating tools, the burial was destroyed by disking. No further details were obtainable.

Interpretations

The Savage site is a large, complex, multi-component archeological site. Occupations from Archaic, Tchefuncte, Plaquemine, and Historic Euro-American periods are represented. Stratigraphic separation of

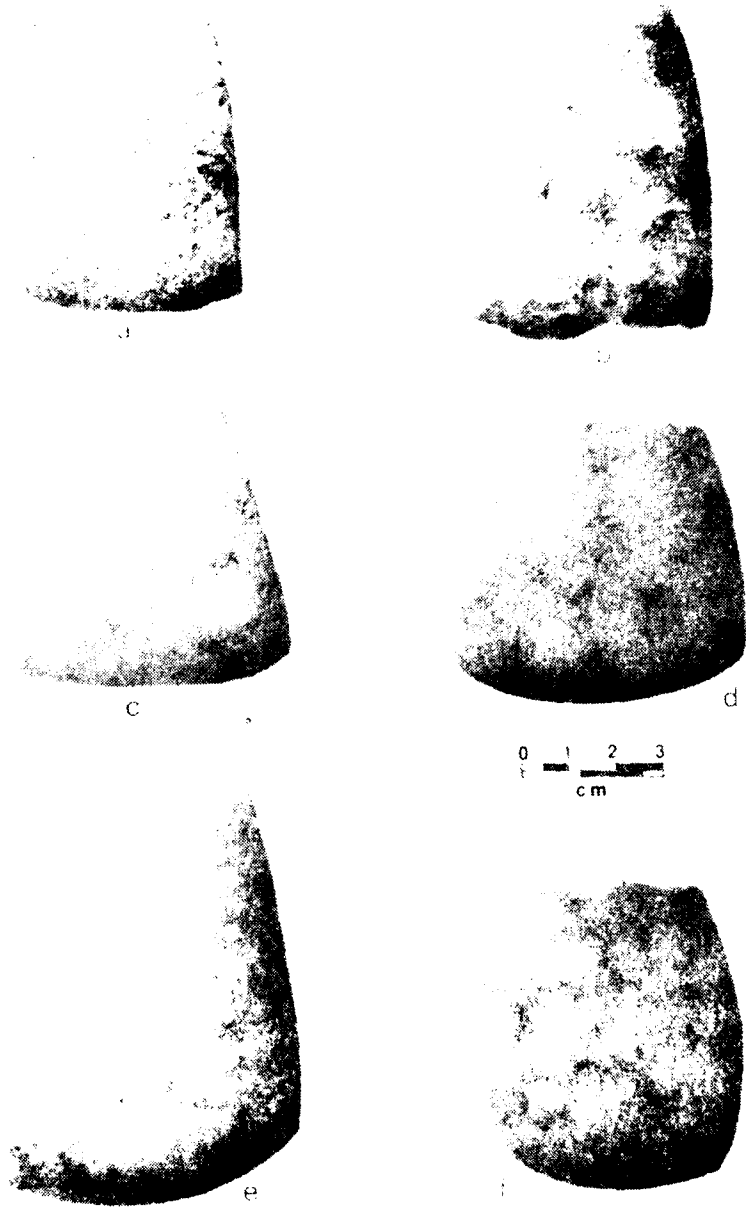


Figure 9.40. Ground Stone Celts from Savage.

these components is apparent in some better preserved sections of the site, but circumstances (e.g., accessibility problems, intensity of investigations, etc.) have not been permitted detailed elucidation of the vertical, hence temporal, aspects of living accumulation. Cultural materials occur to depths of 40-43cm in certain areas of the site. In other areas, land leveling and cultivation have produced an artificial mixture of artifacts of all the represented culture periods, compromising not only the integrity of the cultural deposits but interpretations that might have resulted. Lateral displacement of artifacts has also occurred, but judging by the cluster of ground celts, it may not have been as severe as vertical disruption. These disturbances to site integrity, coupled with a lack of intensive work in protected sections of the site have severely hampered interpretations on the nature, character, and extent of each of the represented components. Thus interpretations and reconstructions tended herein will be based on the cultural materials themselves and their implications for local prehistory.

It is apparent that the majority of the artifacts from Savage are Archaic manufactures, although it must be quickly admitted that separating Archaic chipped stone artifacts from Tchefuncte materials is presently impossible, given the gross and imprecise quality of previous descriptions of chipped stone assemblages. While there are undoubtedly technological shifts, as well as continuities, during the Archaic through Tchefuncte periods, stone technology in this interim is characterized by slow, progressive evolution.

There are at least four components at the Savage site: Archaic, Tchefuncte, Plaquemine, and Historic Euro-American. These are probably vertically separated in the preserved sections of midden, although this probability has not been confirmed by extensive stratigraphic testing. Casual observations revealed that the lower occupational zones (lower Stratum C and upper Stratum D) are dominated by Archaic chipped stone artifacts; the middle and upper parts of Stratum C yield some chipped stone materials but generally bear a higher proportional incidence of pottery, typically Tchefuncte wares. Stratum B is culturally barren, or nearly so, and Stratum A contains Plaquemine artifacts. It should be kept in mind that this interpretation of cultural stratigraphy is based on very limited evidence from one subsurface profile

exposed along the north face of a drainage ditch which bisected the site and should not be construed as definitive.

Reconstructions of the nature of individual components and of their "fit" into regional prehistory are also tentative. The entire solum exposed along the drainage ditch intimates alluviation in a low energy, depositional environment; an environment which undoubtedly followed the alluvial conditions which created the ridge and swale terrain (high energy) on which initial occupation transpired. To say this another way, inhabitation seems to have occurred after the Teche-Mississippi River had abandoned the Bayou Jack channel, allowing local environmental condition to shift to a backwater, swampy nature. The fine clastics (clay and silty clays) of the occupational section of the profile are indicative of slack-water alluviation. Coloration differences, zonal contacts, and concretionary inclusions suggest subaerial weathering and pedological maturation. In other words, the low ridge on which initial occupation took place must have been sufficiently elevated above the level of normal backwaters to have remained dry and well-drained during most seasons and probably for extended, year-round periods. Dry underfooting may have been one of the principal criteria governing site selection.

Archaic folks assumed residence on this low ridge and apparently remained for an extended period. The artifactual assemblage attributable to this occupation belies a wide range of domestic and maintenance activities. Whether occupation was continuous or was periodic and repeated cannot be determined from the evidence at hand, although the former is suspected. The extensiveness of artifactual dispersal and relatively high densities of Archaic craft products suggest intensive residential activities by a good-size group. Tools were made on-site, as evidenced by the large quantities of unmodified "manuports," the technologically incomplete and rejected tool preforms, and the high incidence of technological by-products (chippage). That the site was a residential location, rather than a simple activity-specific location, is also evidenced by the fact that certain compound tools, presumably used away from domestic locales (e.g., projectiles), were returned to the site after breakage through use and were repaired. Oft-times component fragments were technologically recycled for function in other domestic tasks.

The subsistence base of this Archaic village is unknown, though it is apparent that hunting was an integral facet. The presence of chipped celts with considerable "sickle" sheen on their dorsal faces also intimates that digging in the dirt was a normal activity. While there is no certainty that glossy coated celts were used to acquire food, it is nonetheless a possibility. Potential foods, which might have been extracted through the use of celts, run the full gamut from seed-bearing grasses through tubers to various cultigens. Economic implications, if such a function could ever be confirmed, range from wild plant food harvesting through incipient horticulture to simple horticulture.

While only tentative guesses can be made about the foods used by Archaic folks, there is another facet of Archaic economy at the Savage site which is more certain. Lithic raw materials at Savage include a variety of rocks and minerals which were presumably derived from outside the normal catchment zone surrounding the site. The majority of the stone materials could have been secured from Pleistocene gravel outcrops and from the ironstone-sandstone formations in the higher terraces and hills lying west of the site, some 20-50km distant. Procurement of these gravels and softer rocks could have been direct. However, there are a number of materials, e.g., quartz crystals, crystalline quartz masses, talcy slates-shales, granites, and other igneous rocks, whose presence seems best explained by indirect procurement--trade. Notwithstanding, recent suggestions (cf. Lenzer 1979) that advocates of Archaic (and Poverty Point) trade have not effectively demonstrated that such presumed exotic materials do not occur in local gravel beds, the simplest and most economical way, in this author's opinion, to account for their presence is via trade. Observations made by this author during more than 20 years of gravel outcrop inspections throughout central Louisiana have not only failed to disclose the abundant presence of the kinds of exotics preferred by Archaic and Poverty Point folks but when they have been noted, they are nearly always in a weathered, tumbled, water-worn pebble, gravel, or cobble state. Tabular or laminar forms and fresh, unworn crystals have simply not survived the depositional conditions, e.g., transport, saltation, etc., inherent in stream-deposited gravel beds.

Another argument favoring trade rather than local procuration

can be marshaled, although a degree of circular reasoning may seem apparent. The first appearance of "exotic" lithic materials in archeological sites in Louisiana coincides with the Paleo-Indian period, but during the terminal part of the Late Archaic stage, some advantageously placed (major river location) site clusters began to show a significant proportion of "exotic" materials, particularly among ground stone artifacts. Shortly, "exotics" began to strongly appear among chipped stone objects. The basis for favoring some form of trade over local, direct acquisition is not so much a question of whether or not "exotic" materials occur in local gravel beds (and in exploitable quantities) but is conditional on the fact that some "exotics" are definitely foreign (proven by mineralogical and trace element analyses), and others (especially materials for chipped artifacts) either occur near those known sources or lie along, or within easy access to, the various waterways which joined those foreign source areas with use areas. This simply cannot be coincidental. Proponents of local procuration must neglect these geographical data and dismiss the propriety of waterways as major communicative avenues in a pre-industrial world. The latter requisite is particularly damaging to local procuration arguments, because virtually all hard rocks in the Lower Mississippi Valley are stream-transported from locales outside the area and whether human or natural agencies were responsible for that transport is really irrelevant in explaining the composition of natural gravel beds. In other words, advocates of direct exploitation must also account for the presence of "exotics" in Louisiana gravels by virtue of waterways. Water is thus regarded as the raison d'etre for local gravels; the major point of disagreement thus hinges on whether or not the "exotics" were naturally introduced or were imported by people utilizing waterways.

Further thoughts on this issue raise considerable doubt about the validity of the local exploitation hypothesis. Gravel outcrops examined by this author in central Louisiana, particularly around Turkey Creek, Greens Creek, Rhinehart Creek, Hemps Creek, and Trout Creek, contain "exotics" (at least those seemingly selected for by Archaic and Poverty Point peoples) in very limited quantities, and many of the "exotics" prominent in Archaic technology have never been observed at all. One gravel quarry site located along Hemps Creek in LaSalle Parish suggests that nodule size and shape may have been the single

important quality in exploiting this gravel bar, not kind of rock nor even flaking quality. Although investigative procedures lacked system and randomness, the exploited bar exhibited (subjective observation) fewer flattened, "fist"-size, pebbles than nonexploited gravel bars, immediately above and below the quarried bar. These similar size, similar shape cobbles were moved onto the first elevated stream bench above the gravel bar where some were burned (heat-treated). Post-firing flakes on a number of the cobbles left on this bench indicated that texture-testing (i.e., flaking suitability) may have been the next technical operation performed. No advanced stage flaking was conducted at this stadial activity locus. Suitable raw materials were then moved further upslope where primary decortification and some preliminary shaping was done. No technologically finished bifaces were recovered. The clear implication is that gravel reduction was performed to the extent which brought raw materials to a blank, or early preform, stage, and then the less bulky, more easily portable blanks were removed to a site of domestic activities for final shaping and use.

The point to be made in this rather involved discussion of the Hemps Creek gravel quarry site is that the initial gathering of raw materials seems to have been selective, but the selection seems to have been predicated on size and shape uniformity, not on rock type and brittleness. It is apparent that attempts were made to enhance the flaking quality of the selected technological materials, regardless of type of stone, by firing nearly the entire series.

The relevance of this discussion to the local exploitation vis-a-vis trade origin of "exotic" materials centers on the prospect that indigenous gravel outcrops were not "mined" for "exotics." Anyone who has carefully searched gravel bars in central Louisiana is aware of the low return on invested time when selection is based on rock type. This is decidedly counter to the principle of least effort and inefficient to the technological systems into which these raw materials were introduced. While synchronic extrapolation beyond the Hemps Creek site may be misleading, another observation bearing on this issue may be brought to bear. Many locations of domestic Archaic activities in central Louisiana, including the Savage site, nearly always have a large proportion of unworked or only slightly worked rocks (oft-times of variable sizes). While technological constraints

on material suitability are incompletely known, casual observation of these raw materials generally shows some problem, e.g., size, shape, flaking quality, etc., which may have prevented the lump from being converted into a functional tool. This circumstance implies even more of a generality in gravel exploitation than that evidenced at the Hemps Creek quarry. Residential locations bearing large amounts of this unused or unuseable residue suggest that "mining" of gravel beds was highly indiscriminate and nonselective.

It can be concluded from these admittedly subjective observations and experience that the occurrence of "exotics" in certain Late Archaic sites is proportionately incompatible with the occurrence of "exotics" in natural gravel outcrops, and some of the "exotics" preferred by Archaic folks have never been found among local gravels. When these factors are coupled with the fact that some archeological "exotics" have demonstrably foreign origins and that "mining" of gravels seems to have been rather nonselective (at least by rock type), the case for direct, local exploitation of "exotics" would seem to be considerably weakened. This, of course, elevates the probability that the "exotics" were derived through trade and perpetuates ideas concerning the role of trade in the origination, maintenance, and demise of the Poverty Point commercial interaction sphere (cf. Ford and Webb 1956; Gibson 1973; 1974b; 1974c; 1980b).

Before dispensing with the Archaic component at Savage, it would be appropriate to draw attention to some comparatively similar components in the Catahoula-Larto Basin, some 70-100km north of Savage. One site in particular, Bakers Ridge, located along the escarpment of a braided stream terrace overlooking Cypress Bayou, exhibits a number of virtual identities with the Savage site. Because archeological details of Bakers Ridge have never been published, these similarities will merely be summarized, and the reader will be obliged to trust this author's determination of their comparative closeness. Tool classes and types within classes are nearly duplicative. Raw material types are nearly duplicative. Technologies, i.e., bifacial reduction, core-flake-blade, and ground stone, are nearly duplicative. Site size, linearity of orientation, and stream bank location, are nearly duplicative. The variety and number of comparative details are indeed overwhelming.

A similar variety and proportional incidence of "exotics" occurs at both sites. These comparative similarities are mentioned solely to point out the possibility that the sites in question may owe their similarities to something other than coincidence or adaptative convergence or temporally synchronic style-sharing. Cypress Bayou follows an old course of the Arkansas River (Fisk 1944:Plate 15, Sheet 3; Saucier 1968). The lowermost channel of that Arkansas course has not been mapped below the present-day Red River (within the Atchafalaya Basin), and, in fact, recent geomorphic work by Lenzer (1978a; 1978b) in the Larto Lake region reveals that this old Arkansas course may have been tributary to the pre-Walnut Bayou (i.e. Teche) channel of the Mississippi River, somewhere near the modern mouth of the Red River. The sedimentological stratigraphy and lithology at the Savage site belies another possibility. Although parentage of the sedimentary suite at Savage has not been proven and the landscape seems to be a product of Mississippi River (Teche) alluviation, the "pinkish" colors of the Savage sediments seem to fall within the range of Arkansas River clastics. What is being suggested is the possibility that Bakers Ridge and Savage may have been located on the same flowing water course, i.e., the Arkansas River, prior to its diversion (capture by) into the No. 3 or No. 4 Mississippi meanderbelt (cf. Saucier 1974:21). Radiocarbon ages from the Dragline site, near Bakers Ridge in the Larto Basin (Spencer and Perry 1978) indicate active river conditions in this Arkansas meanderbelt until about 4600B.P. This age, or actually a slightly earlier span, concords well with the suspected ages of the two sites in question. If contemporaniety is demonstrated, then the similarities between Bakers Ridge and Savage might very well have been a spin-off from various intercommunicative processes which were transferred along the direct water connection, not the least of which might have involved trade in exotic lithic commodities.

The occupational history of the Savage site shows a hiatus between the time of Archaic abandonment and reoccupation by Tchefuncte peoples. In some surrounding areas, this site-specific occupational lapse is marked by the Poverty Point period, culture, or interaction sphere. The Savage site does not have a Poverty Point component. Possible

reasons for this lapse are contained in a speculative reconstruction of Poverty Point settlement and economic systems (cf. Gibson 1979d, 1980b, 1980c). Summarily, an explanatory scenario may be reconstructed thusly. The Late Archaic period witnessed population aggregation (nucleation) in a few very restricted and isolated locales in the Lower Mississippi Valley. Nucleation transpired only in certain advantageously positioned locales, advantageousness seemingly conditional on the presence of ecological edges of a highly precise nature, on natural environmental circumscription, or transportational logistics involving major waterways, and on prior residency by relatively large Archaic groups who exhibited a predilection for trade on at least a limited scale.

The Savage site seems to exhibit several of the hypothetically requisite conditions; why then the lack of Poverty Point occupation? I suspect that the diversion, or blockage, of direct water connections with northern Poverty Point trade centers, due to the development of the Bayou Jack-Mississippi (Teche) meanderbelt may have been a major factor in removing some of the presumed causal prerequisites. Changes in the location of ecological edges and boundaries and concomitant shifts in transportation (trade) patterns would certainly have accompanied the major diversion which brought the Mississippi River by the Savage site. While the big river seems to have been a major trade artery, i.e., the single most important interconnective trade avenue, its active banklines would have been a poor place to live. In terms of the situation at the Savage site, it is reasoned that the adoption of the Bayou Jack meanderbelt led to population shifts and perhaps dispersal away from the active river banks and onto the edges of the flanking terraces to the west. There on the terrace margins, populations regrouped (reaggregated), some founding relatively large villages (perhaps even "towns," cf. Stelly Mounds), and flourished within new catchment zones that not only provided abundant foods and relative immunity from flooding but easy access to the waterborne commercial trade network that by this time had become the principal linkage among widely separated Poverty Point population aggregates.

In simple terms, the Savage site was deserted. Its residents may have moved up onto the terrace margin. Previous commercial dealings (trade) were not forgotten, however, and with the founding of the Stelly Mounds

center on Bayou Petite Prairie about 13km south of Savage, local populations, perhaps even including descendants of the original Savage residents, became principal participants in the Poverty Point interaction network which Gibson (1980c) has defined as a gateway commercial system.

Reoccupation of the Savage locale transpired during Tchefuncte times. It is conceivable that this renewed occupation was due to the advent of ecologically favorable conditions which succeeded onto the location following Mississippi River abandonment of the Bayou Jack meanderbelt. Genesis of Tchefuncte "culture" is not well understood at present and previous reconstructions (cf. Gibson 1974a) have little explanatory power. It seems in some way(s) connected with (or contingent upon) the breakdown of long-distant trade networks, population dispersal, and opening of new economic catchment zones, perhaps informing on novel of reconstituted technological means of coping with previously unused or little used environments, particularly "wet" ones (i.e., those subject to periodic flooding and inundation).

Whatever the causal factors, Savage was reoccupied by people, probably a large group, who manufactured ceramic containers via a technological process and incorporating stylistic and form modes easily identifiable as Tchefuncte. The presence of pottery vessels seems functionally important in the appearance of Tchefuncte culture (aside from simply aiding archeological recognition), not so much because they represent an innovation of historical interest, but because they imply the advent of new food preparation methods and probably new foods. Over-the-fire cooking of gruels, stews, courtboullions, mushes, or other types of watery dishes would have been permitted by these durable, heat-resistant containers. Clay pots certainly seem compatible with the opening wetland frontier of dispersing Tchefuncte populations.

Very little can be said about the nature of the Tchefuncte village or villagers at Savage. Nothing is known of their livelihood, habits, customs, or organizational systems. Similarily, there is no information regarding architecture, arrangement or layout, possible functional precincts, and other details of the village itself. However, some comments may be tendered regarding pottery design styles, although the cultural meaning of these observations remains obscure. Throughout the Lower Mississippi Valley, Tchefuncte potteries from various physiographic regions illustrate localized peculiarities in fabrics, vessel shapes

and sizes, and designs which seem to reflect endemic and practically individualized transformations of general ceramic "norms" or "ideals." While there are numerous general commonalities which permit archeological recognition of Tchefuncte wares and designs everywhere, there are those deviations, almost specific to individual localities, that seem to indicate a certain degree of "freedom," tolerable "play," or permissive "deviation" around widely-shared norms. This should not seem unusual for cultural interaction processes from the beginning have been dependent on bonds, or limits (i.e., clines), of cultural, social, political, and economic familiarity, but "freedom" of expression in Savage Tchefuncte ceramics seems subjectively more extreme than in other Tchefuncte localities. More than any other locality with which this writer is acquainted, Savage ceramics are less easy to typologically sort and contain more design element and pattern overlap and intermergence.

While this interpretation is certainly open to argument and even if confirmable could mean very little, this author would venture to hazard a guess that design "freedom" does have significant cultural implications. Some of the possible meanings might include: a) geographic distance from seats of style origination or maintenance; b) population aggregate independence and attenuated intercommunicative contact due to geographical (transportational) logistics and/or social, political, or linguistic-ethnic barriers; c) loose social, religious, governmental, or other forms of sanctions for innovation or nonconformity; and d) anomolous or expedient marriage patterns which compromised and fragmented familial or social group microtraditions. A host of other possibilities are conceivable. But the point to be made here is that Tchefuncte design spheres show a degree of independence of "prescribed" norms that may be implicative of several cultural and social distance, causal factors. This view is entirely compatible with demographic processes of dispersal and immigration/emigration that seem to have been operative during Tchefuncte times and with the relaxation of political control which seems to have accompanied the final throes of the disappearing commercial interaction of Poverty Point times. It is also agreeable with the supposed shift from ranked to egalitarian conditions postulated for the transformation of Poverty Point societies (cf. Gibson 1973; 1974b).

The site was abandoned by Tchefuncte villagers and was not reoccupied

until Plaquemine times. This long lapse in occupation, amounting to perhaps 1000-1500 years, was marked at the location by slow alluviation of fine clays, undoubtedly derived from periodic backwaters in the old crevasse channel (by then turned slough) along which the site had been positioned. The absence of coarse, high energy sediments implies that the abandonment of the Bayou Jack channel by the Mississippi River left the site area languishing under the influence of small local streams. Even Red River activity in several nearby, sequentially used channels, seems to have had no impact on the locality. The elevated natural levee ridges of the Bayou Jack-Mississippi must have effectively blocked Red River alluviation. The old Mississippi River channel, 0.5km west of the site, was no doubt occupied by a stream, i.e., youthful Bayou Jack, but the hydrological capacity of the bayou was incapable of maintaining either the old river channel or the emanating crevasse channel which had furnished potable water for Savage site inhabitants. Biota shifted and took on a climax character denoting "drying-out" conditions. However, periodic backwaters breeched the old site area and perhaps maintained the edge effect which seems to have been so important to nonindustrial settlement (cf. Gibson 1978a, 1978c).

Since there have been no studies of siting, or settlement, determinants of residential locales of the various cultures intervening between Tchefuncte and Plaquemine times in the Upper Atchafalaya Basin, we cannot offer intelligent (or even unintelligent) guesses about the break in occupation at Savage. By the same token, we cannot explain why sites of this temporal interval were located where they were. It is suspected that by Coles Creek times, horticulture had become an integral facet of local economies though its relative importance has never been specified. No doubt swidden (or slash and burn) gardening involving the cultigens grown by local historic tribes (e.g., corn, squash, pumpkins, gourds, etc.) must have placed new demands on site selection. It must have created some new behavioral and functional correlates, and it must have brought on some new perceptions of land tenure and cultural and social organizational procedures.

Whatever the nature and kind of changes that took place during the first Christian millennium, the conditions obtaining at the Savage locale were again found favorable by Indians, and a relatively substantial

Plaquemine village or hamlet was established. Residue from Plaquemine residency occupies the present surface and upper few centimeters of subsurface suggesting that alluviation, even from backwaters, had virtually ceased by this time. Beyond the obvious fact that Plaquemine folks made and used pottery vessels and arrowpoints, little else can be said of this small village.

It is tempting to visualize the diminished sizes of the Plaquemine vessels (smaller than Tchefuncte pots, at least in mouth diameters) as evidence for fewer mouths to feed at any given meal. Carried to a logical extreme, this might be taken as indicative of a shift from extended families (during Tchefuncte times) to nuclear ones. However, it could also mean no more than preparation of multiple dishes rather than one continual use dish, or some similar incidental reason. Nonetheless, familial changes from large to small would seem to be adaptively compatible with the presumed shift from a hunting-collecting economy, such as is thought to characterize Tchefuncte groups, to plant husbandry. Seasonal shortfalls, inherent in nonhorticultural economies, might have been best avoided or overcome by a large, cooperative, food-sharing extended family. Small, nuclear families appear more suitable to an horticultural economy which provided a measure (or promise) of food stability and relative constantness, yet severe limitations during years of crop failure. Attitudes toward land use (perhaps increasingly a my land vis-a-vis your land thinking) and the constant need for more farmland with the appearance of children, grandchildren, etc., would have made nuclear family units logically more compatible with gardening subsistence. Conditions of economic stress-whether crop failures or territorial encroachments or threats by outsiders--were probably handled by extra-family, socio-political mechanisms, which by Plaquemine times had probably become superlatively organized and perhaps even quite rigid. In other words, many of the functions and interdependent protection and cooperation aspects of egalitarian extended families could have been taken over by local societal organizations and government, compromising and even eliminating the adaptative utility of extended families.

The final episode in the residential history of the Savage site is marked by artifacts of Euro-American derivation. Wine bottle sherds and marbles suggest a probable White homestead, possibly dating to the

eighteenth or nineteenth century. Other details of this component are obscure, and possibly relevant historical documentation (i.e., land and census records, etc.) have not been examined.

Human activities are still transpiring at the Savage site. Since the building of the Atchafalaya Basin Floodway and the resultant siltation in the upper part of the basin, vast tracts have been opened to soybean farming. Clearing, land-leveling, and large-scale mechanized planting are rapidly changing the terrain and its biotic and cultural constituents. Present use of the Savage site will ultimately result in the complete annihilation of a record of previous land tenure and use that goes back more than 4000 years.

Dupont-Des Glaises (16AV69)

Description

This small prehistoric site lies on the west bank of the Bayou Des Glaises Diversion Channel about 2.0km east, northeast of Dupont, Louisiana. It is not associated with any presently existing, named or mapped, stream but does seem to have been affiliated with some type of water course, now represented by an alluviated slough.

It seems to fall in the lowlands between the natural levee flanks of two Teche-Mississippi meanders, the northernmost one followed by Bayou Choupique and the lower one by Bayou Jack. However, the sedimentary suite at Dupont-Des Glaises is suggestive of high energy alluviation, possibly even channel or batture conditions. Surfacial soils are composed of tan, coarse sands grading into a sandy clay. Sediments such as these do not accumulate under ponded swamps or other vegetated lowlands conditions, nor are they likely to have formed on Teche-Mississippi levee crests or flanks.

The site area bears an elevation of about 11m above msl, but this is lower than crests of the surrounding Teche-Mississippi levees which rise to between 11.7 and 13.2m above msl. The slough bed itself is less than 10.4m above msl, but then it is nearly completely filled in.

The area today is cleared and farmed (soybeans); natural vegetation has been removed and though a fringe of willows and other shrubby woody species line the banks of the diversion channel, these represent modern

encroachers along the artificial stream.

No evidence of organic enrichment--midden--was ascertained, although this could be a function of post-occupational leaching. Artifacts were found over an area of $900m^2$. They were"concentrated" on the tops of a series of low rises atop the bank of the slough bed. However, these little "bumps" are probably erosional phenomena, and the apparent discreteness of the "concentrations" may be more geological than cultural.

Artifacts and Ecofacts

The artifact assemblage from Dupont-Des Glaises consisted of pottery, other pieces of baked clay, chipped pebbles, flakes, and an arrowpoint fragment (Table 9.28). Faunal remains are represented by three unidentified bones, found on the surface, and several minute pieces of bone included in the fabric of sherds.

Pottery.

Plain Ware.

Ware categories have not been separated. The sherds are generally very small and are badly weathered, indicative of long above-ground exposure. Surface attributes are lacking in the majority of sherds; hence ware sorting would be especially tenuous. Color ranges and combinations are variably black to buff. Aplastics include mixtures of vegetal matter and grog in some of the sherds (67 undecorated pieces) and bone in others (eight plain sherds). When initially detected, the white specks in these eight sherds were thought to be crushed shell, but nonreaction with dilute acid indicates they are bone "meal."

Two basal sherds were included in the collection. Both are thicker than the attached sections of vessel wall; one is flat of undetermined shape; the other is slightly convex and apparently derives from a round-bottomed bowl.

The solitary rim sherd is direct and unthickened with a flattened lip profile.

Decorated Pottery.

Of the four decorated sherds, one is Plaquemine Brushed, var. Plaquemine, and another seems to fit the description of Mazique Incised, var. Manchac. Two sherds are unclassified. They bear single, narrow

TABLE 9.28 -- ARTIFACTS FROM DUPONT-BAYOU DES GLAISES

Types	Number
POTTERY	
Plain:	
body	75
bases	2
rim	1
Decorated:	
Plaquemine Brushed, var. Plaquemine	1
Mazique Incised, var. Manchac	1
unclassified incised	2
OTHER BAKED CLAY	
amorphous lumps	2
daub (?)	1
CHIPPED STONE	
split pebble	1
marginally retouched pebble (scalar)	1
flakes:	
secondary	1
tertiary or interior	1
arrowpoint fragment (medial section)	1
BONE	
turtle plastron	1
unidentified animal bone fragments	2

incisions. None of the decorated sherds contain bone in the fabric.

Other Baked Clay Objects.

Three pieces of fired clay were included in the collection. Two are small amorphous lumps which could be fragments of hearth linings or perhaps daub (although they do not bear fibrous--wattle--impressions). The other small piece is flattened; one face is smooth while the other is more irregular. This specimen is more likely to represent daub from a mud-plastered structure.

Stone Artifacts.

Worked Pebbles.

Two small pieces of brown stream gravel show evidence of human modification. One is simply a split pebble. However, the other rock has

been definitely reduced by a series of conjoining flakes around one margin. The flaking produced a scalar or hinged edge, perhaps sufficient to demonstrate the poor industrial quality of the parent nucleus.

Flakes.

One secondary and one tertiary flake were found. These are products of reduction of stream pebbles and suggest that some tool preparation took place on site.

Arrowpoint Fragment.

A medial section of an obviously unclassifiable arrowpoint was recovered. The breaks appear old as there is no detectible difference in the patina over the flake scars of the faces and the snapped edges.

Bone.

Of the three fragments of bone from the site surface, one is a fragment of an unidentified turtle plastron, and the other two tiny pieces defy recognition by anatomical position or species.

Interpretations

Although Dupont-Des Glaises has been extensively damaged by cultivation and erosion and seems to have little or no remaining in situ midden, some interpretations would seem to be in order.

The small artifact collection possesses traditional indicators of a Plaquemine period occupation, although there is no certainty as to when, calendrically, such an occupation transpired. The range of cultural activities represented by the pottery, stone artifacts, and bones hints of domestic maintenance tasks associated with a residential area. However, the small extent of the artifact scatter suggests something on the order of a hamlet, rather than a small village. One estimate, based on Cook and Treganza's (1950) formula, intimates a population size of around 11 to 12 people, i.e., possibl two or three nuclear families or perhaps a single extended one.

For what such estimates are worth, this may be compared with reconstructions for the Fish Bayou site (16SL61), located 21.5km south of Dupont-Des Glaises. There in an environmental situation, thought to be nearly identical with Dupont-Des Glaises, was an earlier Coles Creek hamlet,

perhaps occupied by a single nuclear family, who seem to have been engaged in a round of domestic activities nearly duplicative of those conducted at Dupont-Des Glaises. Does this comparison have any value for revealing adaptive or economic continuity? Do the apparent population differences have any bearing on possible shifts in family and social structure, or do they merely reflect unascertainable factors of residential aggregation? We simply cannot answer such relevant questions with current information, but these inquiries, and others of similar ilk, could provide structure and organization to future research programs in the area.

In terms of the interesting geomorphic situation at Dupont-Des Glaises, it might be concluded that human tenure at the little hamlet had absolutely nothing to do with the active Teche-Mississippi River or with any of the pre-modern Red River courses. It certainly postdates the Teche-Mississippi regime and probably the nearby Red River ones; or, in the case of the latter, was beyond reach of Red River inundation and alluviation. The hydrological process that brought the coarse sands into the Dupont-Des Glaises locality had quit long before human settlement. Apparently sealed off by continued natural levee accretion which formed a virtual enclosure (at least on three sides-north, west, and south) and a barrier against floods from those directions, the low sand ridges offered slightly higher ground for hamlet founding. Potable water was evidently carried through the channel now marked by the alluviated slough bed, which drained the interlevee section of swamp. East of the site location, the swamp opened up into a vast lowland and basin which was probably subject to annual seasonal overflow and lengthy ponding from the Mississippi River which had diverted to the eastern side of its present valley. The site location, at the time of occupancy, probably lay in the ecotone between the wet, overflow basin to the east, and the better-drained section of interlevee swamp. Within easy reach (economic catchment area) would have been several diverse biotic zones of seasonally variable, high economic productivity, not to mention the locale-specific benefits for possible horticulture, e.g., friable soils and relative immunity from inundation (though certainly not floods).

CHAPTER 10

EVALUATIONS OF POTENTIAL SIGNIFICANCE

INTRODUCTION

Significance is a term used in federal regulations to identify those cultural resources of sufficient importance to alter construction designs or, if unalterable, to initiate alternative mitigation measures that will assure proper conservation. As a matter of fact, all major environmental and antiquities legislation centers on the concept of significance. The National Environmental Policy Act of 1969 (PL91-190), the National Historic Preservation Act of 1966 (PL89-665), Executive Order 11593 (1971), and the Archeological Conservation Act of 1974 (PL93-291), as well as other promulgated rules, guidelines, and subsequent amendments provide for determinations of significance before cultural resources will be considered for mitigation. So in a very real sense, significance lies at the very core of cultural resources management programs; resources to be affected by construction or related actions will be conserved or eliminated on the basis of significance determinations.

In the federal laws indicated above, significance is directly tied to the criteria for listing properties on the National Register of Historic Places (cf. National Register. . .: Nominations by States and Federal Agencies," 36CFR Part 60.6). These procedures clearly specify that significant properties are not to be limited to those that appear on the Register, or to those that have been nominated or determined eligible for nomination to the list, but shall include those resources that are potentially eligible for inclusion. Thus, significance is not directly tied to the process of nominating properties to the National Register but is emphatically based on the criteria used to initiate the process.

Because these criteria furnish the starting point for determinations of significance, they are provided below (36CFR60.6):

> (a) . . . districts, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association and:
>
> (1) That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (2) That are associated with the lives of persons significant in our past; or
>
> (3) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (4) That have yielded, or may be likely to yield, information important in prehistory or history.

In addition, there are certain stipulations on these criteria. Unless they are parts of historic districts or have other exemplary qualities, certain kinds of properties are to be exempted from consideration. These include: cemeteries, transported and/or reconstructed structures, commemorative properties, and places less than 50 years old (36CFR60.6).

The national Register criteria are actually a general set of guidelines of rather wide applicability. Because they were conceived primarily for the consideration of architectural and historical qualities and values, they are remiss in specifying other inherent cultural qualities and in dealing with purely archaeological properties. King (n.d.), for example, has pointed out some of these problems in applying Register criteria to archaeological situations. King (n.d.:14) argues that any relatively intact archaeological site would have integrity of location, setting, and association. If its constituent material cultural remains have not been reduced past the point of observation or detection, then the site should also satisfy the qualities of design, materials, and workmanship (King n.d.:14). This author shares with King misgivings about applying so personal and subjective a quality as "integrity of . . . feeling" to any cultural resource. This is so variable as to be meaningless. Thus, judging archaeological sites by the set of criteria in 36CFR60.6(a), it may be concluded that any

relatively well preserved archaeological site (i.e., place bearing in situ cultural deposits) meets this general significance-determining quality.

The more specific criteria in 36CFR60.6 (1-3) favor standing architectural remains and have only incidental relationships to archaeological sites. Although there are archaeological examples which purport to identify specific events in prehistory and, by extension, certain forever nameless individuals or groups that influenced the course of history, these will always remain undemonstrable hypotheses. Only where historical documentation and archaeology overlap can we be convinced by weight of argument of such specific correspondences. Had the house, village, or grave of Solieu Rouge, a Chitimacha chief of paramount importance in early Indian-colonial relationships along Lower Bayou Teche, been found, a strong case for significance under 36CFR60.6 (2) could be marshalled. Suppose we could prove that northern Mississippian invaders encroached into the southern part of the Basin during the 1400s and forced out the indigenous populations and could identify tangible aspects of this event. A case for significance could be offered. However, archaeological specification of such historical events, in the absence of written records, is presently beyond verification by any known methods of proof. In the opinion of this author, such hypothetical events should not be used as "factual" measures of comparison with the National Register criterion a (1).

There is an attendant difficulty in applying the specific events and individuals criteria to archaeological and even some historical remains. Throughout, the National Register criteria make reference to "our history" or "our past." Whose history or whose past is being singled out? Is it that of Americans, of all races, ethnic backgrounds, and religious dispositions? Or is it the familiar history of Euro-Americans with which we are so thoroughly indoctrinated by years of educational exposure in the American school system using history books which portray almost exclusively the story of Western European settlement? How is one to know or identify significant events or individuals in the histories of peoples--Indians, Afro-Americans, Canary Islanders, Acadians-Cajuns, or any nonliterate enclaves--

peoples whose histories, if known or remembered at all, constitute oral unwritten traditions? Can the archaeological or historical remains of these groups be fairly judged in terms of the National Register criteria dealing with the events and individuals. This author submits that they cannot.

Similarly, in terms of criterion a (3), archaeological and/or undocumented historical identifications of the works of a master or of objects that possess high artistic merit are subject to the same, unsupportable or value-laden judgments as described above or fall within the realm of emotionalism, subjectivity, or racial, religious, or ethnic prejudice. For example, the masterful French Fork Incised pottery from many archaeological sites in the Atchafalaya Basin may have high artistic appeal to some archeologists, but the fancy of others may be drawn to Tchefuncte potteries. How are these examples to be comparatively rated? And if not to be rated, on what explicit bases are we to determine artistic, hence significance-determining, qualities? Similarly, a master craftsman (craftmen) or crafts guild may be responsible for the production and circulation of a set of zoomorphic stone pendants (i.e., locust effigies) during the time span of Poverty Point interaction. While these objects are a somewhat variable lot, they seem to adhere to a common theme of representation and to most lapidaries are impressive from the standpoint of workmanship, industry, and technology. Yet it can never be certainly proven that a master artisan or single crafts school or lineage was responsible for their production.

In terms of the other stipulations of Register criterion a (3), those dealing with ". . . type, period, or method of construction, . . .," the wording makes it clear that standing, historical architectural constructions are to be considered. There are two sets of difficulties that hinder significance determinations from this vantage point.

One deals with the variable perceptions of the person making the assessment. For example, it might be quite easy to extol the merits (significance) of an ante-bellum, lowland plantation mansion if one is an upperclass Southern American or appreciates the grand old life style it signifies. The same might be said of a Cajun cottage if one is of Cajun extraction, of a single pen log cabin if one is a rural North

Louisiana "redneck," or of a palmetto-thatched, wattle and daub hut if one is a Houma Indian trapper from Terrebonne Parish. But what does one do with pyramidal houses usually associated with lumbering communities, with shotgun houses which often typify Black sections of towns, or with structures that cut across ". . . types, period, or construction methods" and which often fail to inspire strong perceptions of ethnic identity, local geographic pride, and so forth.

A second kind of difficulty centers on architectural remains that can be disclosed only through archeological investigations and that must be considered as hypothetical models derived from the joining of archeological data with civil engineering principles. How, for example, is the Woodland house reconstructed for the Apple Creek village in Illinois (Marshall 1969) to be compared (evaluated) with respect to criteria of design and workmanship drawn from a contemporary, non-aboriginal, architectural background? Similarly, what are we to do with standing examples of aboriginal earth architecture? Mounds, embankments, and other remaining earth (and occasionally stone) constructions are often parts of archeological sites across the Southeastern United States. Historic and modern building and architectural considerations fail to embrace all aspects of these constructions. Shape, scale, and proportion details are considered important in assessments of earth architecture (cf. Morgan n.d.); as are factors of access features, surfacing, color, construction, function, and siting and arrangement (Morgan n.d.). Such details pertain not only to individual structures, but to interstructural arrangements on single sites and to intersite arrangements of a contemporary populace.

As a matter of fact, spatial relational dimensions of architectural features, no matter their design and workmanship, are not even mentioned in the Register criteria. Yet, such details are of paramount importance to general and specific archaeological and anthropological questions dealing with human settlements, as well as to the structures that comprise those settlements. Thus, in addition to the fact that Register criteria bear only an incidental relationship to aboriginal architecture and archaeology in general, there is the additional complication of the criteria being object- (or actually structure-) specific without appreciation of spatial contexts and

their meaning. However, these shortcomings in Register specifications can be readily dealt with under item 4 of 36CFR60.6.

Before considering this item, it might be beneficial to elaborate on the stipulations or limitations placed on these judgmental criteria in 36CFR60.6. It will be recalled that cemeteries, graves, religious properties, and commemorative structures are not to be ordinarily considered for significance unless they specifically satisfy certain of the other criteria described above. Again such stipulations were an outgrowth of contemporary historical considerations (as influenced by contemporary architectural values).

From the preceding discussion, it is evident that the Register criteria and stipulations were not designed to be rigorously applied to archaeological situations. They cannot be. Their contemporary historical and architectural biases prevent it. Thus, this author cannot support King's (n.d.:14) recommendation that ". . . the Criteria should be gone through completely and systematically" when strictly archaeological resources are being evaluated for significance. However, they should be used as general guidelines with a full awareness of their limitations. Because of these exposed difficulties, the case for archaeological site significance (as well as a more generalized perspective on historical and architectural resources) rests heavily on the one remaining criterion of the National Register. The weight of significance determinations falls on the development of decisive arguments that the cultural resource has produced, or will be likely to produce, information important in history or prehistory (36CFR60.6[4]).

IMPORTANCE IN PREHISTORY AND IN GENERAL CONSIDERATIONS OF CULTURE

Since, in this author's opinion, this singular National Register criterion is the most important in assessing archaeological resource significance and in determining the nonhistorical-nonarchitectural values of all cultural resources, it deserves considerable examination.

This one criterion, more than all others combined, has elicited considerable commentary of late in cultural resource management literature (House and Schiffer 1975; Raab and Klinger 1977, 1979;

Glassow 1977; Sharrock and Grayson 1979, to mention a few). Herein rests the ultimate case for archaeological significance. But in a more basic sense, herein rests the case for the importance of cultural resources in general, regardless of time or place and regardless of inherent, attributed, or associated qualities. It is in this last criterion that our obligations to cultural resources in terms of present and future stewardship contexts can be most appropriately justified.

House and Schiffer (1975:163) have stated this position most emphatically; they acknowledge:

> . . . that archaeological [I would broaden to cultural] resources acquire scientific or historical significance only as they relate to specific research questions in substantive, technical, methodological, and theoretical contexts . . .

Glassow (1977:413), responding to what are felt to be limitations in House and Schiffer's proposition, suggests that significance determinations be based directly ". . . on the observational properties of resources." He recommends, following Albert Spaulding's concepts, that these observational properties include: variety, quantity, clarity, integrity, and environmental context (Glassow 1977:413-420). Glassow (1977) was responding to the ofttimes narrow and restricted problem-orientation in archaeology, a fear that such limited perspectives would result in management decisions not to mitigate certain resources whose real value might lie in research domains not yet appreciated. Like Glassow, Sharrock and Grayson (1977:328) stress the future importance of cultural resources. They emphasize that today's perceptions of research questions (hence, sources for significance criteria) may not be the same as those of the future. Thus, they hold that the National Register criterion (36CFR60.6[4]) which allows for potential significance (cultural resources . . . "that have yielded, or may be likely to yield, information important in prehistory of history" [emphasis provided]), should be followed more directly. Unfortunately, they do not indicate how the determination of future importance is to be made at present.

While it is true that we do not know what specific research problems will occupy the attention of archaeologists and general

students of culture a decade, a century, or a millennia hence, we do know that those questions and orientations will grow out of the present body of knowledge (cf. Raab and Klinger 1979:329). But in a more practical vein, federal agencies are requiring that significance determinations be supported by hard, justifiable evidence. We would become a suspicious lot indeed if we asked agencies to set aside certain cultural resources on the chance that they might one day derive significance from some futuristic context. Will the Great Lakes winter navigation plan await the growth of a more sensitive archaeology? Will the Atchafalaya protection levees construction be shelved until cultural resource investigators come up with a sound plan for determining significance that embraces all futuristically conceivable kinds of information? No, while sympathetic with the views of Sharrock and Grayson (1979), this author does not believe such a prospect is very workable. King's (n.d.) suggestion that we set aside representatives of all recognizably different kinds of sites offers no real solution to this problem because we have very limited conceptions of what really constitutes different or redundant information. We are obliged to determine cultural resource significance on the basis of what we know and what we would like to know. This will be the only kind of approach that is acceptable to federal agencies. It is the only kind of approach that will be acceptable to the majority of archaeologists, historians, and other students of culture. And it is within the contexts of technical, methodological, substantive, and theoretical questions that significance criteria can be most basically developed and most easily defended.

Broad views of cultural resources are presently before us (cf. House and Schiffer 1975:163; Raab and Klinger 1979:329). There are general discipline-wide problems and challenges in technical and methodological domains, problems of significance to all cultural information retrieval and analytical efforts, irrespective of where contracts are let. These have implications not only for the continued development of cultural studies but for the contracting agencies themselves. The two cannot be separated in any logical fashion today.

There is practically no imaginable situation in which cultural resources would fail to have some bearing on technical, methodological, substantive, or theoretical issues even under the present state of the

art. There remains only the necessity to explicitly set forth those details that are to be used to judge significance. These evaluatory criteria may come from any source--any issue, question, or problematic area--that has relevance to contemporary understanding. They must be balanced against the methods and techniques used to acquire data and against the contemporary status of the archeological and historical record. This means that well-conceived, insightful, and creative research designs must underpin field investigations. It means that constant refinement of research designs should transpire as field conditions become more fully appreciated. It means that relevant information must be defined and that recovery techniques and analytical methods and procedures must be in tune with the ultimate goal of significance assessment in a variety of meaningful contexts.

The area of cultural resource significance is a paramount link between the world of finance and economic progress and the world of knowledge and environmental conservation. It is a mutual consideration, and it is not to be taken lightly nor dismissed forthwith by whimsical opportunists, whether they be agency officials or cultural resource investigators. It is toward the common resolve of shared problems that we must concentrate our attention and invest our time and energies.

CRITERIA USED TO EVALUATE THE POTENTIAL SIGNIFICANCE OF ATCHAFALAYA ARCHEOLOGICAL RESOURCES

Data Input, Justifications, and Procedural Matters

As pointed out in Chapter 8, archeological data from the Atchafalaya Basin are quite limited. Evaluation of the data pool has pointed out some of its shortcomings and identified many areas that need amplification. There are many research problems and issues that command attention, and there are technical and methodological problems dealing with investigations in overflow swamps that remain unsolved. These difficulties, coupled with the complications arising from terrain alteration and accessibility in the present survey

corridors, have placed the weight of significance evaluations squarely on the sites themselves and their real or potential data yield (Glassow 1977). In other words, while integrative and comparative research issues are a quite desirous means of recommending significance based on substantive or theoretical orientations current in the cultural resources management field, they are not the only means of advocating decisions of significance. As a matter of fact, issue- or problem-oriented approaches to recommending significance are successful only when they have sound data bases and are conditioned by thorough and insightful perceptions of existing data in specific localities. The luxury of a sound data base is simply not to be had in the Atchafalaya Basin.

The present approach to significance recommendations takes its lead from Spaulding's (1960) exposé on the dimensions of archeology and Glassow's (1977) translation of these "dimensions" into a cultural resource management framework. The approach is simple; its mechanics are not. Categories of archeological data, context and content, furnish the structure. Categories are weighted or loaded by comparison with three additional archeological dimensions--quantity of data, expected variety, and post-depositional alteration. Combining values assigned to these four dimensions produces a score for each site and thereby a rank order of importance (or actually a ranking which extends from nonimportance to importance). A cut-off point for proclaiming that a site is important or nonimportant has been set arbitrarily at a curve graded, percentile rating. The mechanics of the system are explained below in more detail.

Three categories of data classes furnish the systematic framework. One category concerns site-specific geographic setting and includes the following classes of data: soils, sediments, stratigraphy, composite geomorphic features, and biota. A second category lumps data on site size, shape, and orientation. The third category deals with site contents. It is broken into two subcategories, one concerned with artifacts, the other with nonartifacts. The artifact subcategory includes several general classes: chipped stone, ground stone, aboriginal pottery, other clay objects, artifacts or organic materials, and artifacts of metal, of glass, or other nonaboriginally available

substances. The second subcategory has two classes, ecofacts and structures-features.

These data categories, subcategories, and classes are used to form a matrix (or more simply a table) in which every documented site is included (Table 10.1). The table columns, or matrix cells, (however one choses to envision this structural framework) are marked with a one (1) or a zero (0). When a data cell (in the geographic setting category or in the site contents subcategory dealing with ecofacts and structures-features) is marked with a one (the number 1) or with a zero (the place-holder zero), it means that data pertaining to that category of information are available or not available, respectively. These symbols, 1 and 0, are assigned numerical values corresponding to 1 and 0 and are subsequently used as additive properties.

Such a simple means of assigning additive values cannot be used with regard to the category of artifacts. The classes in this category must be weighted (or statistically loaded) to avoid "penalizing" sites of short time ranges (i.e., single components) or specialized function. The assignment of symbols, one and zero, to table cells falling within the category of artifacts is converted to numerical values by not changing, doubling, or tripling the arithmetic value of the symbols (i.e., 1 or 0). In other words, if a site can be demonstratively shown to be a single component (or functionally limited) and the cultural time period spanned fell entirely within the non-aboriginal historic period, the aboriginal ceramic-producing prehistoric period, or the aboriginal preceramic prehistoric period, then the artifactual subcategory has to either remain unchanged or be increased by a factor of two or three to compensate for the fact that certain artifactual classes are temporally specific.

To clarify by example, a Paleo-Indian component, which could not yield artifactual data on ceramics or on Euro-American historic artifacts, must have its artifactual category scores tripled. Its totalled raw scores signify that it is a pre-ceramic, pre-historic component. The raw counts should be doubled to reflect the absence of artifactual classes exclusive to aboriginal ceramic-producing time periods and another third should be added to account for the impossibility of historic artifacts being included in the archeological record pertinent

only to the Paleo-Indian span. A single component prehistoric site that was occupied during the span of aboriginal pottery production must have its raw artifactual class score sums doubled to alleviate the impossibility of yielding historic artifacts. A purely historic (Euro-American, Afro-American, or completely enculturated Aboriginal American) component must have its scores tripled to overcome the impossibility of having artifacts from prehistoric-ceramic producing or prehistoric, preceramic producing periods. Multiple component sites that are prehistoric aboriginal have doubled raw scores (because historic objects cannot occur). Multiple component sites that have both prehistoric and historic materials have not been subjected to artifactual content weighting. This is because aboriginal and nonaboriginal (historic) artifacts are present, and it is difficult, nearly impossible (unless Paleo-Indian diagnostics are present), to separate prehistoric nonceramic from ceramic complexes if pottery is not present. The absence of pottery may be a function of time or of specialized activity. To say this another way, the presence of pottery means that the site certainly has a component that dates from the time of native pottery production, but the absence of pottery is not, by itself, an absolute indicator that the site is temporally pre- or post-pottery.

No methodological loading is deemed necessary for prehistoric sites which lack stone artifacts. Sites bearing stone artifacts separate neatly according to latitude within the Atchafalaya Basin. Those from the southern part lack stone tools, those from the opposite end have them. This is assumed to be a function of raw materials preferred or available and not necessarily a limitation of technological equipment (i.e., variation in the tool classes themselves). For example, projectile points occur in sites from both northern and southern ends of the basin. In the northern sites, points are made of stone; while in southern sites, they are made of bone or antler. (Whether differences in preservation are accountable in part for this variation, or whether the variability is best explained by industrial, social, political, economic catchment, or other factors, is of no consequence to the decision not to differentially load sites from opposite ends of the basin.)

Scores in the content section of the table are also loaded on the basis of artifact numbers. Ideally, the whole table should be modified

to reflect numbers of data in every class of every category. However, a means of quantifying data in the site setting category is hard to conceptualize. Similarly, a system for loading ecofacts, which, like artifacts, might simply be counted and weighed accordingly, has not been used because of the occurrence of rangia middens among the sites to be evaluated. A non-rangia midden with 12 animal bones, for example, would have its rating value rendered insignificant when compared with even a small rangia midden with hundreds of thousands of individual shells. Thus, the ecofact category is not loaded.

Thus loading of scores, based on quantity, is limited to artifactual content classes. The reasoning behind this weighting is simple; the greater the number of artifacts present, the greater the probability that the site will produce more information in terms of both quantity and variety. The loading is entirely arbitrary. Scores of sites which have produced between 1 and 100 artifacts remain the same; those of sites yielding over 100 artifacts have been doubled (i.e., multiplied by a factor of 2).

A third and final category of information is used to manipulate site scores (both raw [presence-absence] and corrected [time/function-specificity and artifact quantity counts]). This information consists of post-depositional alteration details and is used to derive a factor called the In Situ rating. This factor is tied directly in the National Register criterion, "integrity of location" and is extremely important in ascertaining whether a location, regardless of how much and what kinds of information it has previously yielded, retains sufficient potential to contribute ". . . information important in history or prehistory.". Previously acquired information and information "still in the ground" must be weighed carefully against site condition in order to more fully comprehend how in-hand information might have been changed by post-depositional alteration and if in-ground information is still available and worth collecting. The In Situ rating is a heuristic device which integrates information on site condition (i.e., presence of in situ cultural deposits or in place constructions) with information on the major processes which have caused changes in that condition since the location became archeological.

The In Situ rating is determined in the following manner. Values between 5 and 1 are arbitrarily assigned to various site conditions and disruptive processes. Specifically, a largely pristine, only incidentially disturbed condition is rated as 5; a land-leveled, plowed condition is rated 4; stream-altered situations, 3; conditions drastically altered by construction (e.g., levee-building, fill borrowing, or content transport from one location to another) are rated 2; and conditions totally lacking any in situ materials are assigned a 1. The two extremes in this scale, 5 and 1, thus refer to the range of possible conditions from almost completely preserved to virtually nothing left but artifactual residues. The in-between values refer to the principal activities which have been responsible for site conditions modification. Their rank order is deliberate, it should correspond to the archeological value of the information acquired or acquirable from them. In other words, archeological information from a plowed site is deemed more valuable than that from a site which has been reworked by streams; stream deposits are considered to be more valuable than those which have been churned by levee-building and dirt-borrowing, etc. However, because it has not always been possible to determine whether in situ conditions are a result of a lack of disturbance (culturally in situ) or are a result of reworking after the time of deposition (geologically or artifically in situ), it has been necessary, in some cases, to combine the values from 5 to 1. Any nature of combination is possible, except of course, merging 5 and 1.

The In Situ rating is used as a factor to produce the final score for each site. The sum of the raw scores on site setting classes and on ecofacts and structures-features are multiplied by the In Situ rating to give the In Situ Conversion Score.

It is the sum of the raw scores and conversion scores which determines whether the site will be recommended as significant or nonsignificant. The cut-off point for recommendation is arbitrarily set at a 60 percentile level, following a college grading format for passing-failing. The "grading" is relative, or to further draw from the college grading analog, the scale is "curved." The highest site score is multiplied by 60 percent to determine value necessary to "pass," i.e., to be recommended as significant.

Before completely dispensing with procedural matters, it should be emphasized that the system used here to recommend significance is entirely heuristic and, in spite of appearances, is not an absolute scale with ordinal or cardinal dimensions. In other words, a site with a value of 70 is not necessarily twice as important as one with a rating of 35. It does not mean intrinsically that twice as much money will have to be spent in mitigation by excavation. And perhaps most importantly, it does not necessarily mean that the site with a rating of 35 lacks value to either purely archeological or historic considerations or agency planning designs. No, the system is most simply a means of "rewarding" sites for their yield or potential yield of data considered to be important to enhancing our knowledge of Atchafalaya Basin prehistory and history. It is a measure of "performance," so to speak, "performance" meaning kinds and quantities of raw information.

It is quite possible that one tiny informational tid-bit from a site determined to be nonimportant under this rating system may prove to be extremely relevant to some present or future research problem or issue, but in this researcher's opinion, all projects which are injurous to cultural resources cannot be halted until that matter of relevance is ascertained or that research issue or problem recognized. Sites with a demonstrable corpus or potential corpus of currently relevant information are recognizable and can be evaluated in terms of the quantity and variety of that available information. For these sites, firm recommendations of significance can be made now. For important sites, mitigation recommendations and conservation plans can and must be developed. For sites judged to be nonimportant, under the present scheme, there is simply no legitimate basis, no convincing case, for recommending conservation-mitigation measures. If these locations can be set-aside, or avoided, without significant alterations in construction designs or without causing heightened expenditures, then they should be. Closer working relationships and enhanced mutual understanding between agencies and cultural investigators are essential here. It is incumbent on cultural investigators to refine and improve their science to provide agencies with firm and justifiable cultural resource planning information. It is also the duty of the agencies to incorporate cultural resources input at all levels of

project planning to insure maximal conservation of the cultural environment.

Organization of Significance Table Data, Manipulative Procedures, and Explanations of Symbols Used

Data input into the significance-recommending process centers on the categories of archeological relevance discussed in Chapter 8 and in the preceding part of this chapter. Data are put in tabular form (Table 10.1). If data are available for any information category, a one (1) is placed in the appropriate table cell; if they are not available (or potentially available), the cell receives a zero (0). Tabular scores are thusly given additive properties. Table 10.1 provides the raw (unconverted) scores (data presence or absence) used to evaluate site importance. A key to the abbreviations used to construct the table is provided.

So - Soils
Se - Sediment
St - Stratigraphy
Co - Composite Setting Details
Bi - Biota
IR - Industrial Resources
SSO - Site Size, Shape, and Orientation
E - Ecofacts
SF - Structure and/or Features

Also entered into Table 10.1 are categories of artifact classes. If data are available on any class, the table cell is marked with a one (1), if not, the absence is signified by a zero (0). However, unlike the categories identified above, the scores in the artifact categories are not used in a raw condition but as factors in producing converted scores which are sensitized to certain quantitative and qualitative influences. Explanations of artifact category abbreviations used in the following tables are given below.

CS - Chipped Stone Artifacts
GS - Ground Stone Artifacts
P - Aboriginal Pottery

OCO - Other Aboriginal Clay Objects

OA - Artifacts Made of Organic Materials

MA - Metal Artifacts

GA - Glass Artifacts

VA - Artifacts Made of Various Other Raw Materials

The data scores presented in Table 10.1 are used in an additive fashion. Scores on every category except artifacts are added in a raw condition. Artifact scores have, however, been loaded of weighted, to reflect the influences of two considerations, other than simple presence-absence of data. To overcome the problem of temporally- or functionally-specific artifact assemblages, raw artifact scores have been manipulated by what is called the time-function rating factor (TFR). Why artifact scores have to be so manipulated is explained above. Basically, it means that raw artifact score sums remain unchanged, or are doubled or tripled in accord with the temporal parameters of the site. Table 10.2 presents the conversion scores (TFCs).

Table 10.2 also lists the Artifact Quantity Ratings (AQR) and the Artifact Quantity Conversions (AQC) for each site. It will be recalled that this is a means of weighing the sum of the raw artifact scores to reflect the total number of artifacts; the AQR for sites with between 1 and 99 artifacts is 1, for sites with over 100, the AQR is 2. The AQCs for each site are thus products derived by multiplying the sum of the raw artifact scores by the Artifact Quantity Ratings. The resultant values have additive properties.

The last input into Table 10.2 is the In Situ Rating (ISR) and the In Situ Conversions (ISC). The In Situ Conversions are calculated for each site by multiplying the sum of raw scores (i.e., So, Se, St, Co, Bi, IR, SSO, E, and SF) and the conversion products (i.e., TFC and AQC) by the In Situ Rating (ISR). The In Situ Conversions have additive properties.

TABLE 10.1. COMPILATION OF SCORES USED TO EVALUATE SITE SIGNIFICANCE

Information Categories-Classes	16PC34	16PC35	16IV4	Y161BF	Y161BE	16SM62	16SM51	16SM45	16SM48	16SMY130	16SMY51	16SMY52	16SMY53	16SMY54	16SMY39	16SMY108	16SMY106	16SMY164	16SMY165	16SMY104	16SMY107	16SMY163	SMY166	16SMY2	16SM50	16SM11	16SL64	16SL63	16SL62	16SL61	16SL60	16AV68	16AV69
So	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
Se	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
St	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
Co	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
Bi	0	0	1	0	0	0	1	0	1	0	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0
IR	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SSO	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1
Subtotal	3	5	7	6	6	4	7	6	7	6	7	7	7	2	7	4	6	7	7	7	7	7	7	7	7	2	6	5	7	6	6	6	6
CS	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	?	1	0	0	0	1	0	0	1	1	1
CS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	?	0	0	0	0	0	1	1	0	1	0
P	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	?	1	1	1	0	0	1	1	0	1	1
OCO	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	?	0	0	0	0	0	0	0	0	1	1
OA	0		1	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	?	0	1	0	0	0	0	0	1	1	0
MA	0		0	1	1	0	1	0	0	1	0	1	0	1	1	0	1	1	0	0	1	0	?	0	0	0	1	0	0	0	1	1	0
GA	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	1	1	0	?	0	0	0	0	0	0	0	1	1	0
VA	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1	0	1	1	0	0	1	0	?	0	0	0	1	0	0	0	1	1	0
Subtotal	3	3	4	2	2	4	3	2	1	4	2	4	3	3	4	1	3	4	1	2	5	1	?	2	2	1	2	1	2	3	5	8	3
E	0	0	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	?	1	1	0	0	0	0	0	0	1	1
SF	0	0	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	1	1	0	?	1	1	0	1	0	0	0	1	0	0
Subtotal	0	0	2	1	1	1	2	1	1	2	0	1	1	1	1	1	2	1	1	2	2	1	?	2	2	0	1	0	0	0	1	1	1

TABLE 10.2. DATA CATEGORY VALUES, CONVERSION FACTORS AND ADJUSTED SCORES, COMPOSITE SUMS, AND SIGNIFICANCE EVALUATIONS

	16PC34	16PC35	16IV4	Y161BF	Y161BE	16SM6?	16SM51	16SM45	16SM48	16SMY130	16SMY51
TFR	1	1	2	1	1	1	2	2	2	1	1
TFC	3	3	8	2	2	4	6	4	2	4	2
AQR	1	1	2	1	1	2	1	?	1	1	1
AQC	3	3	8	2	2	8	3	?	1	4	2
ISR	1	1	5	1	1	1	5	4	2.5	4	1
ISC	3	5	45	7	7	5	45	28	20	32	8
Sum A[1]	3	5	7	6	6	4	7	6	7	6	7
Sum B[2]	0	0	2	1	1	1	2	1	1	2	0
Composite[3] Score	12	16	70	18	18	22	63	39	31	48	19
Signif[4] Evaluation	NS	NS	S	NS	NS	NS	S	NS	NS	S	NS

	16SMY52	16SMY53	16SMY54	16SMY39	16SMY108	16SMY106	16SMY164	16SMY165	16SMY104	16SMY107	16SMY163
TFR	1	1	2	1	2	1	1	2	2	1	2
TFC	4	3	6	4	2	3	4	2	4	5	2
AQR	1	1	1	2	1	1	1	1	1	1	1
AQC	4	3	3	8	1	3	4	1	2	5	1
ISR	5	3	2	2	2	2.5	2.5	2	5	5	3
ISC	40	24	6	6	10	20	20	16	45	45	24
Sum A[1]	7	7	2	7	4	6	7	7	7	7	7
Sum B[2]	1	1	1	1	1	2	1	1	2	2	1
Composite[3] Score	56	38	18	26	18	34	36	27	62	64	35
Signif[4] Evaluation	S	NS	NS	NS	NS	NS	NS	NS	S	S	NS

TABLE 10.2. DATA CATEGORY VALUES, CONVERSION FACTORS AND ADJUSTED SCORES, COMPOSITE SUMS, AND SIGNIFICANCE
(CONTINUED)

	16SMY166	16SMY2	16SM50	16SM11	16SL64	16SL63	16SL62	16SL61	16SL60	16AV68	16AV69
TFR	3	2	2	2	2	3	2	1	1	1	2
TFC	?	4	4	2	4	3	4	3	5	8	6
AQR	?	1	1	1	1	1	1	1	1	2	1
AQC	?	2	2	1	2	1	2	3	5	16	3
ISR	?	4	5	1	2.5	1	1	4	2.5	4	4
ISC	?	36	45	2	17.5	5	7	24	17.5	28	28
Sum A[1]	7	7	7	2	6	5	7	6	6	6	6
Sum B[2]	?	2	2	0	1	0	0	0	1	1	1
Composite[3] Score	10?	51	60	7	30.5	14	20	36	34.5	59	44
Signif[4] Score	NS	S	S	NS	NS	NS	NS	NS	NS	S	S

[1]Sum A represents the combined scores of So, Se, St, Co, Bi, IR, and SSO.

[2]Sum B represents the combined scores of E and Sf.

[3]The Composite Score represents the sum of the values of TFC, AQC, ISC, and the values of Sum A and Sum B.

[4]NS means Not Recommended as Significant; S means Recommended as Significant.

SIGNIFICANCE EVALUATIONS

The sum of the raw scores and conversions (Table 10.2) provides a numerical value for each site, a value used to discriminate site importance. Since the highest score for any site is 70 (Bayou Sorrel Mounds, 16IV4), it becomes the standard for judging importance. Any site with a total score of 42 or greater (70 multiplied by 60 percent) is recommended as significant under the scheme used here to operationalize National Register criteria. Any site with a score of less than 42 is thus judged to be not important.

As is evident in Table 10.2, 10 sites have been found to be potentially significant. These are Bayou Sorrel Mounds (16IV4), Lost Hill (16SM51), Brick (16SMY130), Bayou Shaffer Water Locks (16SMY52), Moccasin (16SMY104), Henry Knight Place (16SMY107), Charenton Beach (16SMY2), Bayou Perronet (16SM50), Savage (16AV68), and Dupont Des Glaises (16AV69). In the case of two sites, 16SMY130 and 16SMY52, these evaluations are in accord with previous significance recommendations (Gibson 1978:277).

A total of 23 sites has not been recommended as significant under the present means of discrimination. These include 16PC34, 16PC35, Y161BF, Y161BE, 16SM6?, 16SM45, 16SM48, 16SMY51, 16SMY53, 16SMY54, 16SMY39, 16SMY108, 16SMY106, 16SMY164, 16SMY165, 16SMY163, 16SMY166, 16SM11, 16SL64, 16SL63, 16SL62, 16SL61, and 16SL60. However, three of these sites require explanation for the recommendations proclaiming non-significance.

Belle River Landing (16SM6?) has received a non-important rating, but it should be emphasized that this rating pertains to the cultural materials in the boat launch parking area only. If any *in situ* remnants of this well-known site (the Miller site) remain in the vicinity, it is quite likely that the rating would change (i.e., be evaluated as significant).

In the case of Bisland, the location of a Confederate training facility and scene of the bloody Civil War battle of Bisland in 1863, the final rating is neither important nor non-important. The questionable status of the site is a product of a lack of information. No physical evidence of the site was produced during field work at

the suspected location. However, no metal-detecting equipment was used, and materials could have escaped detection. Fortifications were not discovered, but this might have been due to the confinement of on-the-ground search to the already altered levee corridor. The Wax Lake Outlet has certainly impacted the location and perhaps removed many of the standing embankments and areas of battlefield debris, but the possibility remains that the questionable status of the site could be changed to a positive recommendation of significance if the location was more intensively investigated.

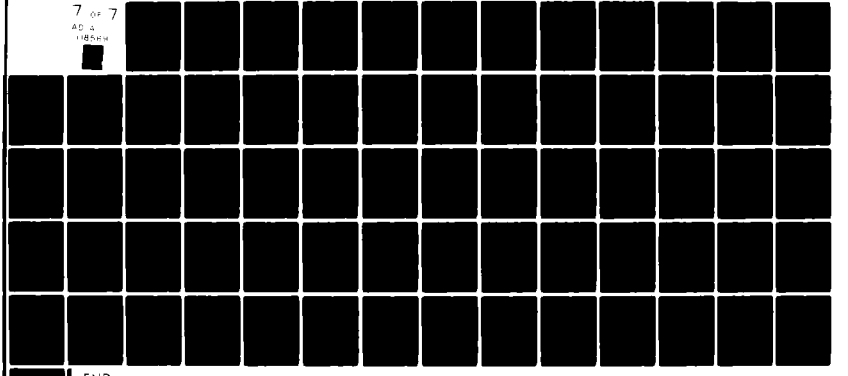
Perhaps, the most serious problem produced by the present scheme for evaluating significance resides with Nutgrass (16SM45). This site is already listed on the National Register of Historic Places, a consequence of concerted action by the U. S. Army Corps of Engineers, the Louisiana Division of Archaeology and Historic Preservation, and the team of Louisiana State University archeologists who investigated the site (cf. Neuman and Servello 1976). Under the present significance-evaluating plan, 16SM45 has received a total score of 39?, less than the figure of 42 used to discriminate importance. However, this non-important rating is a product of a paucity of available information not necessarily a function of data nonexistence.

Investigations of Nutgrass during the present survey were, because of its National Register listing, limited to evaluating recent changes in its condition and the effectiveness of mitigative measures instituted to protect it. In other words, no archeological testing was conducted, no artifacts were collected, and no additional archeological data were amassed. Forced to rely on previously acquired information (Neuman and Servello 1976), because of its protected status, the site failed to qualify as important. Published data and survey-derived information on 16SM45 simply come up short in a relative comparison with other sites investigated during the survey.

Perhaps sufficient, unpublished data are contained in the Louisiana State University holdings to change this rating. Perhaps, enough archeological information remains "in-the-ground" to allow a positive evaluation of significance. Had the present survey employed normal investigative procedures at the site, it is possible that the data corpus would have been augmented to the level necessary [illegible]

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ARCHEOLOGY AND ETHNOLOGY ON THE EDGES OF THE ATCHAFALAYA BASIN,--ETC(U)
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the site was important. It is also possible that some particular aspect of 16SM45 is so revealing to a particular problem-orientated domain that importance is assured. However, based on the presently available information and ignorance of possible future data potential and of implicit site relevance to enhancing knowledge of prehistory, the only recommendation that can be advanced under the present significance-evaluating scheme is that 16SM45 is not important.

JUSTIFICATIONS

For those cultural resources deemed to be potentially significant under the evaluatory plan used herein, there remains the final need to justify those recommendations. Such justifications may be best tendered by setting forth contexts in which the sites have research potential. This should also aid in establishing arguments for the Register criterion pertaining to ". . . information important in prehistory or history".

Sites Not Recommended as Potentially Significant

To reiterate, sites 16PC34, 16PC35, Y16IBF, Y16IBE, 16SM6?, 16SM48, 16SMY51, 16SMY53, 16SMY54, 16SMY39, 16SMY108, 16SMY106, 16SMY164, 16SMY165, 16SMY163, 16SM11, 16SL64, 16SL63, 16SL62, 16SL61, and 16SL60 have not been evaluated as potentially significant and thus, in this investigator's opinion, warrant no further management consideration. The primary reasons for this conclusion are the lack of primary in situ contexts and the overall low incidence of artifacts and other relevant residues. While there are things to be learned from such destroyed and damaged sites (e.g., the effects of various destructive processes on material cultural composition and patterns, to mention just one obvious field), the preservation or conservation of the physical spots where such altered deposits now rest does not seem to be warranted. Laboratory experiments or controlled monitoring of

destroyed sites which are experiencing further contemporary modifications would seem to be a more appropriate way of gaining such knowledge.

Sites Recommended as Potentially Significant

Bayou Sorrel Mounds (16IV4)

Bayou Sorrel would appear to have, in the form of surviving material culture, structures, and primary contexts, considerable importance to many research domains in Atchafalaya prehistory. Stratigraphy should help in clarifying the succession of archeological units and hopefully aid in clearer identification of such units; i.e., cultures, phases, ceramic complexes, etc. The mounds should yield a corpus of data on prehistoric construction, methods, architecture, and cultural-economic-social relationships. The mortuary program may show us the archeological correlates of Chitimachan reburial mortuary. Bioarcheology of skeletal components could reveal various demographic characteristics, as well as prehistoric health conditions. Bayou Sorrel seems to have a great potential for geoarcheological understanding, particularly involving siting characteristics and localized occupational history vis-a-vis an accreting natural levee. Radiometric dating of many kinds seems to be feasible, judging by the occurrence of varied, suitable materials. In fact, the importance of Bayou Sorrel Mounds is only as limited as are our present perceptions of its relevance. Bayou Sorrel surely ranks as one of the most important archeological sites in the Atchafalaya Basin.

Lost Hill (16SM51)

The research potential of Lost Hill is argued to lie in intellectual domains which have yet to be fully appreciated by contemporary archeology. Archeology in the Atchafalaya Basin is at a grass roots stage. The essential building blocks of archeological classification, including chronology, have not been independently established for the

Basin. It is doubtful that Lost Hill, even if completely excavated, would yield data of cultural historical interest. Therefore formulating specific research domains for Lost Hill, when ignorance even of simple, traditional things is so complete, is beyond present competance. Its ultimate value will no doubt lie in helping to elucidate cultural and natural processes and their interrelationships.

Nutgrass (16SM45)

Nutgrass has previously been determined eligible for the National Register, and no further justifications are warranted.

Brick (16SMY130) and Bayou Shaffer Water Locks (16SMY52)

These two sites are discussed together, not because they are considered parts of the same site, but because justification for recommendations of significance centers on their historical connection with the Pharr family and the Avoca Island land reclamation project of the early 1900s.

The reclamation project was actually begun in 1894 by Captain John N. Pharr, who in that year, installed the first pumping station on Avoca Island. Pharr's vision centered around his 5000 acre agricultural plantation. He would drain the surrounding swamps, develop the reclaimed land, and open it to settlement and various agricultural enterprises. This work was continued by the Pharr family into the twentieth century.

The standing mansion at the Brick site is the Pharr residential cottage, which today serves as headquarters for the exclusive Avoca Island Duck Club. Bayou Shaffer Water Locks is actually pumping station number 1, erected by Pharr sometime between 1910 and 1914.

The activities here around the turn of the century are among the region's most colorful and interesting. Though the pretentious venture was a failure--destroyed by the great 1927 flood--neither its novelty nor daring have been historically diminished. On the contrary, its failure is a testimony to human achivement in the Louisiana swamps and an even more vivid reminder that nature will ultimately have her way.

The Bayou Shaffer Water Locks site has been determined eligible for the National Register, and a determination of no effect has been secured. The importance of the Brick site lies in the same historical context as the pumping plant and, in this investigator's opinion, would merit a similar finding, if a determination of eligibility was to be necessary.

Mocassin (16SMY104)

The importance of the Mocassin site stems, in this investigator's opinion, from its well preserved context which features at least two sequent occupation episodes separated by natural depositional hiatuses. Not only does it appear to have information relevant to the nature of prehistoric small group exploitation of riverine shellfish, as well as attendant activities (including possibly residence), but the superimposed nature of these two (possibly more) shellfishing camps could be informative on many historical considerations, with location per se being a constant rather than a variable.

Henry Knight (16SMY107)

Henry Knight merits importance because of its historic (not prehistoric) component. The artificial levee, sump and interconnected drainage ditches, and coal-fired pump are physical manifestations, as well as untapped sources of data, of pre-Civil War, plantation land reclamation and cane farming along Lower Bayou Teche.

Bisland (16SMY166)

Though Bisland did not merit the arbitrarily set cut-off for recommending significance, its importance is justifiable because of its prominent role in the Great Texas Overland Expedition during the Civil War; an expedition, which as well as any, epitomized the nature of Southern vis-a-vis Northern military factions. Its particular importance from a broad historical perspective lies in the general

mutual distaste of Yankees and Rebels for the local French and Acadian populace, whose seeming indifference to and lack of identity with the many liberties and economic consequences being contested led to a widespread unpopularity of the endemic citizenry. The ethnic, social, and cultural reasons for this situation furnish one of the more interesting research topics to which a rounded interpretation of Fort Bisland should address. As with most other military establishments and battle fields of the Civil War, Bisland may be justifiably identified as one of those places where integrity of "feeling" has to be a strong consideration.

Charenton Beach (16SM2)

Charenton Beach assumes importance to a number of relevant questions about Atchafalaya prehistory and ethnohistory. The stratigraphy should aid in isolating cultural units and unit diagnostics, as well as in constructing site and perhaps locality-wide occupational history. Virtually any pertinent question or issue in intrasite settlement is potentially applicable here. Lake-side adaptation and serial changes through 2000 years could be examined with Charenton Beach data.

One of the most intriguing research domains and hence justification for proclaiming the site as potentially significant resides in its probable correlation with the historic Chitimachan village of Ama'tpan na'mu. Research should be able to confirm or disconfirm this correlation. Should the correlation be upheld, then unexcelled opportunities exist for elucidating Chitimachan material culture of the seventeenth and eighteenth centuries and by extension for projecting Chitimachan occupation throughout the Basin. This latter possibility should perhaps be rested as evaluating Chitimachan tenure in the Atchafalaya Basin within the context of material cultural content and style vis-a-vis social boundary-producing mechanisms.

Bayou Perronet (16SM50)

This sealed, well preserved remnant of black earth midden, dating to the Tchefuncte culture period, could provide valuable information on many aspects of this small settlement; information ranging from purely descriptive (e.g., artifactual, ecofactual, features--houses, pits, hearths, etc., stratigraphic and geomorphic) to higher order kinds such as intracommunity arrangement, bone tool technology, activity patterning, subsistence, and levee flank-swamp edge adaptation.

The site is of vital research interest because of the contrast it seems to provide with contemporary Tchefuncte villages immediately across the Teche-Mississippi meanderbelt ridge, where rocks were an integral technological raw material.

Savage (16AV68)

The importance of the Savage site resides in several research domains. Perhaps most basic are opportunities to clarify stratigraphic relationships and define archeological diagnostics and taxonomic units. This is especially critical in separating Archaic and Tchefuncte, as well as post-Tchefuncte, lithic elements and assemblages. All of the Lower Mississippi Valley culture period and phase outlines in current use are ceramic charts. Lithic artifacts have not figured at all in their construction, although lithic type "fossils" may be used to embellish ceramic groups to make them look more like real, culturally important assemblages. Numerous archeological sites have no pottery, and others have no diagnostic pottery. For these and for general knowledge purposes, we need to develop schemes based on changes in stone artifact types and composition to augment ceramic-based ones and, in the long run, to compare with pottery groups in order to perceive the degree of "fit" and to account for similarities and differences.

The overall amount of disturbance to site integrity has not been ascertained but may have been severe enough in some sections to compromise collection of uniform data on horizontal (and vertical) distributions of materials and facilities and hence to complicate attempts to

investigate questions relating to intrasite patterning. This should be ascertained early in any research program at the site.

One rather obvious research domain surfaces when broader region-wide and culturally specific considerations are brought into perspective. The Bayou Jack section of the Teche-Mississippi meanderbelt seems to harbor one of the densest concentrations of large, seemingly long-occupied Tchefuncte sites in the Lower Mississippi Valley. The Savage site, which is presently the largest known component, could greatly aid in clarifying the cultural ecological situations which led to this population concentration and could thus provide considerable insight into settlement dynamics of the day.

Dupont-Des Glaises (16AV69)

This small Plaquemine hamlet is interesting because of its potential reservoir of information on late prehistoric material cultural assemblages, site layout, locational considerations, and geoarcheological factors; all together these data could furnish not only a body of description information, but a valuable comparative source of information on a poorly known episode in Lower Valley prehistory.

Conclusions

In each case above, justifications for potential significance have been couched in terms of individual site relevance. In other words, each site has been evaluated in view of particularized research domains and specific inquiries on which its existent (and potential) corpus of information seems to have special bearing.

There are two more general frames-of-reference which must be set out if we are to grasp a fuller and more comprehensive view of site importance in the Atchafalaya Basin.

Each of the sites considered above represents an important surviving manifestation of human adaptation to the edges of a great overflow swamp, a swamp which though changeable has provided similar stresses, constraints, and opportunities for thousands of years.

All of these sites have bearing on how humans have lived and dealt with the tension zones paralleling North America's largest river swamp.

A second major perspective centers on the sites as informative capsules of differences in human adaptation in an extensive overflow basin which stretches across two distinctive environmental zones; i.e., the inland swamp interior above the range of tidal influences and the marsh-dominated, coastal section near the Gulf of Mexico.

Collectively, the group of 12 sites recommended as potentially significant herein has recognized importance to very basic considerations about human tenure in swamp and coastal environments.

CHAPTER 11

EVALUATION OF IMPACT OF THE ATCHAFALAYA LEVEES PROJECT ON CULTURAL RESOURCES

Determining the precise impact that the Atchafalaya levee-raising project will have on specific sites is not possible at the present time. This is a fortunate state of affairs because it means that this cultural resources investigation was performed sufficiently far in advance of actual construction to allow cultural resources input into the planning process generally and the engineering designs specifically.

All of the 33 archeological sites reported herein fall within 230m on either side of the existing levee centerlines or thus within the zone slated to receive primary impact. The major impact within this zone will be caused by dirt borrowing. Preliminary construction plans call for the lateral widening of old existing borrow pits, which generally form linear canals paralleling the levees, and rarely for the excavation of new, independent pits. Since the exact limits of the proposed borrow areas have not yet been set, the primary project impact on cultural resources must be discussed in a general fashion.

Dirt is moved from paralleling borrows to construction areas by means of barge-mounted, bucket dredges with long booms. The dredge is floated downstream (along old borrow canals) removing large bites from the outside bankline. Dirt removal will extend to the outer limits of the borrow, which, in most cases, will have been established by survey instruments and flagging. Blocks of dirt "grabbed" by the clam or scoop buckets will be swung across the canal and dropped at the construction site, where the fill will be maneuvered by heavy machines in accordance with levee design specifications. In

the case of independent borrow pits, draglines excavate the dirt, place it in heavy vehicles which then transport it to the construction area where it is dumped. The fill is then spread and sculptured by bulldozers and graders.

Borrowing by either of these two means has highly disruptive effects on in- or on-the-ground cultural resources. In simple terms, site locations are annihilated, wholly or partially. While the moved dirt still contains cultural materials and other occupational elements, and when still intact (i.e., individual dredge blocks) may retain stratigraphic and feature information, the archeological value of transported materials diminishes directly and rapidly with continued exposure and with subsequent spread of the materials. The separation of blocks of site materials and lateral dispersion totally disrupts patterns among artifacts, ecofacts, and features; in other words, contexts are ruined. By changing the location and thereby the depositional environment of site materials, new processes began to effect artifact-bearing matrices. Oxidation and leaching are enhanced, causing the loss important characteristics, such as organic constituents, chemical compounds, and soil structure itself. Faunal remains are subjected to increased damage and decay from exposure to traffic and weather. All of these impacts are in addition to breakage of artifacts and destruction of features. There is an attendant problem with exposed artifacts, particularly aboriginal potsherds. Fluctuating water levels and extreme weather conditions often result in the sluffing of surface clay layers which removes many attributes crucial to archeological description and classification.

These disruptive circumstances due to borrowing are among the most serious kinds of alterations to the archeological record. They affect nearly every conceivable aspect of archeological description and interpretation. They remove essential information on locations themselves, information required to understand relative site locations and other details of settlement and land use. They disrupt and confuse efforts to make sense of internal site structure and organization, not to mention layout and paleogeographic considerations. They hamper interpretations based strictly on artifacts, ecofacts, or other residual elements by damaging or destroying the elements themselves

and by altering fragile patterns of interrelationships. In a conclusive sense, borrowing changes locations of cultural materials and converts artifacts into relics with little or no archeological value.

In addition to these direct impacts, any cultural deposits which might remain at the original location will be subjected to intensified erosion. In the independent borrows, erosion will be caused by water fluctuations in the pit itself. Erosion here will take the form of run-off, sheet or gully scarification around the borrow edges. Along the lateral borrows, stream bank erosion will be more severe. The widening of existing canals increases stream cross-sections, hence permitting greater water volumes and heightened velocities. Residual cultural deposits will be leached, particle-sorted, reworked, and then moved downstream. Boat traffic in the levee flank canals greatly accelerates this process.

In conclusion, the Atchafalaya levees project could result in the total destruction of archeological site locations within the rights-of-way. To promote reasonable plans for conservation management, mitigation recommendations are presented in Chapter 12.

CHAPTER 12

RECOMMENDATIONS FOR THE CONSERVATION OF ATCHAFALAYA CULTURAL RESOURCES

INTRODUCTION

Recommendations for the conservation of cultural resources along the Atchafalaya Levees are based on the evaluations of significance presented in Chapter 10. All locations recommended as significant (hence suitable for nomination to the National Register of Historic Places), shall be considered for mitigative action. With two exceptions, sites not considered to be important will not be recommended for avoidance, relocation, protection, or excavation. These recommendations are underpinned by the presumption that the Atchafalaya levee-raising project will adversely impact all of the cultural resources within the rights-of-way, and that the impacts will be of the disruptive-destructive kinds discussed in Chapter 11. Since borrow pit limits had not been precisely set throughout many stretches of the survey corridor, the Corps of Engineers may be able to integrate these management recommendations into final design planning so as to insure no adverse effects. Alternatively, the agency may pursue the option of seeking determinations of no adverse effect through other statutory and regulatory channels (cf. King, Hickman and Berg 1977:286-288), but at least it will have a sound background from which to work.

In the year and a half intervening since this chapter was written, some construction plans have been finalized and the Corps has instituted an aggressive compliance effort. A summary of the present status (December 1981) of sites recommended for management consideration is provided in the last section of this chapter.

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COURSES OF MITIGATIVE ACTION

Sites Recommended for No Mitigative Action

The following sites are not recommended for mitigation--preservation or excavation: 16PC34, 16PC35, Y161BF, Y161BE, 16SM6?, 16SM48, 16SMY51, 16SMY53, 16SMY54, 16SMY39, 16SMY108, 16SMY106, 16SMY164, 16SMY165, 16SMY163, 16SM11, 16SL64, 16SL63, 16SL62, 16SL61, and 16SL60. In this investigator's opinion, the value of these sites is insufficient to warrant mitigation recommendations, although consideration might be given to avoiding these sites if possible. The possibility of avoidance is mentioned, not because of some firm notion about the site's ability to contribute to understanding of prehistory or history under present levels of comprehension, but because of the chance that it might contribute futuristically or that it might satiate that subjectivity-laden quality of "feeling" (36CFR800.10a). Feeling, in this context, means that sense of appreciation, empathy, or humanistic identity, shown by some individuals when encountering places or objects that were part of the past.

Sites Recommended for Mitigation

Bayou Sorrel Mounds (16IV4)

In several ways this is perhaps the most important site in the project corridor. This judgment is not predetermined by the presence of mounds or any other intrinsic feature of the site but by the information the site holds for the succession of cultures and its apparent relationship to the Maringouin course of the Mississippi River. From a normative perspective, this might be one of the key sites in the entire Atchafalaya Basin in terms of unraveling historical succession and identifying regional problems. Diachronically, its environmental setting is unique and offers unparalleled opportunities to study human adaptation. Because of its promise, the recommended mitigation plan incorporates both further archeological investigation as well as avoidance and protection. It is the opinion of this investigator that the kinds and quantities of information to be retrieved from Bayou

Sorrel can but enhance perceptions of regional site significance and provide valuable input into cultural resource management programs for the entire Atchafalaya Basin.

1. Investigative Phase of Mitigation. The site should be subjected to extensive testing by means of excavation units and trenches; the former to disclose culturally significant intrasite areas and the latter to provide stratigraphic and geomorphic relationships and reconstructions.

A second phase of excavation should concentrate on the opening of large conjoined blocks in an effort to isolate and identify activity areas, areas of social distinction, and other relevant on-site features and patterns. Included in this phase should be an effort to relate mound construction to cultural occupation and to specify its nature.

2. Avoidance-Protection Phase of Mitigation. This phase of mitigation should commence immediately. A plan for avoidance-protection should be formulated by contracting agency and archeologists. This plan should incorporate design changes in borrow areas; it should include plans to avoid further encroachment of the protection levee over the cemetery mound; it should exhibit plans to stabilize and reinforce the old borrow canal bank line; and it should also include the processing of National Register nomination forms.

3. Interpretation and Presentation. The site is conducive to interpretive presentation to the taxpaying public. On-the-site exhibits, demonstrations, and other displays could be profitably established under a concept of an indoor-outdoor working facility. Public access from I-10 and from the Plaquemine-Baton Rouge-Morgan City areas is relatively facile. Brochures, popular booklets, and scientific reports could be prepared and made available to the public. This area should be considered as a key area in the overall Basin environmental management plan.

Lost Hill (16SM51)

Two alternative mitigation procedures are recommended for Lost Hill.

1. Complete Avoidance. At its nearest point (judged from surface scatter of shells), Lost Hill lies 25m from the present bank of the Port Allen-Morgan City Canal. If a segment of bankline, say 200-300m in length, was eliminated from the proposed borrow area and no dredging was permitted, there would probably be no immediate adverse impact on this location as a direct consequence of this project.

2. Mitigation by Excavation. The limited testing, done during the present survey, has not been sufficient to determine the cultural nature of this site. It has been sufficient, however, to point out some of the questions relevant to understanding its nature. Thus, a multi-phase excavation program, beginning with a systematized test unit and trenching phase and perhaps concluding with the opening of large contiguous blocks, could be implemented as a mitigation measure. Feed-back into the management program could cause the excavations to be stopped at the end of any of the phases and procedural decisions for continued action or inaction reformulated.

In my opinion, the former recommended action (complete avoidance) is preferable. The site lies near the outside border of the proposed borrow area and its avoidance would not cause a great deal of inconvenience, expense, or further management attention. Lost Hill might best serve the desire for enhancing knowledge of this area, when our understanding of local and regional problems becomes greater and when the technical, methodological, and theoretical bases of archeology are sharpened beyond those generally realized in Louisiana today.

Nutgrass (16SM45)

This site is on the National Register of Historic Places. To forestall the bankline erosion of the apparently small fringe of remaining midden, the Corps of Engineers rip-rapped the bayou bank. The effect of this previous management action has not been entirely successful. Previous dredging here had already removed some site areas. After site discovery in 1974, no further dredging was done along the site area proper but was continued above and below the site. This resulted in the remaining portion of 16SM45 being left as a peninsula in the Port Allen-Morgan City Intracoastal Canal. Immediately north

of the site area, a drain connects an old borrow pit (canal) to the present Intracoastal. Water flow into and out of this drain (depending on water levels) and the flow in the Intracoastal Canal itself, with the increased turbulance due to heavy barge and tug traffic has had the effect of creating a large backwash, or eddy, on the northern site perimeter. This eddy has two observable effects, both detrimental to the remaining site area. Erosion of the northern perimeter of the peninsula has been increased and threatens to eventually isolate the peninsula by creating a high water channel segment through the backswamp which flanks the western edge of the site. The other adverse effect has been in the increased sedimentation over the site area. Mud has built up over the site to the point where shell residue exposed on the surface in 1974 now lies beneath 10-60cm of fresh accumulation. The increased weight of this superincumbent mud will cause drastic local subsidence, eventually dropping the entire midden zones below water level. Turbulence in the Canal will no doubt heighten capillary flow in the ground water table which will rework and sort the midden and probably leach out the remaining noncalcareous organics. This process is presently ongoing and though its long range effects have not been studied or monitored previously, its effects will no doubt be permanently injurious to the present cultural information content of 16SM45.

Two possible courses of mitigative action can be recommended.

1. Protection. No further dredging should take place along the bank lines north or south of 16SM45 for distances necessary to deflect water flow into the Canal thalweg. Dredging along the Canal main channel might perhaps be beneficial in order to create a deeper cross-section which would confine the flow and direct it away from the bank line. The drain between old borrow areas and the Intracoastal could be closed with an earthen dam with a built-in water regulation system. The site area-bank line interface might be sealed by driving sheet piling and constructing a ring levee around the site. Water regulation systems could be built into the protection levee system. The entire levee should be faced with matting or rip-rap.

2. Excavation. The site should be excavated under a maximal state-of-the-art research design and strategy program developed via solicited input from all affected federal agencies and archeologists.

Brick (16SMY130)

This multiple component site, previously reported and recommended as significant (Gibson 1978a:168-169, 277), is recommended for mitigation by avoidance. Prehistoric and historic artifacts, found along the eroded bankline of Bayou Shaffer, lack context and thus the bankline exposure is not subject to this avoidance recommendation. That intact portion of the site, lying posterior to the existing levee which supports the well-maintained, two-story house and manicured grounds, is the area recommended for avoidance.

It is recommended that no dredging or borrowing be done behind (east of) the present levee for a distance of at least 400m downstream along Bayou Shaffer from its junction with Bayou Boeuf. Since another archeological site (16SMY50), determined to be significant (Gibson 1978a:157, 159, 227), lies on the bank of Bayou Shaffer opposite 16SMY130, fill should not be taken from that side of the stream either. Dredging in the stream itself to acquire levee fill should not, however, adversely impact the in situ portion of 16SMY130, and if borrowing must be done along this 400m stretch, it should be confined to the stream bottom.

Bayou Shaffer Water Locks (16SMY52)

This old (ca., early 1900s) pumping station is still largely intact and since it is one of two still-standing structures associated with early abortive attempts to cultivate in the area now covered by Avoca Island Lake, it has historical importance.

It is recommended that no borrowing be conducted along the bankline of Bayou Shaffer for a distance of at least 100m above and below the pump building. It is also recommended that borrow areas outside these limits be carefully planned so as to eliminate the possibility of hastening bankline erosion by changing stream flow and channel characteristics. Should such avoidance recommendations compromise the acquisition of levee fill, consideration should be given to constructing protective dikes, sheeting, wing dams, or other forms of water diversionary structures around the building.

Mocassin (16SMY104)

This valuable site is recommended for mitigation. Two alternative approaches are suggested.

1. Mitigation by Avoidance. The site could be effectively mitigated by simply eliminating the zone of cultural import from construction (borrow pit) impact. Although the site lies in the survey corridor, it is near the outer limits of the corridor, some 400m from the crest of the existing protection levee. Since borrowing, if scheduled for this stretch of the alinement, would apparently transpire between the site area and the levee and not along Riverside Pass (on which 16SMY104 is located), there should be no problem relating to secondary erosional impacts from stream flow alteration.

2. Mitigation by Excavation. Mocassin (16SMY104) could reveal numerous data relevant to a wide range of issues and problems in Lower Atchafalaya prehistory e.g., chronology, subsistence, internal site arrangement, and site growth and development, etc. Excavation would certainly enhance our understanding of regional prehistory and should be considered as an equally desirable alternative to avoidance.

Henry Knight (16SMY107)

No further mitigation recommendations are necessary for this important historic site. Because a construction contract for this section of levee was let by the Corps of Engineers during the life of the fieldwork, a mitigation plan was developed and has already been implemented.

Because of imminent construction, it was mutually decided by contractor and contracting agency (telephone conversation, 15 January 1980, Thomas R. Ryan to Jon L. Gibson) that the best approach to mitigation (the site had not, at that time, been evaluated for significance) would be to completely avoid the location. In hindsight, this decision proved to be the right one, as site significance has now been recommended.

On 18 January 1980, the Atchafalaya survey field crew met with Randy Ridgeway, of the Corps District office in Lafayette, and Leroy

Matherne, Corps Inspector, at the site. The site area was flagged, and distances from the limits of construction zones (clearly marked by white stakes) were ascertained. It was determined that the culturally significant area lies outside the construction zone and would not be adversely impacted by levee-raising activities. Thus, in this investigator's opinion, the Henry Knight site has been properly mitigated by avoidance.

Bisland

As previously indicated (Chapter 11), this site failed to qualify as important, under the scheme used to recommend significance herein, not because of inherent data failings but because this survey failed to ascertain whether the requisite data were present or not. In view of the fact that the incidents played out here in the fall of 1863 were of considerable importance to Union successes in the Trans-Mississippi Theater and involved several Confederate and Union personalities of note (cf. Chapter 5), it is recommended that the location be protected.

The nature and kind of management action necessary to adequately protect Fort Bisland cannot be specified on the basis of in-hand information. Additional investigations are necessary to provide detailed conservation recommendations. All that can be said at the moment is that no borrowing should transpire within the limits of the fortifications themselves or within the battlefield proper at the present time. Even if additional investigations were to be supported and findings revealed that land-ravaging over the last century has effectively removed all physical remnants of the activities of historical import, there is still the consideration of "feeling" for the location that would create difficulties in "writing the site off." In other words, the spot itself, regardless of physical, on- or in-the-ground evidences, is, and will always remain, the location that witnessed events that led directly to the conclusion of the Civil War.

This, of course, is not to say that the levee flanking this area cannot be raised to specified design heights. This investigator sees no difficulty, from a cultural resources perspective, that would prevent the levee work, as long as the fill dirt does not come from within the area of Fort Bisland itself.

There is an additional consideration. Fort Bisland seems to offer unique potential for an interpretative-commemorative site. It could present through restorations, displays, reenactments, etc., a window on the Atchafalaya Basin during its ante-bellum - Civil War past. Access to the area is easy, because of its location off U.S. Highway 90. It is located in a region of high population density, and its service area could be quite large. This investigator recommends that considered thought be given to setting aside Fort Bisland as an interpretative-commemorative site.

Charenton Beach (16SMY2)

Mitigation recommendations for Charenton Beach center on two alternative approaches--avoidance and excavation. In addition, the prospects of commemorative-historical area set-aside are examined.

1. Mitigation by Avoidance. Adverse impacts of the present levee-raising project on this important site could be alleviated by avoidance. No dirt borrowing should transpire within its confines.

Since the site actually lies on the floodway side of the West Atchafalaya Basin Protection Levee and the existing borrow pit canal lies on the opposite side of the levee, it seems quite simple to restrict fill excavation to the old borrow areas which lie off-site. Direct impact would thus be avoided.

2. Mitigation by Excavation. If it is not possible to avoid adverse impacts, then the site should be excavated under a maximum state-of-the-art research program, designed to investigate several paramount issues, such as chronological placement, lake beach adaptation, internal site organization (i.e., functional and socially distinctive precincts), and ethnohistorical identification, among others.

3. Preservation, Restoration, and Interpretation. As previously indicated for Bayou Sorrel Mounds and Fort Bisland, Charenton Beach has good potential for development into an historical-commemorative site. The likelihood that Charenton Beach corresponds to the early historic, Chitimachan village of Ama'tpan na'mu makes it an excellent choice as a site for presentation of Chitimachan, and other

aboriginal, history, traditional culture, and world views. A combined indoor-outdoor interpretative facility with exhibits and perhaps working demonstrations and a reconstructed Indian village could be designed for the location. The Atchafalaya Basin, indeed the State of Louisiana, has no commemorative areas devoted to its living native inhabitants. The potential of Charenton Beach in this regard looms large.

Bayou Perronet (16SM50)

It is the opinion of this investigator that management objectives could be best achieved by completely excavating this locality. The site is being currently lost to wave wash from the heavy boat-float plane traffic in Bayou Perronet. If the site were recommended for strict avoidance, a buffer would have to be left on both ends (upstream-downstream) of the site in order to delay its eventual loss. Even if buffer zones, say on the order of 100 - 200m were left, dirt borrowing from anywhere along this projected borrow area which modified the present water flow character and structure of confining channel would hasten the ultimate loss of this site.

The small extent of the remaining site area could be totally excavated without compromising project completion schedules and without a cost-prohibitive outlay of funds. Complete excavation would be less costly than transportation of levee fill from other locations, providing upstream and downstream buffer zones, and facing the bayou bank with sheet piling or rip-rap to delay the eventual loss of the site (which would be directly accelerated by borrowing anywhere along the bank).

Savage (16AV68)

This large, important prehistoric and historic site requires recommendations for mitigation. The site was previously damaged during original construction of the West Atchafalaya Basin Protection Levee and the excavation of the Bayou Des Glaises Diversion Channel. The levee and canal-borrow pit cut across the eastern end of the site. Remnants of in situ deposits occur on both sides of the present levee corridor, and any borrowing and levee construction in this location

will produce further damage. Two alternate courses of mitigation are proposed, although the recommendations are not mutually exclusive; in fact, a combination of the two approaches is probably the best way to insure proper conservation of the site.

1. Mitigation by Avoidance. No new borrows should be opened along the corridor crossing the site area. This recommended prohibition does not apply, however, to the dredged fill from the bottom of the Diversion Channel along this stretch, providing that the construction contractor is fully appraised of and follows the restricted borrowing recommendation. The "off-limits" area should be precisely identified and delimited by a system which serves to control borrowing and other construction activities without unduly drawing attention of relic-collectors and pot-hunters. In other words, mitigation by avoidance would have to be underpinned by additional site delimitation activities. Complementing site delimitation should be consultation with design engineers-architects for the purpose of insuring that structural-hydrological modifications of the Diversion Channel borrow pit, along and above the site area, will not adversely impact the site by altering water flow characteristics.

2. Mitigation by Excavation. An alternative mitigation proposal emphasizes excavation within the proposed terrestrial borrow areas. The Savage site seems to offer unparalleled opportunities to contribute to a heightened understanding of Archaic, Tchefuncte, and Plaquemine cultural periods in this part of Louisiana. Not only do research issues and problems abound, but cultural resource management aims for the Atchafalaya Basin could be considerably enhanced by excavation. For example, the useful data acquired from Savage could aid in formulating site significance models, based on specific research problems, and issues, certain to be realized through excavation. At present, only highly general questions can be asked because of data limitations, and significance has been evaluated on site contents and contexts, irrespective of research issues.

As a matter of note, the site is unlikely to survive in even a partially intact state for any great length of time. Even if the site is totally avoided by proposed project construction, it will simply be a matter of time before land-leveling and soybean farming

disrupt the remaining, in situ portions of the site. Although farming is certainly not a Corps project nor does the Corps have any control over it, it is one of those secondary impacts which are directly attendant upon Corps actions. The flood protection afforded and siltation caused by the original floodway construction opened the upper Atchafalaya Basin to farming. The loss of cultural resources has been one of the consequences.

The Corps cannot be held legally or ethically accountable for the turn of historical events at Savage, because it was not statutably bound to mitigate adverse environmental (cultural) resources impacts during the 1930s. Even presently, agency responsibilities to cultural environmental resources do not extend to the private sector. Yet one of the direct results of Corps actions is, and will continue to be, disturbances of cultural resources on private lands juxtapositioned along flood control systems. When flooding is eliminated from private land by Corps-constructed devices, changes in land use are bound to occur, and unless the individual land developer choses to set aside archeological sites, they will be lost.

How to reduce this loss without impingement on the rights of private ownership is a major legal problem facing the land-owner, archeologist, and agency. As long as this problem continues to be ignored or debated without plans for remediation, cultural resources will be lost in multiplied numbers.

Dupont-Des Glaises (16AV69)

Two alternative plans for mitigation are recommended for this site. The logic and reasoning behind these recommendations are essentially the same as that voiced elsewhere in this chapter.

1. Mitigation by Avoidance. Final project design planning should eliminate the 50m or so linear stretch of site area that falls along the bank of the Bayou Des Glaises Diversion Channel from projected borrow areas. Additionally, a buffer zone, sufficient to retard any land loss in the site area, should be left above the site. The avoidance recommendation extends to all types of potential construction-related uses, e.g., staging area, equipment storage, ingress-egress into project area, land-clearing, etc.

2. Mitigation by Excavation. Intensive archeological excavations along the limited section of site that falls within the levee corridor should be considered as an equally appropriate means of mitigation, in light of the probable loss of the site to farming.

PRESENT STATUS OF CULTURAL RESOURCES RECOMMENDED FOR MITIGATION

During the months past since these recommendations were submitted in draft form, final Corps construction plans and building priorities have begun to emerge. Staff of the cultural resources section have coordinated closely with the construction branch and have developed a working strategy for complying with legislated cultural resources mandates and the mitigation recommendations proposed in this chapter. A brief summary of the management status of the 12 potentially significant sites is presented below. This information has been provided by Michael Stout, U. S. Army Corps of Engineers, New Orleans District (personal communication, December 1981).

Bayou Sorrel Mounds (16IV4)

This site is located in the right-of-way of Corps construction Item E-54. Determination of eligibility for inclusion on the National Register of Historic Places and 36CFR800 compliance procedures will be implemented shortly.

Lost Hill (16SM51)

This site is located along construction Item E-74. Precise construction limits in this work area have not yet been set. If the site falls in the right-of-way, determination of eligibility and 36CFR800 procedures will be necessary.

Nutgrass (16SM45)

This site has already been determined eligible for nomination to the National Register. It lies along construction Item E-74, and should it fall within the impact zone of this item when limits are finalized, 36CFR800 compliance procedures will be followed.

Brick (16SMY130)

This site is located along construction Item Avoca Island station 0+ to 93+00. Precise construction limits have not been established. If the site should lie within the right-of-way, determination of eligibility and 36CFR800 procedures will be necessary. More comprehensive information on the Pharr family, the original builders and tenants of the standing house at the site, and on the extensive, but ill-fated Avoca Island land reclamation project, which is the dominating historical story with which the site is involved, has been provided in the eligibility documentation for the Avoca Island Pumping Plant No. 1.

Avoca Island Pumping Plant No. 1 (16SMY52)

This still standing pumping station is located within the right-of-way of construction Item Avoca Island station 93+00 to 370+00. This site has been determined eligible for nomination to the National Register. Avoidance plans were formulated. Determination of no effect was coordinated with the SHPO, thus completing 36CFR800 requirements.

Mocassin (16SMY104)

Mocassin lies along Item W-121, which is presently (December 1981) under construction. It was determined that the site lay outside the planned borrow pits and would consequently not be impacted by present levee improvements.

Henry Knight (16SMY107)

As indicated previously, the Henry Knight site was found to lie beyond the construction limits in Item W-117 and thus would not be subject to adverse impact.

Bisland (16SMY166)

Fort Bisland is located along Items W-112 and Wax Lake Outlet East. No precise construction limits have yet been set. If the area cannot be avoided, additional cultural resources investigations and possibly mitigation will be necessary.

Charenton Beach (16SMY2)

This site is located along Item W-91. No exact construction limits have been established. If the site falls within the right-of-way, determination of eligibility and 36CFR800 procedures will be necessary.

Bayou Perronet (16SM50)

Bayou Perronet is located along Item W-52, where precise construction limits have yet to be finalized. If the site falls within the right-of-way, determination of eligibility and 36CFR800 procedures will be necessary.

Savage (16AV68)

No levee construction is scheduled for this area. Therefore there will be no impact.

DuPont-DesGlaises (16AV69)

No levee construction is scheduled for this area. There, consequently, will be no adverse impact.

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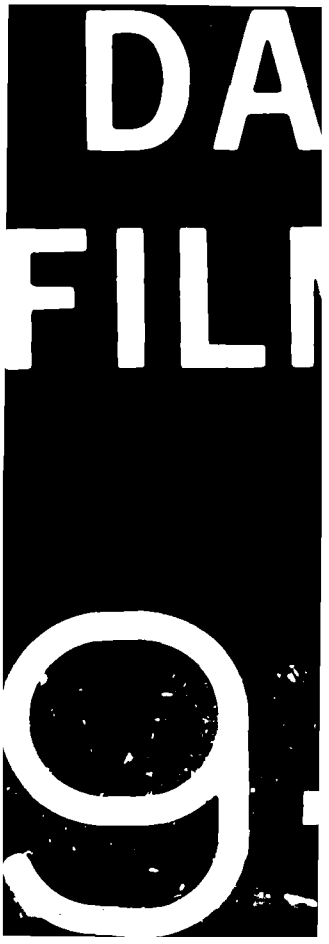
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