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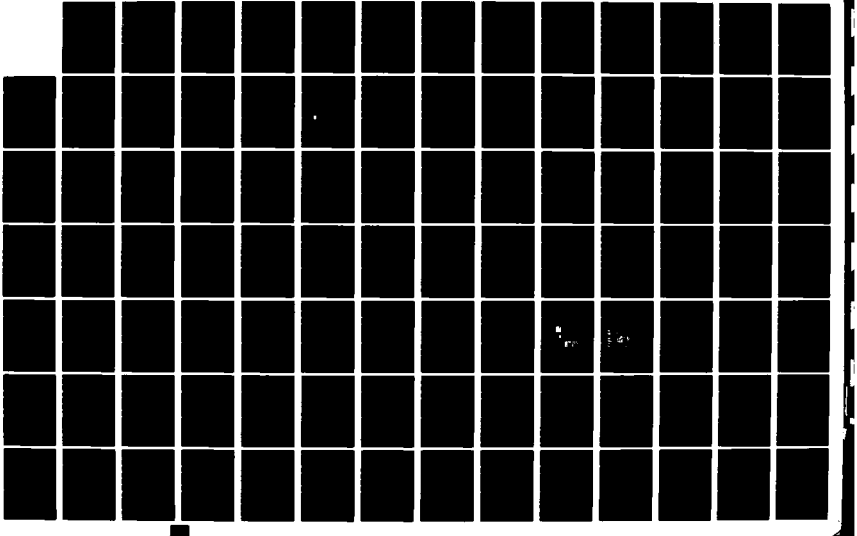

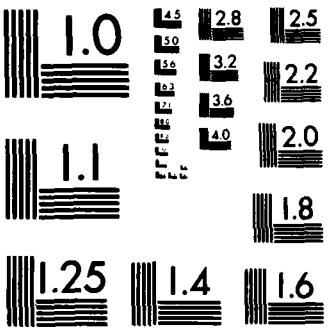

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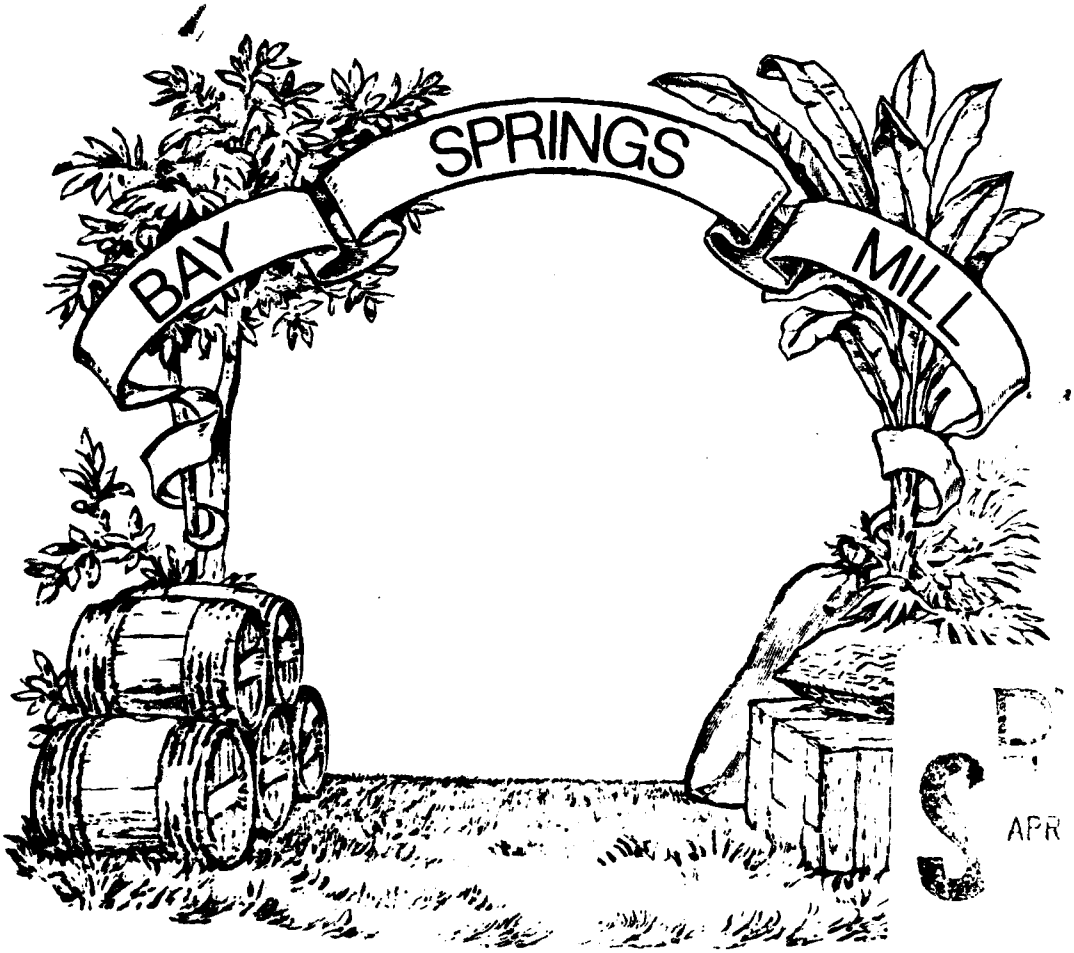

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This report details an investigation of a 19th century mill community through a combination of archaeological, historical, and oral historical research. The test excavations of selected historical sites produced domestic and industrial debris dating from the mid-19th century through the mid-20th century. To complement the archaeological excavations, historical data were collected and local informants interviewed concerning the mill. Oral data and subsequent additional survey revealed five additional sites near the mill. Excavations were conducted at the cotton mill, general store, and two domestic sites during August and September 1979, and at the five additional sites in February 1980. Materials recovered from the mill site revealed several buildings involved with the storage, processing, and spinning of cotton and wool. No cloth was produced. On the domestic sites no structures were found, although nails and window glass indicated their nearby presence. By combining the archaeological research with the historical and oral historical work done for the village and surrounding area, a much better data base has resulted. The combined research produced a record of the fluctuating use patterns of the land by local residents through time. In addition, a general overview of early 20th century northeast Mississippi lifeways has been generated.

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BAY SPRINGS MILL: HISTORICAL ARCHAEOLOGY OF A RURAL MISSISSIPPI COTTON MILLING COMMUNITY

by

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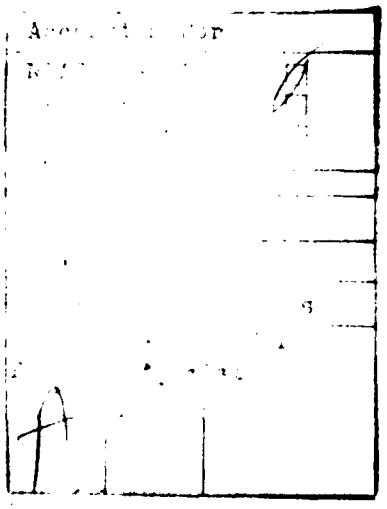

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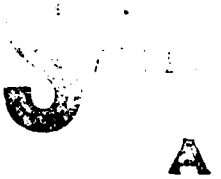

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Principal Investigator

ABSTRACT

This report details an investigation of a 19th century mill community through a combination of archaeological, historical, and oral historical research. The initial archaeological survey of the mill vicinity recorded eight historical sites. The test excavations of selected historical sites produced domestic and industrial debris dating from the mid-19th century through the mid-20th century. To complement the archaeological testing, historical data were collected and local informants interviewed concerning the mill. Oral data and subsequent additional survey revealed five additional sites near the mill. Excavations were conducted at the cotton mill, general store, and two domestic sites during August and September 1979, and at the five additional sites in February 1980. Materials recovered from the mill site revealed at least three buildings involved in the storage, processing, and spinning of wool and cotton. No cloth was produced. Although the mill was scavenged after it burned in 1885, study of artifact distribution provides clues as to the usage of different parts of the mill. On the domestic sites no structures were found, although nails and window glass indicate their nearby presence. By combining the archaeological research with the historical and the oral historical work done for the same area and the larger community, a much better data base has resulted. The combined research produced a record of the fluctuating use patterns of the land by local residents through time. In addition, a general overview of early 20th century northeast Mississippi lifeways has been generated.

BAY SPRINGS

Above the Mackeys turbulent descent,
Two ancient weatherbeaten structures stand,
A forsaken and forgotten monument
Of glorious legend and occasions grand.
Here once resounded loud the Rebel Yell;
Here soared the politicians' fervent spoils;
Here preachers roared of Heaven and of Hell.
Today, a concrete ribbon slithers through
Replacing ruts and Mackeys ancient bridge,
And lover's leap, once a lovers rendezvous,
Lies hidden neath a ragged unkempt ridge.
The passerby must deem the scene uncouth
But old men view a storied scene of youth.

Herb Shook 1970

ACKNOWLEDGMENTS

The Bay Springs Mill research was conducted by a small group of people with a wide variety of skills. The archaeological field crew consisted of James E. Adams, Jack D. Elliott, Jr., Ray Frye, Jeanne Ward, and Karen Walker, under the supervision of Dale L. Martin during the testing phase. In addition to their work in the field, each of the above assisted in the writing of the various sections of this draft report. The research was a result of team effort by all. David F. Barton, director of the oral historical research, scoured the countryside for likely informants versed in the old time ways of northeast Mississippi. Albert F. Bartovics provided the necessary expertise for the industrial component during a short stay in the field at Bay Springs and to our Bloomington lab after fieldwork completion.

During the Phase III Mitigation of the sites, William H. Adams was the Principal Investigator and Project Director, Timothy B. Riordan the Assistant Project Director, and Steven D. Smith the Field Director. Roselle Henn and Jed Levin were the site supervisors. Fieldworkers included Jeanne Ward, Karen Jo Walker, Jim Dryer, George Myers, Rich Pace, Margaret Rothman, Pam Rutan, Mark Martin, Mary Fitzherbert, Marcia Montgomery, assisted briefly by Jo Anderson, Marcia Northcutt, Diane Riordan, Carol Aubrey, Larry McManus, and Frieda Griffith. They weathered two hurricanes and nearby dam construction in their job. The additional testing of five sites in February 1980 was directed by Steven D. Smith with a crew consisting of Jeff Myers, Rick van den Hueval, and Karen Jo Walker.

The historical research was conducted by several persons during the course of the project. The initial study was made by Dale L. Martin. In the fall, Howard Adkins and Jack D. Elliott Jr. collected additional data. Mr. Elliott was unable to write the history of Bay Springs, so his work was assumed by Stephen Poyser and finished by David Barton and others. Carey Oakley, a Mason and archaeologist, came to Belmont and reviewed the original Masonic records for Bay Springs. The oral historical fieldwork and writing was performed by David Barton assisted by Stephen Poyser. A hearty appreciation is extended to the numerous informants in Tishomingo County who shared their stories and their crowder-peas with the Bay Springs Mill research team. Their hospitality was remarkable.

The laboratory was directed by Jane Bouchard. The cataloging and labeling of artifacts were done by Margaret Rothman and Karen Jo Walker, assisted by a host of eager hands. Soil analysis was conducted in our laboratory by Carol Oberholtzer, Linda Nichols, Jim Dryer, and Jane Bouchard. Analysis of the faunal remains was by William Richard Adams, Indiana University. John T Dorwin provided conceptual and administrative assistance. George P. Bartnik and Patricia Nagle assisted in the administration. Sally Bush-Allen typed portions of the manuscript. Each were important members of the research team.

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This report results from the work of all; to each goes our gratitude.

Preface

This work was written as a report on the investigation of a textile mill and associated domestic and commerical sites. In order to understand those archaeological sites better we also researched the history of Bay Springs by talking with old timers and by examining documents. The sites have now been destroyed or will soon lie under 30 m of water. No archaeologist is likely to return to those sites. Hence, an overriding consideration must be the presentation and preservation of much data. We have attempted to separate fact from fancy, imagination from speculation. This is not always possible, because we examine different kinds of facts and opinions.

Part I introduces the reader to our objective and methods. Of primary concern is understanding a place - Bay Springs - and its people. This attempt may be viewed as an historical ethnography. We feel that the multidisciplinary, ethnoarchaeological approach provides an excellent way of obtaining and integrating data. These data are synthesized mostly in Part II. Part III presents the archaeological data on the sites and artifacts. Because our intent is to present these in a framework of understanding the people of Bay Springs we use a functional typology. Such a construct is amenable for this, but is less useful on the specific comparative level other archaeologists will desire. Hence, artifact descriptions and etic studies are presented in Appendices. Part IV presents our conclusions and describes what we have learned about our methods and concepts after conducting this research at Bay Springs.

This, then, is the way we recorded and interpreted the story of Bay Springs.

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CHAPTER 1. THE PROJECT

> "One of the most important industries of the state is the Bay Springs Factory situated in Tishomingo County and owned by Col. John M. Nelson. It is situated about 25 miles south of Iuka and 20 miles east of Booneville. It runs about 800 spindles, makes yarn, cotton rope, etc. also a wool-carding machine, a cotton gin, a saw and grist mill, all attached and run by water power. There is, perhaps, no other water power in the state to equal it. It has sufficient head for two thousand spindles and 40 looms and is never failing. The stream is about 160 feet wide with a solid rock bottom and solid rock banks about 30 feet high. It is in a cotton section. The Bay Springs Factory is just at its beginning. The time is near at hand when it will be one of the largest manufacturing enterprises of the South. There is no citizen in the South more capable of demonstrating that she can be made a cotton manufacturing, as well as a cotton growing state than Col. Nelson."
>
> --Corinth Subsoiler and Democrat, May 13, 1881

Although Bay Springs never attained the potential glowingly ascribed in the above newspaper account, it nevertheless would have been interesting and enigmatic to the 19th century traveler. Why was a cotton mill built in rural Mississippi in 1852? The antebellum South has been characterized as agrarian, not industrial, yet here was a textile mill situated in a rural area of poor farmland with no population, little productivity by farmers, poor transportation network, and nothing to sustain it except water power aplenty. In the power lies the key to its existence.

Although the Industrial Revolution had begun at about the same time in the late 18th century North and South, the South soon lagged behind. Bay Springs represents one attempt at bringing the textile industry to the cotton producing region. This study examines the mill at Bay Springs, along with the people who operated it and lived nearby. It includes the farmers in the surrounding hills, in order to articulate the relationships between the cotton and wool producers and the manufacturers. This relationship was complicated; local farmers were probably major outlets for the factory, because the yarn made there went back to the farmers to be woven into cloth on their looms for the family's use and for resale as finished goods. In many respects the situation is analogous to the earliest stage of the Industrial Revolution, where mechanization served merely to increase the efficiency of the local cottage industries.

Project History

The research on Bay Springs is a historical community study. We have chosen the community as our touchstone, for it reminds us that nothing exists in isolation. We have portrayed the community in a historical perspective, using archaeology, archival history, and oral history to glean the necessary data on how this community developed from a pioneer settlement into an industrial hamlet, and to show what happened to that community after the mill burned.

A major goal of the project was to evaluate several archaeological

sites (within the dam impact area) known to be of historical interest. In the planning stages of the project, only one site--the Masonic Lodge--still was standing in fairly good condition. This focused attention on the area, as it stood only a few hundred feet north of the planned dam. The Corps of Engineers recorded architectural attributes of the Lodge and contracted with the University of Alabama to perform the Phase I Archaeological Survey of the proposed Bay Springs Reservoir (approximately 7,000 acres). They recorded only the Masonic Lodge, but mentioned the store and the mill (Hubbert 1977:105-106). Apparently no survey was actually conducted of this nucleus area. Our Phase II Testing efforts included a pedestrian survey of some 40 acres surrounding the mill and eventually included a total of 13 sites.

At the beginning of our project we thought the mill area was too severely impacted by a bulldozer to produce useful archaeological data. Two large trenches had been gouged through the mill buildings. The testing of that site was expected to confirm that the site was destroyed. But while we cursed the bulldozer vandal, we began to appreciate how much of the site remained and how clearly the 1885 burn line stood out in those bulldozer profiles. Historical research by this time had begun to reveal just how unique this mill was in not just the region's history but also American history. This mill was tiny compared to anything in New England. By making only yarn and not cloth, it was analogous to New England mills of the 1790s, yet this mill operated until 1885. Here was the opportunity to study a cotton mill analogous to the early stage of industrialization in the cotton industry, yet possessing a mid-19th century technology. Such opportunity presents itself rarely. In addition, a community had been centered upon that mill; a community small enough that we could sample a number of its occupants, and focus upon the mill workers as well as the mill. What started as a study of the Masonic Lodge had grown to include its builders and the surrounding community.

Initially, eight sites were recorded in the impoundment area as being potentially significant. These sites were tested in April and May 1979 and a report submitted (Adams et al. 1979). Four sites were selected for extensive excavations during August and September of that year; five sites were additionally tested in February 1980. This report examines each of the sites investigated, and focuses primarily upon the ones more extensively excavated. These discussions present the archaeological data from the perspectives of ethnoarchaeology and historical archaeology.

Bay Springs Place Names

Bay Springs had many names. The mill and its general vicinity has been known as Gresham's Mill, Bay Springs Union Factory, and Bay Springs Mill. Those are essentially the same, although their usage and specific meaning has varied through time. We use the terms Bay Springs Mill community or just Bay Springs community to refer to the mill neighborhood plus the surrounding farming community, all within the Bay Springs Locality. The Bay Springs Locality is the larger research universe approximating the social entity of the community. For some purposes we draw upon even larger areas, like the census district, county, and state, in order to place Bay Springs in broader perspective. The term, project area, refers to the specific 40 acre tract where the mill and the other sites were excavated; that tract essentially corresponds to the mill neighborhood.

Ethnoarchaeology of Bay Springs

The combined use of history, oral history, and archaeology has been termed ethnoarchaeology. Ethnoarchaeology is a means of not only supplementing missing data from one discipline with that derived from another, it is a means whereby the same data can be viewed from several different vantage points, in order to see the whole more clearly. The early years of the community were best studied via the archaeology and written documents, while the more recent years were best approached through the oral history. Many methods developed for the Bay Springs study were used in similar studies of Silcott, Washington and Waverly Plantation, Mississippi (Adams 1977a, 1980). As we found there, the best data base was obtained by applying the different approaches simultaneously, through a team approach.

Our team consisted of anthropologists, cultural geographers, historians, and folklorists. The historians and oral historians regularly met with the archaeologists to communicate ideas. Information derived from one source would be checked in another; this provided data with a better internal consistency and historical accuracy. Because the subject of the community is a complex and diverse topic, its study required a team with broad training in the humanities, individuals with interests crossing disciplinary boundaries. By using a team with similar yet diverse backgrounds and with converging interests in understanding the whole of Bay Springs, the study benefited immensely.

Environmental Setting

Bay Springs Mill is located in the southwest quarter of Sec. 26, T6S, R9E in Tishomingo County, Mississippi (Figure 1.1). Set in the valley of Mackeys Creek, Bay Springs is immediately north of the site of the proposed Bay Springs Lock and Dam, the southern terminus of the Divide Section of the Tennessee-Tombigbee Waterway. Preliminary work on the lock and dam area has resulted in the creation of a spoil dump covering several acres of the site on the east side of the creek.

Tishomingo County lies in the physiographic region of Mississippi known as the Northeastern Hills, an extension of the Fall Line Hills of Georgia and Alabama. Most of the county has an elevation of between 400 and 600 ft above sea level (Orvedal and Fowlkes 1944:5); however, Bay Springs is somewhat lower in elevation since it rests in the Mackeys Creek Valley. The creek's elevation ranges approximately between 370 and 390 ft, while the ridge tops lie at about 500 ft.

The area surrounding the Mackeys Creek Valley consists of hills primarily composed of Eutaw Formation sands and clays, from the Upper Cretaceous Period. At Bay Springs the soil is called Savannah silt loam. Mackeys Creek at Bay Springs has created a gorge approximately 15 m deep. As the creek flows southward, it forms a floodplain before joining with Brown's Creek to form the East Fork of the Tombigbee River. Mackeys Creek has cut down into the massive sandstones of the upper Hartselle Formation of the Mississippian, eroding a number of rockshelters located along Ginn Branch near the general store and barracks, and along Mackeys Creek just upstream from the mill. These rockshelters were excavated in 1979-1980 by the University of Pittsburgh (Adovasio et al. 1980).

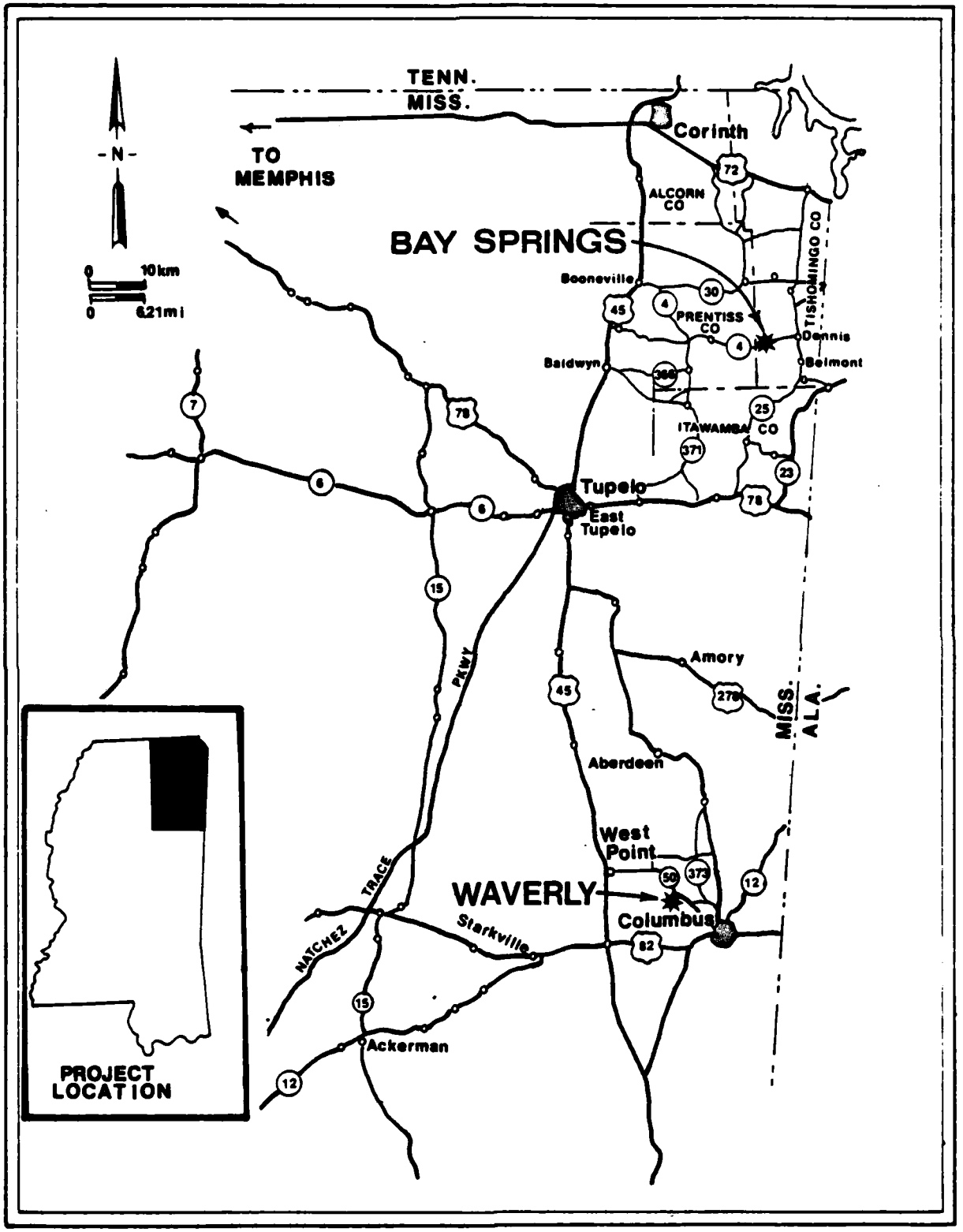

Figure 1.1.--Location of Bay Springs.

The climate of the Bay Springs area is of the humid continental type and is characterized by mild winters, hot summers, and an average annual rainfall of about 132 cm. The mean temperature ranges from 6.1-26.0 C degrees in the summer, and the average frost-free period is 214 days, giving the area a rather long growing period (Orvedal and Fowlkes 1944:10-11).

Forests with a mixture of coniferous and deciduous trees, predominately blackjack oak, post oak, and short leaf pine cover most of the Bay Springs area. Over the past decades, lumbering has been an important economic activity in the area (Orvedal and Fowlkes 1944:7, 10). Because tillable soils are present, to a certain degree, in the Mackeys Creek Valley, more land is used for agriculture or pasture there than in the hills bordering the valley, where lumbering predominates.

CHAPTER 2. RESEARCH DESIGN

In this chapter, we examine the research strategies and specific research objectives. The next chapter discusses the tactics used to meet those objectives.

The General Research Design for Historic Sites

A General Research Design for historical settlement along the Tennessee-Tombigbee Waterway was formulated by Interagency Archeological Services and the Corps of Engineers. It provides an integrative framework for dealing with historical sites within a larger socio-cultural universe instead of a single site or group of sites. Its potential success is hinged upon the conjunction of theory acquired from cultural geographers (locational analysis, central place theory) as it can be applied to the historical and archaeological data. Hence, sites are not viewed as unique entities or important because of some historic personage or rare archaeological find, but rather as part of a system: town, community, or plantation. The focus is on the culture as a whole, not upon its integral parts. "Culture is a system of functionally interdependent parts in which change in one aspect is related in specifiable ways to changes in others" (Struever 1968:133). The system is the culture of 19th and 20th century rural Mississippi. That culture was composed of smaller systems like economic, social, and settlement, which interrelate to one another. Each merges with and affects others: so we cannot really study one without recourse to the other. The settlement system developed alongside and as a result of the economic and social systems and vice versa.

The General Research Design (Appendix 7) was formulated for the entire waterway to address an extremely diverse array of sites, on the general synthetic level and the site specific level. We adapted that research design and much more narrowly focused it to study Bay Springs Mill and its relationship to the surrounding area. In forming our research design, we were concerned with not only answering the specific questions but also collecting other data, which could be combined with data from other projects to answer the broader, regional questions set forth in the General Research Design. Where reasonable, we have attempted to answer those questions from the Bay Springs perspective, but since Bay Springs and Waverly were the first major historical projects on the Tennessee-Tombigbee Waterway, we lacked the forthcoming comparable data. The historical overview (Doster and Weaver 1981) for the Waterway was not available until our report writing was nearly completed; it would have made our task much easier in evaluating the data and placing those in regional perspective. Bay Springs itself was barely mentioned in the overview, however.

How, then, was the General Research Design adapted to the specific requirements for the Bay Springs Project? A research design provides an integrative framework for asking questions and organizing answers. But it must also be flexible enough to anticipate answers for which no question was asked previously. Two areas of major concern in the General Research Design were settlement patterns and economic systems. We formulated five strategies or paradigms to integrate the archaeological, oral historical, and historical data: settlement systems, settlement patterns, economic systems, social systems, and material culture study.

Strategy 1: Material Culture Study

The first research strategy was to study the material remains of the community, from the informants' perspectives of what they once possessed and from the artifacts recovered at the sites. An artifact may be defined as anything used or modified by mankind, like a bottle, but it can include larger things like the glass factory making a bottle. Generally, such a factory would be called a site, but in reality it and even the roads leading to it are simply the constructs of human imagination applied to physical things. Culture contains a system of shared knowledge and understandings, enabling a society or group of people to cope with daily problems and survive through the generations. Artifacts are the physical manifestations of culture. By means of artifacts, people are studied by the archaeologist in the hope that general statements can be made about those people and about their culture. Although rarely accomplished, the ultimate aim of most archaeologists is to learn the rules others have followed in their culture, so that we may ourselves benefit from their experience, and perhaps not repeat their mistakes.

William Rathje (1978:51-52) has listed five advantages of studying physical data from ethnographic contexts: (1) nonreactive with researcher: (2) quantifiable; (3) independent check on interview methods and data; (4) alternative data source; and (5) independent variable. Artifacts can usually be studied with a kind of detachment not possible when interviewing a person; hence, the artifacts are largely nonreactive with the researcher. Physical data are quantifiable, for we can count the nails and bits of glass. This is hard to do with interview data. But just because it is quantifiable does not mean it is of value (Schlesinger 1969:193). Artifacts serve as excellent checks on the reliability of both the interview data and the historical data. The problem of site location provides one example of this. Informants stated the location of various sites, later confirmed by the survey and excavation. Historical sources also gave locational data. In both cases, the observable reality in the field was similar to, but different from, the historical and ethnographic realities. The artifacts serve as an important data source, an alternative to the ethnographic and historical sources. Taken alone, no single data source truly reflects the past reality of Bay Springs. Rathje's fifth point, artifacts as independent variables, is also important. How did the artifacts affect the people who used them? This is especially important in an industrial society where most of our material culture was made by someone other than the user. This differs strongly from less technologically advanced cultures where the user and maker were often one and the same.

The rationale for the study of the material culture holds that such a study provides a quantifiable and comparable data base representing the material manifestations of the behavior and actions of the individuals we wish to study. Such data are independently and methodically derived in such a manner as to cross-check or verify the ethnographic and historical sources. In essence, it provides one of many kinds of spectacles with which to view what once was a thriving community, but now exists only in memories, yellowed papers, and bits of glass scattered beneath the leaves.

The purpose of the material culture study is two-fold: (1) to present the story of the inhabitants by means of their artifacts; and (2) to present to other archaeologists the methods and data whereby we derived our

interpretations. The first objective requires data be phrased in emic terms wherever possible, that is, to present the people's stories as they themselves might have told them (Chapters 17-18). The second objective required that the data be organized in etic terms, that is, described in a manner so that archaeologists working on other sites can compare their data with ours, and know the differences and similarities. To do this requires the construction of a typology, a systematic classifying of the artifacts. (Appendix 1).

Strategy 2: Economic System

We wanted to learn about the Bay Springs economic system. The economic system consists of the extraction or production of raw materials, and the redistribution and consumption of raw materials and finished goods. The paradigm for organizing the economic data consisted of six levels of interaction: local, local commercial, area commercial, regional, national, and international. Historical and archaeological sources provided data on all levels, but oral history disclosed mostly local information from the late 19th and 20th centuries. Although separately considered here, we recognize economic, social, and settlement systems are really sub-systems within the community, and the community was part of larger systems. The result is a view of the relationship between the sites, the mill, the general store/commissary, and the surrounding farmsteads at Bay Springs, and the factors relating the various economic activities at Bay Springs to the outside world. To obtain those data, we posed several objectives and research questions.

Objective 1: To define the various light industries. Where and how did they develop? How extensive were the industrial activities? How did industrial techniques change through time? What effects did industry have on settlement patterning? What tales or stories were associated with local industries? What were the industries at Bay Springs and what functions did they serve? Who used their products? What were the determinants for the locations of these industries?

Objective 2: To delineate the economy of the mill nucleus. What changes occurred in the production of timber, meal, cotton, and wool at the mill? How are these related to changes in the mill's technology, to the local production of raw materials, and to the national economy?

Objective 3: To define the use of home-made versus consumer goods. How were commercial products acquired by local residents? What products were made at home; what was bought?

Strategy 3: Social System

We wanted to learn about the social system--the set of interactions binding individuals into groups within the community. We found this nearly unapproachable via the archaeology, because such attributes are intangibles.

Objective 1: To determine what material culture was used at and near Bay Springs by different socio-economic classes. What were the differences between sharecroppers and tenant farmers at Bay Springs? What do the historical documents reveal about the racial relations within the Bay Springs community?

Objective 2: To obtain a view of the intangibles of Bay Springs life. Where did people worship in the area? What kinds of religious beliefs were common? Where did people worship? What kinds of values were important to residents? How were values prioritized? Was education considered important? How was it obtained?

Objective 3: To determine the demography of the labor force at the mill. Was the worker society stable or was there much migration? What proportion of workers were children, adults, men, women?

Strategy 4: Settlement System

The fourth strategy consists of studying the settlement system of the Bay Springs Locality. Here we distinguish settlement system from settlement pattern. The settlement pattern is the geography of the community, both internally and in relation to areal networks: residence patterns are the spatial relations within a site. The settlement pattern is the "what" and the "where" and the settlement system is the "why" of a settlement (Flannery 1976:162: Schoenwetter and Dittert 1968:41; Winters 1969:110-111). "A settlement pattern, as its name implies, is the pattern of sites on the regional landscape: it is empirically derived by counting sites, measuring their sizes and the distances between them, and so on. A settlement system, on the other hand is the set of 'rules' that generated the pattern in the first place" (Flannery (1976:162).

Bruce Trigger suggested we should think of settlements on three levels of organization. "The first of these is the individual building or structure; the second, the manner in which these structures are arranged within single communities; and the third, the manner in which communities are distributed over the landscape" (Trigger 1978:169). We have added a fourth level between Trigger's individual level and the community level: the neighborhood. The neighborhood is the operational level for studying most communities. By neighborhood we mean a cluster of homes and other buildings near enough to one another that we may assume frequent interaction by the inhabitants. The Bay Springs industrial complex and surrounding mill workers' houses is a neighborhood. A community may often be too large in number or scattered over too great an area for it to exhibit a single settlement pattern. A neighborhood is much more definable. It represents the interface between the community and the individual actions which culminate in a settlement pattern. The community in turn is the interface between the needs of a culture in a given area, and the individuals living there. The study of Bay Springs concentrates on the first three levels, and provides data whereby the fourth level will be attainable once comparable information becomes available for the Tombigbee Valley. At Bay Springs we focused on the community rather than specific sites to understand the functional relationship between sites; this was achieved via the history and oral history.

Ethnographers generally study living people, communities, and societies; whereas, historians and archaeologists usually study dead people, communities, and societies. In certain circumstances, however, the fields of interest and data overlap, and it then becomes possible to study a community from the different perspectives each method can provide. But one

can also study a past community through ethnography, by interviewing older persons whose memory extends back into the past one wishes to study. This may be called memory ethnography or oral history. For most purposes, this kind of study is limited to the recent past by the human lifetime. Archaeology and history are less limited in time--they are confined to the past. Imagine then the resources available if one uses these methods in the study of the recent past. Communities and neighborhoods can be studied in a meaningful way by applying the approaches together. This is particularly true for those communities which left a disproportionately poor showing in the historical record--those communities which shared in creation of the present but left little mark in the present's record of the past. It may in fact be the only way we can study the small farming communities or any other small community differentiated from the rest of society by economic, social, ethnic, or any other cultural reasons. The historical record is biased against the poor, the illiterate, the powerless, and even the average American citizen. These lack historicity, the ability to become immortalized in the historical record (Adams 1977b; Ascher 1974). Indeed, because of this very real bias, and the fact that it would apply to most people, one can wonder if the real history of America could ever be known. Obviously, we will never know all the past, but what this means is that the portion we do know is seriously questioned. In other words, we are not just missing important facts of history, we are missing most important facts. We may have a program listing the leading actors, but the supporting cast is being ignored. Without knowing the supporting lines, the rest of the play makes little sense.

The people living at Bay Springs belonged to many social groups, but the most important (besides kinship) would be the neighborhood--the area and the people with whom daily or frequent social interaction occurred. Archaeologists often speak of dealing with a community, or at least assume that they are studying only one community within any given area. Only rarely, such as the case with Bay Springs, can the archaeologist actually know the true extent and character of that community.

Although ethnoarchaeology has its greatest utility in the study of the recent past, such a synergistic approach is nevertheless very useful in studying earlier communities. At Bay Springs, a folk memory of the mill community continues, for people do remember stories about the mill and the people who worked there. However, time has diffused much of the focus of such stories, so their historical and archaeological value becomes diminished. The oral data indicate we are studying two communities with this project. The first was the milling community which became extinct about 1885; the second was the logging community which developed at that time and continued into the 20th century. Although we speak here of two communities, this is our construct only. The farmers and others remained. These sequential communities are the focus of our study. The archaeology and history study the 19th century, whereas the history and oral history examine the 20th century community. While the archaeology is limited to the specific sites to be impacted, the oral and written histories are based upon a much broader perspective, one necessary if the archaeology is to be understood within the broader part of the original community.

A community has been defined as "the maximal group of persons who normally reside in face-to-face association" (Murdock et al. 1945:29), however, that definition is applicable only to a very small village. It makes a better definition for a neighborhood. However, Murdock's definition (1965:80) of a neighborhood was "families scattered in semi-isolated homesteads." As used by Willey and Phillips (1958:18), the archaeological locality means "generally not larger than the space that might be occupied by a single community or local group." Conceptually, their locality and Chang's (1967:41-42) settlement are the archaeologist's equivalent of the ethnographer's community. The concept of the community is a social concept, implied but not determined in the archaeological record, that is, we infer a community archaeologically but do not know if it has any past reality or not. The concept has utility, just so long as we realize it is a construct of our mind. Bruce Trigger's essay, "The Concept of the Community," examines many of the problems inherent in correlating artifacts and patterns seen archaeologically with the social community (Trigger 1978:115-121). From the above, we draw two distinctions regarding community, locality, and neighborhood. The community is a group of persons who share an identity derived from interaction economically and socially within a definable settlement area. Within the community may be several neighborhoods, either dispersed or clustered, but sharing closer interaction with one another than with the rest of the community.

On the community level, the determinants of settlement are seasonality, resource processing, transportation, storage, defense, specialized functions, as well as the environment (Trigger 1978:176-184). "Within any region, people tend to establish their settlements in places that are close to drinking water, sources of food, and as far as possible, in places that are safe and pleasant" (Trigger 1978:177). Trigger (1978:178) argues that the layout of communities tends to be heavily influenced by kinship, while "community size and location are influenced to a large extent by ecological factors."

But how can the community of Bay Springs be defined in any useful way, other than the vague notion of its existence? Via archaeology, this would require tremendous effort, for in order to define what was part of Bay Springs would require the demonstration that peripheral areas were not part of the community. This alone would take years of research. Since we have oral and written data, such effort would be unnecessary. But such rural communities do not have definite boundaries and cannot be specifically delineated on a map. Individual families on the periphery may have interacted nearly equally with other families in two or more communities. Nevertheless, there will be a tendency to identify with one community because of economic, legal, and other factors. Social and economic differences within a community may well justify rethinking the entire community concept, for certainly face-to-face association is unlikely. Perhaps Redfield's dichotomy for peasant societies has bearing here when he speaks of the great tradition and the little tradition (Redfield 1973:42).

To obtain the data on settlement systems, we posed several research objectives and questions.

Objective 1: To define the Bay Springs community through time. Why did people live in this area? Where were the boundaries of the community? Does the Bay Springs community have any legal definition or legitimizing

aspect in the form of school records, voting precincts, tax districts or does Bay Springs appear only as a place name? What defined place for area residents? How flexible was the idea of community for local informants? How does this differ through time? Where did one go to get mail? Where did one go to buy: food, clothing, tools, furniture, kitchen goods, hardware, farming implements, seed?

Objective 2: To obtain data on nearby communities. How was the settlement at Bay Springs similar to and different from other nearby communities? How did Bay Springs differ from a small town or village? Which towns did people go to most frequently?

Objective 3: To determine the transportation network and its nodes. What was the nature of the mill nucleus at Bay Springs? What were the facilities like? What was the status of Bay Springs during its history as a node in the transportation network?

Objective 4: To determine why houses, commercial, and industrial sites within Bay Springs were located where they were. What geographical factors affected the location and structure of a mill community and its integral parts? How was settlement influenced by physiography and attempts to exploit different land forms? What was the relative importance of Bay Springs as a retail commercial center? What land use patterns were commonly exploited? How did settlement patterns change through time? What distribution networks operated to spread industrial products?

The spatial and temporal nature of settlement in the Bay Springs area was investigated. Structures, roads, trails, and work areas within the project area were located, identified, and mapped. These features were analyzed to show spatial and temporal variation in size and placement, relationship to cultural and natural features, and internal differences and similarities. Also, comparisons are made between sites on the basis of trash patterns and architectural patterns. The result is a statement defining what constitutes each site, how sites relate to each other, and how they form a community.

Strategy 5: Settlement Patterns

The settlement pattern may be defined as the spatial relationships between a house, yard, and associated structures and features, including fences, roads, and fields, as well as their relation to natural features, such as streams, slopes, and soils. The following determinants of individual buildings need to be considered: climate (materials, heating, cooling, orientation to sun, wind, and view), and culture (construction technique, specialization of production and distribution, household size, family organization, ritual specialization, symbolic, security, and fashion)(Trigger 1978:170-176) Hence, settlement patterns will be addressed by examining individual sites and their location on the physical landscape.

Recently, historical archaeologists have begun seeking to determine intra-site patterning of activities like refuse disposal (South 1977:47). To achieve our strategy of determining the settlement pattern for Bay Springs sites required the positing of several research objectives examined below.

Objective 1: To define the relationship (from a cultural-historical perspective) between structures, showing this relationship in time and space, and the reasons for these relationships. This has been done on the basis of artifactual data, using such techniques as seriation to show differences in time. There appears to be few differences between the sites on the basis of social status. Because of the lack of landownership, one would expect the mill workers to show little difference in terms of relative economic status.

Objective 2: To determine functional, formal, and temporal similarities and differences which may exist between structures. Where did people usually build houses and outbuildings? What factors affected construction of buildings (terrain, streams, roads, materials, etc.)? How was a home usually laid out in relation to roads, outbuildings, fences? Where was trash discarded? Was there any difference in kinds of trash and the way they were discarded? Research on this question proceeded in many directions. Artifacts, disposal patterns, and architecture were among the many areas investigated. The artifact data are arranged so that the sites may be compared. In addition, comparisons were made between sites on the basis of artifacts reflecting such areas as: clothing, hygiene and health, tobacco, alcohol, food preparation and use, household items, personal items, tools, and so forth. The end result is an overview of the people at each site and how they differed from others in the neighborhood.

Objective 3: To delineate changes in the placement of structures which may reflect a differing view of land use. Why were structures placed where they were? How were they oriented in relation to the road system? Questions like these are answered partially through historical data and partially through archaeological data. An attempt was made to locate porches and doors at each site and these were related to roads, fences, and work areas. The orientation of each structure was revealed and mapped. The oral, historical, and archaeological evidence for each site was synthesized.

Objective 4: To examine the location, spatial organization, and architecture within a site, as it reveals the function of the site and the way people perceived and used it. Basically, we wished to achieve a view of what constituted the various elements, which together formed the "site." This search for the mind set of long dead people requires a careful and sufficiently large sample of the site area, analysis, and cautious application of correlative data from oral history sources and historical analogies.

Objective 5: To determine the spatial organization of the mill complex. Because the mill burned, distribution of artifacts within the structure should reveal activity areas. What is the relationship between the mill and the three small structures east of the mill buildings?

Conclusion

The reasons for the Bay Springs Mill Project's existence and focus are many, but these may be summed up as legal, social, educational, and professional. The purpose of the project was the collection of data which otherwise would have been lost through the construction of the reservoir

area and subsequent impoundment. But those archaeological sites mean a great deal more than old foundations and rubbish, because they represent the activities of people.

Various public laws and executive orders mandate the protection of archaeological sites on federal land or land under federal regulations. These include the Archaeological and Historic Preservation Act (Public Law 93-291), the National Historic Preservation Act of 1966 (Public Law 89-665), and Executive Order 11593. These require that surveys be conducted to determine the presence of any archaeological sites and to evaluate any sites discovered. Sites eligible for the National Register of Historic Places, that is, those sites deemed significant on a local, state, or national level must either be protected or a data recovery program instituted. Because of planned construction for the Bay Springs Lock and Dam, a survey (Hubbert 1977) was conducted initially. An intensive survey and testing program (Adams et al. 1979), in turn, recommended further work at the sites discussed here.

The social reasons for studying Bay Springs Mill are that the people who lived there represent an aspect of American society poorly known via the historical record. Although the poor and the illiterate left little trace in historical documents and are rarely recorded in the history books, they were the ones who made America. To correct this previous bias in history we must usually turn to historical archaeology, for there we can view how these people lived, individually and collectively.

A major goal of archaeology should be to educate the public, who both want to learn and who have the right to learn, for after all, they are the taxpayers supporting this work. Whenever the opportunity arises, it behooves the archaeologist to place information where the general public can find it and learn from it. Bay Springs has this potential, for it is near the planned continuation of the Natchez Trace Parkway and lies next to the lock and dam. Tourists will come to see the Waterway, and could leave with an appreciation for our modern achievements and our past ones. By making this project's results available to the public in the form of pamphlets or books, perhaps people can understand that the mill was the focal point for an interesting community of factory hands, landowners, tenants, and sawmillers. In light of this, we have prepared a one page brochure outlining the history of Bay Springs and of our research there.

CHAPTER 3. METHODS

Introduction

Folklorists, archaeologists, and historians constantly search for new perspectives and approaches by which they may reassess old data and thereby gain insight into better ways of obtaining new data (Adams 1977a; Brown 1973; Glassie 1975a, 1975b). One method has proven useful in studying historical sites and communities. Often referred to as ethnoarchaeology, it represents a blending of information from written, oral, and archaeological sources. The information collected from each of these sources is used to enhance that collected from the other two. By using oral, archival, and archaeological methods, researchers may derive statements about events, people, processes, and things of the past. The result of such an approach can be a much better understanding about the past than can be derived by any single approach, because of synergism. Ethnoarchaeology integrates and synthesizes different kinds, quantities, and qualities of data, and combines these into a statement whose sum is larger than its component parts (Adams 1977a:126-127). The following chapter describes the three components (archival, oral, and archaeological) which together comprise an ethnoarchaeological approach. Each section contains a short review of the field methods involved and the problems encountered.

Our paths of investigation were not clearly marked, for there has been little research on our subjects. Anthony F. C. Wallace (1978) examined the social history of Rockdale, Pennsylvania, and its textile mill providing one of the best overviews on the subject. The industrial archaeology of cotton mills and the historical archaeology of the associated mill workers' houses has been undertaken by Albert F. Bartovics at Daniel's Village, Connecticut, (Bartovics n.d.) and more recently in the Wallace Reservoir, Georgia. But these subjects have not received the attention they deserve. Recent work on this period is flourishing, but publication remains in the future. Detailed material culture studies of this period are virtually non-existent. Some studies have been made of antiques and collectibles, but since those are aimed more at prestigious items, their chances of covering aspects of mill worker materials are not good. We improvised and made errors. Hopefully, we presented data in a usable way, whereby others may recognize our errors and correct them.

This chapter introduces the reader to the field and laboratory methods used in the archaeology and oral history. The methods employed in the historical research were much more basic and, we assume, common to most historical research. Perusal of the historical text and of the bibliography should suffice.

Project History

Investigations of the Bay Springs Mill community may be divided into three phases. Preliminary testing was conducted from April 10 to May 16, 1979 (Adams et al. 1979). Intensive investigations were undertaken from August 13 to September 28, 1979, and finally, testing of five additional sites was conducted from February 13 to February 18, 1980. Future work is planned on eight farmsteads located north of the mill site which may, or may not, have inter-related with the mill community.

The Bay Springs Project began in April of 1979 with the survey of about 40 acres within the impoundment area immediately north of the dam. This survey revealed the Masonic Lodge, general store, the Nelson house, the mill, the mill dam, and three domestic sites. We tested each site and recommended further work on five of the eight historic sites: the grist mill/cotton factory area, the general store, and three domestic sites. Unfortunately, between fieldwork and submission of the report, one domestic site (22TS1110) was seriously damaged by clearing of vegetation by the dam construction contractor. However, improved ground visibility created by this clearing allowed us to locate additional sites in Commissary Hollow, east of the mill site.

The hillside east of the mill, Commissary Hollow, lay in young forest during the survey in the spring; because of this heavy vegetation we found no sites even though oral data indicated the presence of several sites there. After obtaining the oral data the area was resurveyed then with the same results. By August the hillside had been cleared with a bulldozer and was completely bare of vegetation. A quick walk over this area revealed many historical artifacts lying in discrete locations. In consultation with the Corps of Engineers and Interagency Archeological Service archaeologists, it was decided that a controlled surface collection would be appropriate in order to delineate specific areas for testing. The Phase II testing of those sites was done after the Phase III was completed at the other sites. The testing revealed that the clearing activities (specifically, raking by the bulldozer with its teeth down, to pick up tree limbs) had destroyed the immediate subsurface of all five sites and no further work was recommended. The discussion of these sites is limited since the data are from the surface survey and testing. Nevertheless, enough data were acquired to make some statements on mill workers' material culture.

The 1979 summer fieldwork began at sites 22TS1108 and 22TS1109, "The Barracks." However, Corps of Engineers personnel requested that the mill area excavations be initiated so Areas A, B, and C could be released to construction at an early date. On August 29, 1979 work on Areas A, B, and C at the mill was completed. That area of the site provided some of the new road bed, and the small creek that once flowed on the east side of the buildings was moved west to the area between those former buildings and the mill.

The excavation crew ranged in size from five to thirteen, with one Field Director and two crew supervisors. Although the primary means of excavation was by hand, mechanical stripping was of considerable aid in clearing brush and removing overburden at the mill area. Also, a backhoe was used to construct a drainage ditch in this area. The backhoe and bulldozer proved to be of great usefulness without doing unnecessary harm to the sites. The bulldozer saved many hours of hard clearing and freed a vital area for excavation.

No field laboratory was used, artifacts being temporarily stored for shipment and processing in Bloomington, Indiana.

Weather conditions during the excavations considerably hampered work and scheduling within our limited time frame. Rain from hurricanes Fredrick and Henri completely closed down work from the 12th to 17th of September,

and sporadic rains continued to harass our attempts at a proper clean up. At one point, we raced to prepare the mill site for a large scale overall photograph before one hurricane hit. Fifteen minutes before we could take the photograph, we lost the race. The eye of the hurricane passed 30 miles to the east of Bay Springs bringing torrential rains onto the nearby bare ground and badly damaging the excavation areas.

Excavation Methods

Excavation methods during the mitigation phase at the Bay Springs project varied according to the project objective. At the domestic and commercial sites, our purpose was primarily to collect a representative sample of artifacts for interpretation while insuring that no structural features remained unrecorded. At the mill area, however, a large area was opened to delineate the mill and its immediate outbuildings. The following procedures were followed at all sites except where noted.

Prior to excavation all sites except the mill were cleared of herbaceous plants using hand equipment. Small trees were removed when necessary. Damage to the natural environment was not a consideration because of the extreme impact planned by the dam and reservoir inundation. A metric cartesian grid system was established for individual sites during testing. Two different datum points were established, one on each side of Mackeys Creek.

Excavation units were generally 1x2m or 2x2m with arbitrary 10cm levels when the natural stratum exceeded 10 cm. All units were advanced to sterile soil and screened through a .5 in wire mesh. Excavators used shovels for most work, but features, like the burned stratum at the mill, were removed by trowels and brushes. Elevations were maintained by a control stake in the southeast corner of the unit; stake elevations were recorded by a transit.

Individual excavators recorded field data on unit/level and feature forms. Artifacts were bagged by unit or feature provenience and a bag list maintained. Supervisors recorded daily excavation data in personal notebooks. Profiles were drawn of the north excavation unit walls; others were recorded when necessary. Plans and profiles of all features were drawn. Finally, photographs were taken of excavation units and features, and site maps were constructed.

Field techniques at the mill site were different than those applied elsewhere. Clearing small trees and brush was accomplished with the aid of a bulldozer where possible, but mostly by hand to not damage archaeological deposits. Units were excavated as described above except that only features were screened. The burn level at the mill site was considered a feature. Standardized two liter flotation samples of the burn level were taken by unit provenience. Mechanical equipment also was used at the mill to remove overburden, saving considerable time without damage to deposits. A backhoe excavated a drainage ditch near the southern end of the mill site and between Areas A and B. This kept water run-off from a nearby construction spoil area from entering our excavations. Elevations at the mill site were taken from a single transit station placed to provide maximum coverage of

the site. At Areas A, B, and C the stake method described above also was employed. Contour elevations of site areas were recorded at 2 m intervals before excavation began.

As mentioned previously, Areas A, B, and C of the mill were located in the proposed haul road and an early release of these sites was necessary. Since construction of the haul road would completely destroy these sites, we decided that after hand excavations were completed, the area would be mechanically stripped by the road contractor under the supervision of the archaeologists. This insured that intact cultural material had not been overlooked or destroyed without being recorded. The stripping revealed no significant deposits and the area was released at an early date.

Soil chemical and magnetometer anomalies noted in the testing phase were excavated to determine their meaning, to evaluate the utility of these techniques, and to delineate the kinds of signatures for the various artifacts and activities.

Laboratory Procedures

Upon arrival in Bloomington, the material was organized by field bag number and placed in standard sized boxes on shelves to await further processing. A washing log was kept for each bag to provide a record and control. Each bag's contents were emptied into a plastic colander held over a wastebasket to eliminate as much dirt as possible at this stage. Next, materials were scrubbed with brushes and clean artifacts placed in another colander resting in a rinse bucket. A window screen drying rack provided a place for initial sorting into gross material categories. The catalogers performed the initial sorting for analysis, separating various kinds of material by site, and preparing them for different kinds of analysis. The first separation was designed to eliminate as much "noise" as possible, that is, those artifacts providing easily recorded information which would not yield much further value past that point: metal scraps, plain glass, and nails. Nails and window glass were measured and bagged for storage. The remaining artifacts were separated into material categories (glass, ceramic, metal, plastic, wood, bone, shell, botanical) at that time. After drying, these were taken to the labeling table. Here, catalog numbers were assigned and each artifact labeled individually or collectively (e.g., nails were given a lot number and placed in plastic bags). The number assigned might read 22TS1108-31, meaning site 22TS1108, bag/lot 31. The site number represents Mississippi (22nd alphabetically of the first 48 states), Tishomingo County, site number 1108. The bag number was assigned sequentially in the field and was unique for each provenience unit and level. When dry, each major item was labeled with India ink, either on the item directly or on designer's white gouache. Clear nail polish was brushed over each label. Items without clean, smooth surfaces like rusted metal, were string-tagged or a paper tag was placed with them in a small plastic bag.

Typology

A typology organizes different kinds of data in a systematic manner, so we can study relationships between things and so each thing can be placed in its own niche in the scheme. The Periodic Table of Elements and the Linnaean Taxonomy are notable examples of typologies for physical and natural objects. Typologies for cultural objects are not as easy to construct. While elements and species change as do artifacts, the similarity stops there. A typology of cultural materials is not innate in the materials due to elemental structure or evolutionary development. Thus, any number of equally valid typologies could be constructed for any given data set. The "correctness" of a typology lies in its usability. The most emically valid typology may be useless for comparison. The one based upon all possible attributes is split so fine that one may be totally lost within it. We have tried to develop a usable typology for other archaeologists. Our typology was developed for the Waverly and Bay Springs Projects to enhance comparisons of material. Like most typologies, it has inconsistencies despite considerable effort to avoid them. The problem lies in the fact that a typology of modern material culture is so broad that it encompass many smaller typologies within it, like glass, ceramics, and so forth. Three basic kinds of typologies are useful to archaeologists: functional, descriptive, and mixed.

Functional Typologies

Functional typologies are arrayed along distinctions of function. For example, storage containers would be placed together in the typology, even if they were made of different materials. One could create a functional typology for items in an old Sears & Roebuck mail order catalog which would be useful and have empirical and emic validity. A functional typology is the easiest to understand but the most difficult to use for archaeological materials.

Functional typologies present data in an understandable human way. An axe is called axe, not a Type #A cutting implement; further, the mention of an axe implies various uses and functions. The axe's primary use is to cut, but it may have many functions, such as cutting firewood, clearing a forest for planting crops, butchering animals, and building a cabin (Linton 1936:404). Except by historical and ethnographic analogy, we cannot identify the many functions an axe or other item had, but we can guess some functions--an axe cut and a canning jar stored. A functional typology is employed to a degree by all archaeologists when they classify material culture. Whether the function assigned is a correct one must be determined through analysis and replicative experiments. When a stone artifact is called an axe, certain functions are implied if not explicitly stated. In prehistoric sites, that "axe" function is a guess, and often a good one, but on a historic site, because of records from the historic period, very often we know what the manufacturer intended for the function to be. (Of course, the user often employs the tool for other purposes.) Functional typologies have two main deficiencies. First, fragments are not easily classifiable by function, but they may nevertheless contain important attributes for the archaeologist to note. Second, even on recent historical sites, some objects defy functional classification. The specific function assigned to an item must be considered as an hypothesis. For example, the function of a canning jar is storage, usually of wet foods. But dry goods, moonshine, and

even nails could be stored in one. Just to complicate the situation are human pack rats who collect canning jars as a hobby. The advantage of the functional typology is its integrative nature. Hence, artifacts which might be presented in a dozen locations in a descriptive typology are instead placed in the same passage.

The functional typology used here was modified only slightly from one used by Roderick Sprague of the University of Idaho and presented in Saastamo (1971:29-31). As a vehicle for organizing an incredibly diverse array of cultural materials, this system is excellent. It furnishes the organizing framework for discussing things and their relation to people. Similar frameworks have been developed; one in particular by Stanley South (1977) has been used by many archaeologists.

Descriptive Typologies

A descriptive typology, on the other hand, is much easier to construct but much harder to understand by any but its creator. This typology simply describes the artifacts and arrays the descriptions in some order which can vary from systematic to simple. It begs the question of function entirely. A typology of this sort uses selected attributes of artifacts as dividing lines, often providing more clear cut divisions than either functional or mixed typologies. Unfortunately, the detail necessary to establish a descriptive typology makes it difficult to pick one group of artifacts for study because they are spread over several levels of the typology. The major advantage of a purely descriptive typology is that it presents the data with no interpretation. If you know the system, you can find anv artifact. With functional or mixed typologies there is a greater degree of subjectivity. The major subjectivity in a descriptive typology lies in the selection of some attributes as more significant than others. There is no way to establish a hierarchical typology without this bias.

Descriptive typologies, however, are cumbersome. In order to be consistent and to cover the significant attributes, level upon level of complexity needs to be outlined. Finding functionally related artifacts in this morass is almost impossible. This kind of typology is of little value in understanding cultural processes or cultural histories. A well-conceived and workable descriptive typology for industrial American material culture would take many years of work in its creation, implementation within a computer and refinement through application.

Mixed Typology

In order to analyze adequately the technological attributes of the artifact assemblage, and thereby, to assess its potential for understanding the general and specific culture history of the various sites, the following typology is presented.

The typology is actually a mix of both descriptive and functional criteria but its main direction is descriptive. Our objectives in presenting this typology are threefold. First, the typology serves to record permanent descriptions of what we found. Second, it organizes the artifact collection into a manner hopefully useful to other historical archaeologists. Finally, the typology will present a sample of our

national culture which produced the artifacts used at Bay Springs. Regarding the third objective, the descriptive typology allows us to study the development of the national culture through its technological achievements. Technological processes leave marks on the objects produced. Changes in these marks can be studied to provide data on changing patterns of technology. In order to present the data so that technological patterns are comprehensible, detailed descriptions are necessary.

Oral History

Recent studies (Adams 1977a: Brown 1973) have shown that oral history may function in the important role of illuminating puzzling questions raised by archaeological and historical investigations. Oral history provides relevant data augmenting findings of the other approaches by elucidating specific points and placing them in their proper context. Finally, oral history, when combined with a folklife approach, can provide insight into the mental processes and living styles of a community as a whole.

Oral history relies upon the spoken words of the individuals who were a part of that history to determine what is of significance. As such it represents a departure from the voluminous accounts of the exploits of leaders and nations. Instead, oral history depicts events of importance to the people who are being studied. While specific dates and well-known names may comprise a portion of this history, more often than not the data preserve items appearing to the outsider as mundane rather than noteworthy, as trivial rather than sensational. The argument has been advanced, however, that such a history is a far more accurate barometer of the times than is an elitist approach, for incorporated into the oral history of common people are the traditional values and sentiments of the individuals who helped shape that history. Because of this, oral history often proves to be far more revealing and of greater significance than a history which focuses on noteworthy events and the forces which acted as their catalyst. In this light, oral history is a history by the people themselves rather than an account of the events deemed of importance by outsiders. The increasing acceptance of the local history movement is testimony of the importance of this approach.

Critics of this approach argue that, by its very nature, oral history suffers from the curse of inaccuracy, for it is dependent upon memories for its reliability. However, by careful data collection and verification through cross-checking (triangulation) between informants, and by comparison with folk motifs, written local history, and archaeology, an oral history can be generated which has empirical validity. Taking the emic, relativist standpoint, even if a particular account of an event is demonstrated to be false (in terms of real events) it may be an important statement because the people being interviewed believe it to be true. Historians in the past also have been disinclined to attach much significance to oral histories, arguing that frequently they overlook important facts and that the informants' accounts are prone to exaggeration; but the same can be said for written histories. In any case, the oral data may be the only data available on a particular topic or area.

A pioneering work illustrating the usefulness of the oral historical approach in reconstructing the past lives of the members of a community is The Saga of Coe Ridge (Montell 1970). Montell, trained as a folklorist,

interviewed former residents of Coe Ridge, Kentucky, and their descendants to obtain data unavailable in published accounts. As a result he was able to reconstruct a detailed history not only of the community, but of its various members and the traditions they shared as well. His study remains as a landmark work and still serves as a model for similar studies today.

In a somewhat different example of the application of the oral historical approach James Deetz and associates undertook an interdisciplinary investigation of a rural farmstead located in Portsmouth, Rhode Island (Brown 1973). Drawing on the expertise of scholars in the fields of archaeology, folklore, architectural history, social history, and economic history, the researchers conducted a diachronic study of three centuries of life on the Mott Farm. Employing a research strategy aimed at reconstructing the farmstead's use by its former occupants and its position within the oral tradition of the Portsmouth area, folklorist Henry Glassie sent crew members into the field to locate and interview informants who were familiar with the site. By comparing data from each of the informants the researchers were able to gain a more complete understanding of the farmstead as a functioning entity, as illustrated by Brown's (1973:279-280) comments:

> "Oral history research concerning the house has sought to determine how rooms were used, what interior remodelling had been done, and how, if at all, the farm and exterior of the structure had been altered. An attempt was made to elicit specific information about the scheduling and location of domestic activities within and around the house, the placement, use, and meaning of household furnishings, and the pattern of refuse disposal . . . . These reconstructions could then be tested by excavation, and the accuracy of informant recollections measured."

The preceding approach is similar to that used to obtain information on the community of Bay Springs, Mississippi, although the types of questions asked were of a somewhat different nature than those used in the Mott Farm study, as we were interested not in a single farmstead but in an entire community. In addition to obtaining specific information about the history of Bay Springs we also were interested in formulating a general overview of the folklife of this part of Mississippi. We intended that the folklife data would provide information complementing the specific data on the history of Bay Springs and lead to an understanding of the place of the community within the region. To accomplish this goal a research design was developed which would provide an integrative framework for understanding and interpreting informants' responses to a number of questions categorized into three general headings: settlement patterns, economic systems, and social systems. The design had to allow for the assimilation of disparate data into an organized format, yet be flexible enough to incorporate inconsistencies in the folk memory.

A primary goal of the oral history research was to contribute to the archaeological research as much as possible. Thus, a significant amount of time was taken with each informant gathering information on the sites being excavated. Did they remember structures at these sites? What were the structures like? If dwellings were present, who lived there during what years? When were the structures torn down? This type of questioning provided much pertinent site specific information, but also led to some dead ends.

The three types of information (archaeological, historical, and oral historical) ideally complement each other by shedding light on different aspects of the same problem: What was Bay Springs like in this period? Who lived there, what did they do, how, where, and when did they live there, and how did they relate to the larger area of the community? While historical and archaeological research uncovered materials dating reliably from the antebellum period, oral history data pre-1900 are not as reliable. Unlike the tangible written historic documents and archaeological artifacts, oral historical materials consist mostly of intangible memories and stories, punctuated now and then by a family photograph or vintage item of material culture. However, upon synthesis and examination, these sometimes hazy and seemingly garbled reminiscences capture the feeling and flavor of the area as neither the written records nor material artifacts can: from the mouths of people who actually lived, worked, and played in the area. As folklorist Richard M. Dorson (1971a) has said:

> "Oral traditions may well exasperate the historian . . . with their quick-silver quality and chronological slipperiness. But they can be trapped, and they offer the chief available records for the beliefs and concerns and memories of large groups of obscure Americans."

Most people who lived at Bay Springs were essentially one type of "obscure American"--members of common rural families living everyday lives.

We decided to use a questionnaire (Appendix 6) as the most efficient and productive means to obtain folklife data because it would provide consistent informant responses and allow for subsequent comparisons and contrasts during the analysis phase of the project. In addition, a number of the questions were of a general nature, being geared toward testing the depth of the informant's knowledge in each of the categories. If the informants' responses indicated they possessed a great deal of knowledge in a particular area or on a specific topic they were asked a series of follow-up questions designed to elicit further information during subsequent interviews.

To maximize allotted field time, selected individuals who had been interviewed during the initial survey in April 1979 again were contacted. We felt these informants, all of whom possessed in-depth knowledge about the history of Bay Springs, would prove beneficial in supplying further information as well as possibly providing names of other individuals who also might serve as informants. The techniques employed to obtain names of individuals who might serve as informants for the study of the oral history and folklife of Bay Springs were varied. Repeated visits to nearby communities like Booneville, Iuka, Dennis, and Moore's Mill, Mississippi, yielded a number of leads for prospective informants, as did visits to the Tishomingo State Park located just east of Bay Springs, Mississippi, where a program for senior citizens was held on a daily basis. Visits to area churches produced some names, as did a trip to the monthly Bear Creek Folklore Society meeting held outside of Red Bay, Alabama. Finally, Jerry Martin's book, A Place Called Belmont provided the names of a few informants. In every case the individuals contacted proved to be congenial and hospitable, making the task all the more enjoyable; without their interest and assistance this study would not have been possible.

Whenever possible, a three-part interview schedule was arranged for each of the informants. The first interview allowed the interviewer to establish a rapport with the informants, develop a background profile on them, and test the extent of their knowledge on the Bay Springs community in general. The second interview, when deemed appropriate, was designed to allow the informant to freely associate about general knowledge of Bay Springs and begin answering specific questions about the area, community, and individual sites. Whenever necessary a third, and sometimes fourth, interview was scheduled with informants to further develop their perceptions of Bay Springs.

During the four week field period a total of 60 individuals was contacted and questioned about the history and folklife of the Bay Springs area. Of those, 19 individuals were interviewed in subsequent recorded sessions. Most of the informants resided in or near the town of Belmont, Mississippi, seven miles east of Bay Springs, although some lived in the nearby communities of Moore's Mill, Dennis, Iuka, and Booneville, Mississippi. Two individuals lived just across the state line in Red Bay, Alabama.

All interviews with informants who had been contacted during the preliminary survey were tape-recorded with a Superscope Model C-104 Professional casette recorder on Scotch 3M Tenzar Posi-Trak Backing 60-minute cassette tapes. The tape recorder was used as inconspicuously as possible, although always with the full knowledge and permission of the informants. A data release form was signed by each informant. In some cases, the decision on whether or not to record the interview with the individual was left to the discretion of the interviewer. His decision was based on two factors: the extent of the informant's knowledge of specific topics and of the area in general, and the context in which the interview situation took place. Obviously, it would have been impractical to record a brief question and answer session with a person encountered on the street who had but a passing knowledge of the topic and therefore could contribute little to our understanding of the research problem. On the other hand, interviews with informants who possessed a great deal of knowledge often were recorded from the beginning of the first session so that the information might be preserved. As was expected, the range of knowledge concerning the history of the community of Bay Springs varied with each of the informants, and certain individuals proved to be of more help in reconstructing the history and folklife of the area than did others. This was due in part to their degree of association with the community, amount of time spent in the area, and the effect of the passage of time in clouding the informant's memory.

Interview sessions ranged in length from one half hour to three hours. Handwritten notes were taken at all times, and often diagrams and maps were drawn by the informant and/or the interviewer during the session. Notes, tapes, and diagrams were reviewed and analyzed by the fieldworker during the field period to determine the direction the research was taking and to help fill in gaps in the existing research.

After the fieldwork was completed the analysis phase of the project began. The data obtained from each of the informants were reviewed with several points in mind: detail and depth of responses, overall familiarity

with specific topics and the area in general, and accuracy of responses. As the analysis progressed it became apparent that no single individual possessed a complete knowledge of the Bay Springs community, although, as was earlier stated, some informants were more adept than others at providing information. Further, because of their personal experiences, some informants were more conversant in a particular area--for example, the individuals who knew the most about sawmilling were those who worked at that occupation. Finally, due to several variables which will be mentioned later in this study, there sometimes appeared inconsistencies in some informants' responses when compared to those of others. In order to allow for this it was decided that general consensus would take precedence in these situations; however, in those instances where there seemed to be no clear-cut pattern in informants' responses on a controversial issue, each side was given equal weight.

After this initial review of the data selected tapes were chosen to be transcribed verbatim. The criteria for choosing the tapes was much the same as that used in evaluating the data, with the added stipulation that the material on the tape be representative of the types of responses elicited and that the information contained on the tapes be of use in compiling the oral history and folklife of the area. Of the approximately 40 hours of tape recorded during the fieldwork phase of the project a total of eight hours were transcribed. Copies of the tapes and the completed transcipts are on file at the Mississippi Department of Archives and History, the Library of Congress, and the Indiana University Archive of Traditional Music (of the Department of Folklore), so that scholars may use them.

In presenting the data every attempt has been made to retain the spirit and essence of the informants' responses. To this end, wherever possible we have endeavored to present the data in the informants' own words, sometime adding a word or two for purposes of clarification or explanation. The study which follows, then, represents a composite sketch of the oral history and folklife of the community of Bay Springs, Mississippi as it is remembered by the informants themselves. Hopefully we have accurately reconstructed that history and that it reflects the varied and complex lifestyles of the members of the community.

History

The history component of the Bay Springs study was designed to provide detailed documentary evidence to supplement data acquired through the approaches of oral history and archaeology. The information obtained through this approach is useful in documenting historical events relevant to Bay Springs, in providing statistical information for comparative purposes in this diachronic study, and in providing detailed accounts of ancillary events which, although not directly related to the history of Bay Springs, may have had an indirect impact on the events transpiring there.

Various sources of historical data were used. Previously published accounts of the history of the general area around Bay Springs were consulted in order to provide the necessary groundwork for the study. These sources and the references contained within them formed a basic outline of the history of the community.

The Census of Population is useful for reconstructing the number, size, and composition of households. The earliest census of population obtained was for 1840 and consists of the names of the heads of households: the number of family members, grouped according to sex and age; the number, sex, and age of slaves; and the number of persons employed in various economic pursuits. Unfortunately, the data are compiled for Old Tishomingo County, an area which includes present day Tishomingo, Alcorn, and Prentiss Counties. The population data are presented as totals for the entire county; information is not listed according to minor civil subdivisions like Supervisor's Districts. The Census of Population of 1850 is somewhat more informative, listing the family members, their sex and age, place of birth, and in some cases whether or not they are literate. Also included were some professions and the value of real estate. Again we must infer who lived at Gresham's Mill, for the census data are for the southern portion of Tishomingo County, not just the area around Bay Springs. The data available for the 1860 Census of Population are similar to that of 1850 except the profession of the head of the various households is more complete. Of particular interest, however, is the fact that the census now is listed according to post office, and the names should more closely correspond to the area around Bay Springs. The data from the Census of Population of 1880 is most useful for our purpose for it indicated all of the above information as well as the occupation of the various family members. It is interesting to note the number of persons listed in John M. Nelson's household and their various occupations. These figures corrobrate informants' recollections of the Nelson house as quite large and suggests those employed in "white collar" jobs associated with the mill complex likely resided in the Nelson home. While the data from the Census of Population for the 50 year interval is useful in ascertaining who lived in or near Bay Springs, it provides little information on the distribution of the population throughout the area around Bay Springs.

One of the major goals of the Bay Springs Project was to acquire data on the settlement pattern of the Bay Springs area. Since no published source supplied detailed settlement information, it became necessary to return to several primary sources for the data. Censuses of population, agriculture, and manufacture and numerous government documents for Tishomingo County, Mississippi, were available in the courthouses of nearby county seats and in the Mississippi Department of Archives and History in Jackson. Several other secondary works which were out of print and, therefore, difficult to obtain were collected to construct the history of Bay Springs. Cochran's (1902) History of Old Tishomingo County was one such source. Newspaper accounts also served an important role in shedding light on the history of Bay Springs; copies of several such 19th century newspapers are housed in various regional libraries in Mississippi.

We decided the simplest way of presenting the data was to construct a chronology of the history of Bay Springs. Therefore, a total of eight distinct periods were developed: Early Settlement, Early Factory, The War Years and Reconstruction, Late Factory, Transition, Logging, Decline, and Recent. Each period roughly corresponded to historical events and processes. For example, the Early Factory Period began with Gresham's construction of the factory in the 1840s and ended with its sale just prior to the Civil War. In presenting the data, attempts have been made to adhere to the chronology as closely as possible. However, certain events and important historical figures transcend these arbitary time periods and,

therefore, appear in more than one category. Also, we have endeavored to fully document the sources of our data, for unlike the oral history sources based on informant's memories, the history data is dependent upon previously published accounts and information. Hopefully, the historical material integrated into the Bay Springs study will illuminate historical events at Bay Springs, Mississippi from its founding in 1836 to the present.

CHAPTER 4. BACKGROUND HISTORY

Indian Occupancy and Treaties

The first Europeans coming into the area of later Tishomingo County, Mississippi encountered an indigenous population, the Chickasaw Nation. Large scale contact with these people of the Muskhogean linguistic stock was not made until much later (Jennings 1941:25). In the late 17th century the French controlled the lands occupied by the Chickasaw, but not the Indians themselves. As early as 1702, hostilities erupted between the Chickasaw and the French. Skirmishes between them continued until 1763 when the British gained control of the area. The Chickasaw were more receptive to the British, who supplied them with superior quality trade items for a lower price. The British were successful in preventing the encroachment of settlers into Chickasaw territory, and as a result the Indians began to abandon their fortified villages. Official relations with the United States began with the Treaty of Hopewell, signed in 1786, which set the northern boundary of the Chickasaw nation at the Ohio River (Swanton 1946:118). Another treaty signed at Chickasaw Bluffs on October 24, 1801 resulted in the creation of the Natchez Trace, a wagon road stretching from Nashville, Tennessee to Natchez, Mississippi, and passing just a couple miles north of Bay Springs.

The completion of the Natchez Trace from Nashville to the Natchez District in southwestern Mississippi precipitated an influx of settlers into the area during the first two decades of the 19th century. During these years, rudimentary shelters and hotels sprang up along the Trace to accomodate travelers. One such stand located in present day Tishomingo County was run by James Brown, a Chickasaw Indian. Although use of the Trace as a primary route southward had declined by 1825, apparently it still was in use into the mid-1830s as evidenced by survey maps of the Chickasaw Cession (Belt 1835). As a local road portions of it are still used today.

County Formation and Settlement

One year before the removal of the Chickasaws began in 1837, the Mississippi State Legislature placed most of the Mississippi part of the Chickasaw holdings under the jurisdiction of 10 newly established counties. Included among these, Old Tishomingo County originally encompassed much of present day Alcorn and Prentiss Counties in addition to its present boundaries (Martin 1978:14-15, 17). Soon after the first settlers arrived various communities began to develop. Jacinto, incorporated in 1837 and named after the Battle of San Jacinto in Texas, was established as the county seat. In 1854 the first brick building in Old Tishomingo County was erected there (Martin 1978:18). That building, still standing in 1979, replaced an older log courthouse on the site. One of the most prominent towns at that time was Eastport, incorporated in 1838 and located in the northeast corner of Tishomingo County. Because of its location on the Tennessee River, considerable interaction between Eastport and other towns along the Mississippi and Ohio River drainages made Eastport an important trade center for the county.

Other early towns in Old Tishomingo County were Fulton, incorporated in 1837; Farmington, 1838; Danville, 1848; Van Buren, 1840; and Rienzi, 1839. One individual described Rienzi in 1840 as being "a prosperous little settlement of several stores, a church, a school, a gin, and a blacksmith shop" (Williams 1976:20).

Railroads arriving in the area profoundly affected the development of Old Tishomingo County. The Mobile and Ohio Railroad, chartered in 1848 and completed in 1861, and the Memphis and Charlestown Railroad, chartered in 1852 and completed in 1857, crossed the northwest corner of the county. The towns of Booneville, Baldwyn, and Rienzi developed along the Mobile and Ohio line (the latter having been moved from its original location in 1859) while Iuka grew up on the Memphis and Charleston Railroad. In 1854 a town called "Cross City" emerged near where the lines intersected. The following year that community incorporated and its name changed to Corinth (Williams 1976:29-30). Indicative of the railroads' importance, the seats of government for Alcorn, Prentiss, and Tishomingo Counties were all located in railroad towns in 1870: Corinth, Booneville, and Iuka respectively (Laws of Mississippi 1870).

The Federal Census figures for Old Tishomingo County in 1840 indicated a total population of 6,681. By 1860, the population had increased to 24,149, reflecting the tremendous growth of the area during the period after the Chickasaw Removal (Table 4.1).

Table 4.1. Census Data for Mississippi, Tishomingo County, and Bay Springs.

	1840	1850	1860	1870*	1880*
Mississippi					
Total population	375,651	606,526	791,303	702,304	1,131,597
White	180,440	295,718	353,899	324,992	479,398
Free coloured	?	930	773	376,746	650,291
Slave	195,211	309,878	436,631	--	--
Other	--	--	--	566	1,908
Tishomingo County					
Total population	6,681	15,490	24,149	7,350	8,774
White	5,853	13,528	19,159	6,609	7,611
Free coloured	?	1	9	741	1,163
Slave	?	1,961	4,981	--	--
Fifth District					
Total population	--	--	--	1,055	1,359
White	--	--	--	1,017	1,331
Free coloured	--	--	--	38	28

*1870 and later figures are after the county division.

Early Settlement (1836-1852)

The history of Bay Springs began in 1836 with the arrival of the George Gresham family from Lauderdale County, Alabama. George and Margaret Gresham had 11 children (Akers 1957:34). Their eldest son, James Files Gresham, was instrumental in establishing Bay Springs as a community largely as a result of his business enterprises. When the Greshams first arrived James Files Gresham was 18 years old. Soon after their arrival in the area, George

Gresham filed claim for three quarters of Sec. 26, T6S, R9E (Old Tishomingo Abstract Titles:409). James purchased the remaining southwest quarter section from William Files, a relative, for the sum of $800 in June of 1839 (Old Tishomingo Deed Book E:207). This quarter section was bisected by Mackeys Creek, and later became the focus of activities at Bay Springs.

George Gresham probably first operated a waterpowered mill on the Ginn Branch north of Bay Springs; however, by the early 1840s he and his son had constructed a waterpowered mill on Mackeys Creek at a place which later became the site for the Bay Springs factory (Martin 1978:28-29). This is the only mention of the Ginn Branch location. (Incidently, Ginn Branch was apparently named for the Ginn family, not as a place name for a cotton gin.) The site proved to be an excellent location, for the high sandstone cliffs on either side of Mackeys Creek channeled the water into a narrow gorge, swift current providing an ample source of power to drive their grist and sawmill operation. The construction of a mill here was somewhat of a gamble for the Greshams, for during this initial settlement phase there probably were few farmers in the immediate vicinity of the mill site. The area had been open to settlement for only a few years since the Chickasaw Removal. Perhaps the Greshams recognized the strategic location of the mill and gambled that a mill would attract settlers into the area.

The venture proved to be quite profitable since the mills were the only ones in the county at that time, and many farmers from the surrounding area brought their grain to Gresham's Mills. The sawmill supplied the neighborhood with lumber to construct houses, barns, and other outbuildings. A blacksmith shop, cotton gin, and general store soon were added to the operation and the community of Gresham's Mills began to emerge (Martin 1978:29).

The first post office in the area was established on May 15, 1844 at a store operated by Robert Lowery, who lived approximately four miles southwest of the mill. Bay trees and clear springs typified Lowery's home, hence the name Bay Springs (Martin 1978:29). Robert Lowery served as postmaster there until he moved to Carrollville in 1845. At that time, the post office was moved to Gresham's Mills and the name Bay Springs was retained, now applying to this new location. James Files Gresham became the Bay Springs postmaster that same year retaining the position until 1851 (Martin 1978:29; U. S. Post Office Department n.d.).

The year the post office moved to Bay Springs a group of Predestinarian Baptists met at George Gresham's home to organize the Mackeys Creek Church. The deaths in 1845 of James Gresham's wife, Kezia, and the wife of another prominent early settler, Stephen R. Moore, necessitated choosing a site for a church and cemetery. This church was located adjacent to the present Old Mackeys Creek Church Cemetery, one mile north of Bay Springs (Martin 1978:29-30).

In the years following, the community of Bay Springs continued to prosper and attract families. During this period James Files Gresham began selling alcohol at his store (Madden 1969:117; Martin 1978:30). To build up his stock, Gresham purchased a large liquor inventory from three Louisville, Kentucky merchants, William Gavin & Co., Edward Hays and Alexander Craig, and Bainbridge, Coruth & Baily (Madden 1969:117). By law, no license was required to dispense alcohol in quantities of one or more gallons. However,

establishments selling liquor by the drink were required to pay a fee of $50 per year (Martin 1978:30). James F. Gresham was licensed to "retail vinous spiritous liquors for one year in his store on Mackeys Creek" (Old Tishomingo County Board of Police Minutes:Jan. 1848). In order to pay for the liquor, Gresham acquired a $900 debt. He was forced to transfer title to the SW 1/4 of Sec. 26, T6S, R9E (this area included Bay Springs) in 1849 to Arthur E. Reynolds and Benjamin N. Kinger for the sum of $5.00 plus payment of $908.63 in debts owed to the merchants (Old Tishomingo County Deed Book M, 497-498; Madden 1969:117-118). By 1855 Gresham had paid his debts and regained title to his property, which had been placed in a trust deed (similar to a mortgage). Meanwhile, William Thompson of Bay Springs obtained a license to sell liquors at his house for a period of 12 months. However, a Cumberland Presbyterian minister stirred the local people with his prohibitionist sermons and liquor sales ceased in 1852 (Martin 1978:30). The charter for the Bay Springs Union Factory even specified that no distilled or vinous spirits could be sold within a mile of the factory.

The drive for improved roads coincided with the development of Bay Springs in the 1840s and 1850s. The first record of road improvements was in 1840, when a survey was made to build a road "commencing at or near the house of Samuel Flakes on the Ripley [Mississippi] Road running east by the way of Francis Kigerson, Lewis Clark, Gresham's Mill and intersecting the Alabama Road near Roger's" (Old Tishomingo County Board of Police Minutes 1836-1852:98). Subsequent entries in the Police Minutes suggest that upon completion of the road survey each family living on the proposed roads was responsible for construction and maintenance of their road section to their neighbor's house (Old Tishomingo County Board of Police Minutes 1836-1852:99, 100, 101, 115, and 179). At Gresham's Mills it was necessary to construct a bridge across Mackeys Creek. The minutes for the Board of Police meeting of August 6, 1849 indicate that Jack Lewellan, Fred W. Wright, and J. F. Gresham were appointed commissioners to oversee its construction. Gresham and Hugh M. Rogers probably contracted to build the bridge, since each received $147.50 (Old Tishomingo County Board of Police Minutes:March 12, 1850). In August of 1850 two more roads were proposed for the Bay Springs area. A commission of seven men headed by A. M. Carroll was appointed to "review to run out a road from Carrollville by way of Bay Springs to the county line" (Old Tishomingo County Board of Police Minutes:August 5, 1850). During that meeting a second road was proposed to run from G. W. Elkin's place to Bay Springs, and a commission of eight men including Elkins and J. F. Gresham was appointed to review the proposal. The next month Gresham appointed an overseer to open and cut out the road. In January, 1851, N. Gentry was appointed overseer of the Fulton Road from Cape Horn to Bay Springs. In June, 1852, a another new road was opened from Bay Springs to the county line and David Farmer was appointed overseer. The following year a commission which included J. F. Gresham as one of its members was appointed to "review and mark out route for a road from the mine road at I. W. Yeates' Gin running west with a marked line made by said Yeates" (Old Tishomingo County Board of Police Minutes, February, 1853:153). The road was to intersect the Carrollville Road and Ripley Route in Tippoh County.

By 1855 several major roads ran through the Bay Springs and Eastport area. The previously mentioned Fulton Road ran in a northerly direction to Iuka, passing through Bay Springs, the Pikeville Road was constructed about 1854 and ran in a southerly direction, and the Bay Springs Road ran in a northwesterly direction from Gresham's Mills toward Danville (Old Tishomingo

County Board of Police Minutes: January, 1854: January, 1855: January, 1856). The Fulton to Eastport Road and the Pikeville Road perhaps intersected at Gresham's Mills. In each case the individuals residing along these roads appear to have been responsible for their construction and maintenance. Evidence presented in the next chapter indicates that the routes of these roads followed along ridgetops and were heavily influenced by soils and slope gradient.

Early Factory (1852-1861)

The 1850 Census of Industry for the 5th District in Tishomingo County showed James Gresham operating a sawmill amd gristmill (with two sets of stones) valued at $1,500. That year the sawmill used $400 worth of logs to produce lumber valued at $750. The gristmill produced a total of 12,000 bushels of flour and meal at a value of $500. Four male employees worked at Gresham's operation, and the census indicates they each earned a salary of $12.50 per month.

In April of 1850 James Files Gresham and John Briggs entered into a partnership to establish a cotton manufacturing business at Bay Springs (Figure 4.1). That Gresham should decide to establish such a factory at this time is interesting for the southern textile industry had just begun to recover from the severe depression of 1837-1846. (See Chapter 8 for a broader perspective on the textile industry of the South.) Prior to 1837 the state had experienced a remarkable rise in agricultural prosperity, largely due to abnormally high cotton prices and the sudden availability of fertile land resulting from the government's removal of the Indians from central and northern Mississippi. However, in 1837 the price of cotton dropped and coupled with a tightening of bank credit and a lack of capital for investment, severe strains were placed on cotton manufacturers who had gone into heavy debt to expand their operations (Moore 1954:82). Many manufacturers were forced into bankruptcy. By 1849 the situation had improved somewhat for cotton farmers but not for manufacturers. Unstable conditions in both domestic and international cotton markets had driven up the price of raw cotton; however, there was not a rise in the cost of manufactured goods like yarn and cloth. The primary profit for cotton manufacturers during this period was in the production of cotton yarn for there existed little demand for woven cotton fabrics (Moore 1954:82-88). Perhaps Gresham was speculating that market conditions would improve shortly, and that there again would be a demand for manufactured items like yarn. Manufactured goods were a luxury many families could not afford. Most cloth used was produced in the household on hand looms, from raw materials grown on the family's farmstead.

John Briggs was a wealthy Eastport businessman and according to an agreement with Gresham he was to furnish machinery for 300-500 spindles as well as a means to put the equipment into operation. Gresham agreed to furnish 680 acres of land and tenements valued at $3,000 and consisting of what was then Gresham's Mills. He was to manage the operation in the first year for the sum of $250 and to agree not to "gamble, bet, or be a noisy

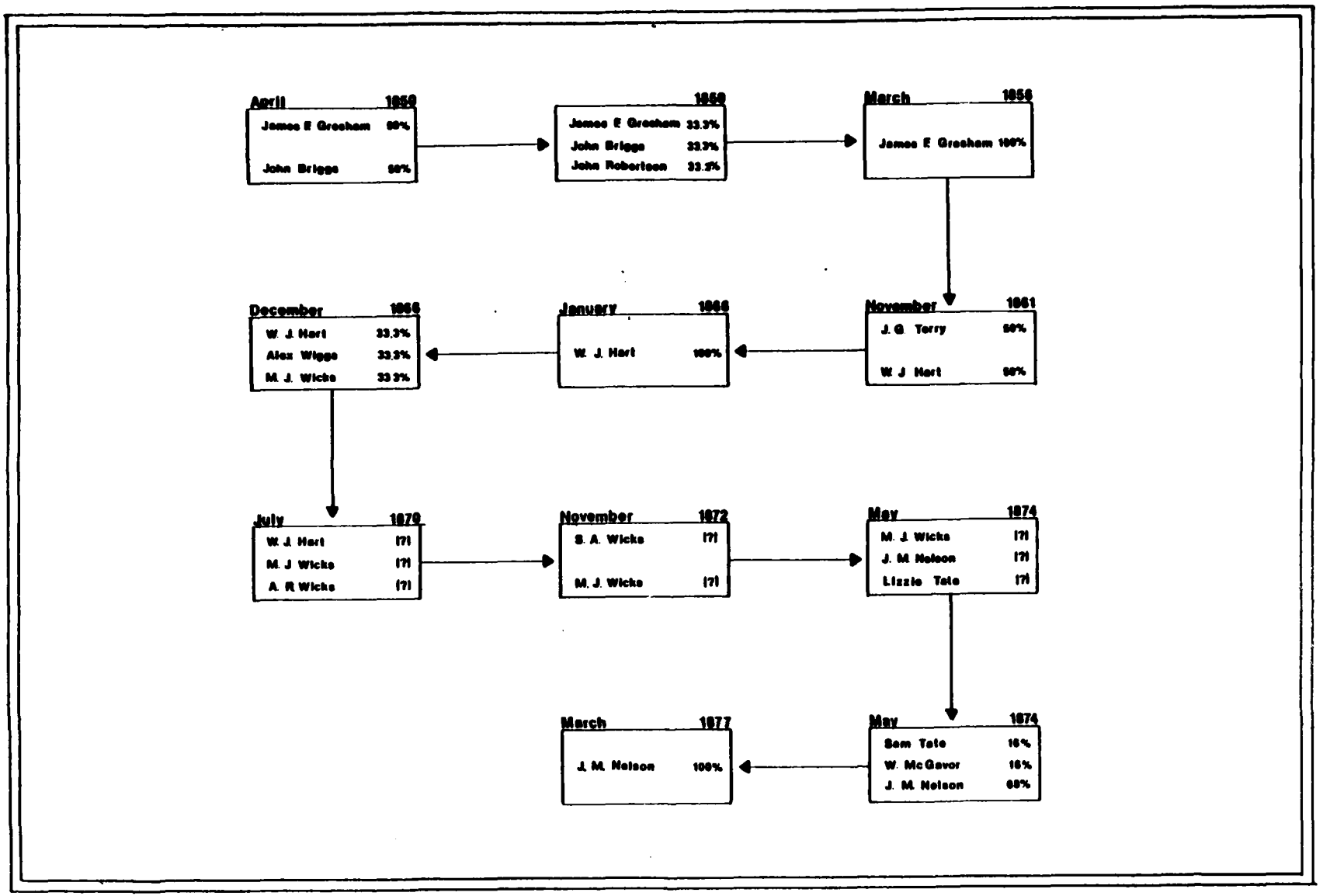

Figure 4.1.--Ownership of Bay Springs Mill

politician" (Martin 1978:31). The agreement further stipulated that good order and uniformity were to be strictly observed with moral and proper treatment for factory hands, who were to work 12 hours per day (Martin 1978:31). Soon after the company was formed John Robertson bought a one-sixth interest from both Briggs and Gresham (Figure 4.1). Robertson was to be responsible for supervising the operation of the mill complex, keeping the company records, and promoting "the interest of said factory exclusively" (Martin 1978:31). He was to receive a salary of $300 annually for his services. Briggs' interest in the company consisted of cash expended and machinery provided prior to the commencement of operations. It is not known how he was to be repaid for his investments. Gresham was to receive $3,000 for land, mills, and buildings: $2,000 for the construction of the factory; and other sums later spent by mutual agreement. In addition, he was to continue to receive his salary for services rendered (Martin 1978:31).

On February 28, 1852 the Mississippi State Legislature approved an act incorporating the Bay Springs Union Factory: "for the purpose of erecting, furnishing and carrying on at Bay Springs . . . the manufacture of cotton and woolen yarns and fabrics; and also, for the making of all machinery necessary for manufacturing purposes, and for the erection, furnishing, and carrying out of saw or grist mills" (Laws of Mississippi 1852, Chapter 168:289-290). It was further enacted that the capital stock of the company was to be $50,000 divided into 500 shares of $100 each. No one was allowed to retail vinous or spiritous liquors within one mile of the factory. Violators were subject to a fine of not less than $20 nor more than $50.

The factory was constructed on the east side of Mackeys Creek and south of the bridge (Martin 1978:32). "The old saw and grist mills were torn down to make way for the new factory" (Madden 1969:118). Before it was dismantled the sawmill produced the lumber for the factory. Power for the factory came from a dam 11 ft high diverting water to a breast wheel 12 ft in diameter built across Mackeys Creek. The wheel furnished power not only for the operation of the factory, but for a new grist and sawmill, two sets of wool cards, a cotton gin, and a blacksmith shop (Madden 1969:118). The factory commenced production with 360 spindles and the number soon increased to 744. The factory produced cotton yarn referred to as "factory thread" (Madden 1969:118; Martin 1978:32: W.P.A. nd:np).

In April of 1852 James Gresham and his new wife Sevilla, transferred title to 680 acres of land and improvements to John Briggs, James F. Gresham, and John Robertson, operating under the name of Briggs, Gresham and Company for $3,000 (Prentiss County Deed Book 2). In the fall of that year Ephraim H. Wygle and wife sold a quarter section of land on Mackeys Creek to the company for the sum of $900. The title listed their property as having improvements including a water mill (Martin 1978:32).

John Briggs died in 1856 and on March 17, 1856 his land and chattels were sold at public auction (Old Tishomingo County Probate Records, Book N:235). At that auction Gresham acquired 960 acres of land, including sole ownership of the Bay Springs quarter section, for the sum of $4,500 (Madden 1969:119; Martin 1978:33). What happened to Robertson's interest is not recorded, perhaps prior to his death Briggs had purchased Robertson's claim.

During the 1850s, the factory and community of Bay Springs continued to prosper under the leadership of James Files Gresham. In the mid-1850s a stagecoach passed through Bay Springs three times a week on its run from Eastport to Aberdeen, south of Bay Springs. In August of 1854, a new post office was opened at Barnes Store, northeast of Jourdan Hill and northwest of Dennis. Its proprietor, Samuel Barnes, was appointed postmaster and later served as Justice of the Peace from 1856-1859. In 1853 the Bay Springs Masons obtained a charter and founded the Bay Springs F & AM Lodge No. 167. They first met on the second floor of either the store or cotton warehouse at the mill. Included in the initial eight man membership roll was James F. Gresham (Martin 1978:32-33). Gresham also became involved in county politics during the decade, serving on the Old Tishomingo Board of Police (1850-1851), as a captain of patrol (1859), and as a trustee of common schools (1860-1861) (Cochran 1902:100, 141, 157).

George Gresham died on January 1, 1855 and was buried in Old Mackeys Creek Cemetery north of Bay Springs. His two youngest twins W.A.W. and G.N.G. were not yet adults at the time of his death; therefore, James Files was appointed their guardian for two years until both reached majority. The money bequeathed the twins was to be spent on their education (Old Tishomingo County Probate Records, p. 238).

The Bay Springs Union Factory rose in value from $5,000 in 1850 to more than $20,000 by 1860. The sawmill and gristmill each were valued at $1,000. The cotton spinning operation in 1860 consumed 91,000 pounds of cotton at a value of $10,000, and with seven cards and 744 spindles produced 72,000 pounds of yarn valued at $18,500. The "wool machine" used 18,000 pounds of wool valued at $5,400 to produce an equal amount of carded rolls valued at $7,200. The factory operation employed a total of 30 individuals, 15 males and 15 females. The total monthly wages for each group was $232 and $125 respectively (U. S. Census of Manufactures 1860).

Although the local community apparently constituted a large part of the market for the Bay Springs Union Factory, the manufacturing enterprise consumed a much larger quantity of raw materials than the farmers in the immediate area were capable of producing. The Census of Agriculture for 1860 indicates there was a total of 1,107 sheep in the entire southern district of Tishomingo County. Of that total 377 sheep were reported for the Bay Springs area alone, an average of 9.4 sheep per farmer. George Vineyard reported the largest number of sheep for the area, a total of 50. The Census of Manufactures figures for 1860 indicate a total of 18,000 pounds of raw wool were processed into 18,000 rolls of carded wool at the factory during that year (U. S. Census of Manufactures 1860). Given the fact that a single sheep produces an average of five to seven pounds of wool, depending on the species and age of the animal, only about a third of the factory's wool production could have come from southern Tishomingo County. It appears from the above figures that a large quantity of wool was obtained from outside of the general area around Bay Springs. In addition, the 18,000 pounds of carded wool reported produced at the Bay Springs Union Factory in 1860 was more than could be consumed by local markets, and the amount suggests that much of the product was transported to consumers outside of the immediate area of Bay Springs.

In 1860 the sawmill on Mackeys Creek, with one blade, turned 300 logs (worth one dollar apiece) into 90,000 board feet of lumber (valued at one cent per board foot). The gristmill took in corn and wheat valued at $1,400 to produce 500 bushels of meal valued at $400, and 4,000 bushels of flour valued at $1,440. One employee is listed for the sawmill operation who earned $18 per month. Two men worked at the gristmill, each receiving $19 per month (U. S. Census of Manufactures 1860). These figures indicate a 20% increase in gross lumber receipts and a 290% increase in gristmilling receipts compared to production quotas reported in the 1850 Census.

The Tishomingo County Personal Property Rolls for the years 1846 and 1848 indicate the amount of sales in the store increased from $520 in 1846 to $3,370 in 1848. By 1857 Gresham and Company was purchasing $5,293 in goods, wares, and merchandise. This figure increased to $5,827 two years later.

In spite of the success of his business venture Gresham sought to sell his interest in the Bay Spring Union Factory. The January 14, 1860 edition of the Memphis Daily Appeal ran the following advertisement:

> "Cotton Factory, Bay Springs. Cotton Factory, situated in Tishomingo Co. Miss. 34 miles from Eastport & 10 miles from the railroad. The tract of land contains 340 acres. The factory is capable of driving 1200 spindles & 50 [60?] looms. There are plenty of good houses for operators. Priced exceedingly cheap & terms liberal. For sale by Monsarrott, Drepree & Co."

The War Years and Reconstruction (1861-1870)

By 1860 the population of Old Tishomingo County had increased to 24,149. The number of free white eligible voters between the ages of 21 and 50 was 3,260. The assessed value of land had increased to $3,750,000. The value of personal property was $1,577,000 and 4,673 slaves between the ages of 16 and 60 were valued at $4,673,000 for the 686 citizens who owned them (Martin 1978:37).

On November 7, 1861 James F. Gresham sold the Bay Springs cotton factory, cotton gin, gristmill, sawmill, and other improvements to J. C. Terry and W. J. Hart, both well-known Iuka-Eastport businessmen, for the sum of $14,000 (Martin 1978:38; Old Tishomingo County Deed Book Y:101). Gresham retained 40 acres in the SW 1/4 of Sec. 26, T6S, R9E--probably his home site.

James F. Gresham formed a company of soldiers, the Cape Horn Grays, and became their captain. The company was mustered into the Confederate Army at Iuka, Mississippi on August 16, 1861 and became Company H, 26th Mississippi Regiment. Shortly after, Gresham became the Regimental Quartermaster and W. A. H. Shackelford replaced him as Captain of Company H. Although the men were eager to fight they were poorly armed (Martin 1978:38). Gresham remained in the position of Quartermaster throughout the War, seeing action at Bakers' Creek, Perryville, Bowling Green, Second Manassas, Vicksburg, and Petersburg. He was captured and paroled at Vicksburg and was mustered out of service in 1865 somewhere in Virginia (Madden 1969:119). James F.

Gresham's younger bother and former charge, G. N. G. Gresham, a Second Lieutenant in Company H was killed at Russellville, Kentucky on February 10, 1862 (Akers 1957:84; Martin 1978:39).

The War came to Bay Springs in August of 1862 when a reconnaissance troop led by Brig. Gen. Robert B. Mitchell, commanding the 1st Brigade, 4th Division, Army of the Mississippi, entered the area. His command set out to intercept Confederate troops advancing towards Iuka. Twelve miles north of Bay Springs Mitchell's forces briefly engaged Confederate scouts. On the night of August 4th he bivouaced 10 miles north of Bay Springs. The next day 2.5 miles from Bay Springs, Mitchell's forces encountered resistance from Confederate pickets and after a brief skirmish around Bay Springs the Union forces routed the Confederates and secured the area. On his return north Gen. Mitchell's command disabled "the cotton factory at that place [Bay Springs] in such a way as to require a communication between this country and New England in order to effect repairs" (U. S. War Department 1886:28-29) or so he believed. Mitchell attempted to seize 200 bales of cotton there as contraband but was unable to locate "a single team [of mules or horses] in the whole country" (U. S. War Department 1886:28-29). He left the area with five bales of cotton, seven horses and equipment, 10 stands of arms and ammunition. Mitchell estimated that the Confederates numbered 500 men which consisted of Forrest's Cavalry and irregulars. He noted that "My soldiers say it was a pretty hard live [sic] in this God-forsaken country" (U. S. War Department 1886:29). Two weeks later Kansas Calvary troops again skirmished with Confederate pickets at Bay Springs.

On September 12th, General Henry Little bivouaced his Confederate troops at Bay Springs while on the way to Iuka and for one day the Army of the West headquarters were at Bay Springs. Gen. Little complained of a weak bridge, bad roads, and rain. The next day after repairing the bridge, Little marched to Iuka where he was fatally wounded. The Battle of Iuka proved costly to the Confederates and they were forced to retreat south to Baldwyn. As they retreated through Bay Springs an ammunition wagon pulled by a team of six mules ran off the bridge at Mackeys Creek. One of the rear wheels broke through the edge of the flooring and the wagon fell into the creek pulling the team of mules down on top of it (Martin 1978:40-41). This may be the origin of a story about gold supposedly dumped in Mackeys Creek by a Union wagon tipping over.

Despite Mitchell's contention of having disabled the factory at Bay Springs several local informants related that after a brief repair period the factory was back in operation and remained so throughout the latter part of the war. Why the cotton factory and mill complex was not completely destroyed is not known. Informants suggested the mill owner was a Union sympathizer, but that was unlikely given his zeal for the Confederacy. After the war the Bay Springs Union Factory resumed normal operations. On January 27, 1866, J.C. Terry sold his half interest in the enterprise to his partner W.J. Hart for $5,000 (Figure 4.1). The entire property included: Sec. 26 (less 40 acres off from the SW 1/4 north of Ginn Branch conveyed to Margaret Gresham), the SE 1/4 of Sec. 27, the NE 1/4 of Sec. 34, the W 1/2 of SW 1/4 of Sec. 25 and the NW 1/4 of Sec. 35, all in T6S, R9E. Included with the tracts were the factory buildings, cotton gin, gristmill, sawmill, outbuildings, and other improvements (Prentiss County Deed Book 4:183-184). On December 1st of that year W.J. Hart sold to Alex R. Wiggs of Huntsville,

Alabama and Moses J. Wicks of Memphis, Tennessee, two-thirds interest in the Bay Springs operation for $6,666.66 (Prentiss County Deed Book 4:208-209). Evidentally John Robertson had earlier signed a deed of trust to John Briggs for his interest in the Bay Springs enterprise, as Hart, Wiggs, and Wicks obtained a quit claim deed from Robertson who was then living in New Orleans, on July 27, 1867 for "$10 and diverse other considerations heretofore received by him" (Prentiss County Deed Book 4:249-250).

The Census of Manufactures in 1870 indicated the Bay Springs Cotton Factory was valued at $30,000. Yearly the factory consumed 100,000 pounds (approximately 200 bales of cotton) worth $20,000 and other supplies worth $1,000 to produce 80,000 pounds of yarn worth $28,000. Its 576 spindles were powered by a waterwheel rated at 50 horsepower, and its 20 employees (three men over 16 years of age, 10 women over 15, and seven "youths") together earned $2,500 per annum. The factory only ran for seven months out of the year. These figures disclose significant changes in productivity at the factory since the 1860 Census. Cotton consumption rose 10% but there was no mention of wool processing. The labor force was reduced by one-third in the ten year interval with youths replacing all but three of the adult males. The preceding changes reduced the total cost of wages by 42%, however, this was offset by the 82% rise in the cost of cotton, from 11 to 20 cents per pound. Apparent profits on textiles fell from $5,700 in 1860 to $4,500 ten years later, a 30% decrease, yielding only 15% return on invested capital compared with a 29% return ten years earlier. The reduction in the number of spindles from 744 in 1860 to 576 in 1870 and the reporting of a 50 horsepower waterwheel (which might have necessitated the replacement of the original 12 ft breastwheel) suggest the factory underwent structural modifications. This may have been the result of technological innovation or because of damages inflicted by Union forces.

James F. Gresham returned to Tishomingo County following the war and became sheriff and tax collector for a term of four years. Afterwards, he moved to Bonneville where he was engaged in merchandising and sawmilling until his death on February 27, 1891 at the age of 70 (Akers 1957:85-86).

On April 15, 1870 the Mississippi State Legislature approved an act dividing Old Tishomingo County into Prentiss, Alcorn, and Tishomingo Counties. The Census data for that year lists 7,350 people in Tishomingo County, 6,609 whites and 741 blacks. There were a total of 690 eligible white voters, 94 black voters, with 273 individuals disqualified (U. S. Census of Population 1870).

In July of 1870 W. J. Hart and Alexander R. Wiggs sold their interest in the Bay Springs Union Factory to Moses J. Wicks, their third partner. The title history from this point onward is rather difficult to reconstruct because most government records and documents were destroyed by a fire at the Iuka courthouse in 1887. In May, 1874, the Bay Springs Lodge No. 167 of Free and Accepted Masons purchased one-half acre of land from Wicks as the site of the new lodge building paying $600 for the tract. The County Surveyor, Ransom Davis, surveyed the lot for the lodge, and it was constructed on the west side of Mackeys Creek, just south of the old store (Martin 1978:55). Ownership of the factory changed hands a number of times during the 1870s; those owning interests at various intervals included: Sarah A. Wicks, W. J. McGavoch, Sam Tate, Jr., Lizzie C. Tate, and John M. Nelson, Sr. (Figure 4.1).

The recovery and perpetuation of the Bay Springs Union Factory during the Reconstruction Era presents somewhat of an anomaly. Generally speaking, the earliest cotton processing factories in the antebellum South were situated near readily available sources of power and large quantities of raw materials. Consequently, these processing facilities were scattered throughout the region. In many instances they were located some distance from the industrial centers which would have provided ready markets for the cotton factories' products. A case in point is the Mississippi State Penitentiary textile mill at Jackson, Mississippi. Established in 1840 to produce clothing for inmates, the factory later was expanded, so that by 1850 the mill was producing 1,000 yards of cloth per day. The local market was unable to consume this volume, and in order to dispose of its products the Mississippi State Legislature granted the prison permission to open agencies in Mobile, St. Louis, and New Orleans (Moore 1954:91-92).

Bay Springs position in relation to larger commerical centers in Tishomingo and surrounding counties, like Booneville and Iuka, placed it at a disadvantage in the competitive market. The nearest railroad was located in Booneville, Mississippi some 20 miles away. This would have affected shipping costs for the finished yarn, but we can only guess how significant that would have been. Would hauling yarn 20 miles by wagon on dirt roads really have been a problem? Possibly, a reduced access to the railroad limited the production to a level which could be absorbed by consumption within the county. Unfortunately, we have no records from the mill itself which would indicate whether it was serving a local, regional, or national market. However, production figures from census years indicate a level which could have been consumed by the nearby counties.

On the other hand, improving the transportation system by building a railroad line into the area might have destroyed the factory. The fact that the factory at Bay Springs was not near a railroad in all likelihood prolonged its existence. The materials processed at the factory--yarn, twine, and carded wool--probably were intended for consumption in nearby markets, primarily in home and cottage industries. These unfinished or processed materials then were woven into cloth at home. While the railroad would have served as an inexpensive and efficient means for transporting the factory's products outside of the area, thus increasing market potential, the railroad would also have made less expensive northern-produced textiles more available to area residents. Eventually the demand for ready-made textiles sold at competitive prices would have exceeded that for unfinished goods produced at Bay Springs. Whether the factory could have survived this competion is questionable. To compete, it would have had to enlarged its facilities for cloth production and gone far beyond the Bay Springs area to obtain sufficient raw materials, not to mention a market for its products. The immediate area was constrained by the quality of soil types and it is doubtful that area residents could have supplied the quantity of raw materials needed. The factory would have had to accomplish three objectives: enlarge, compete for raw materials, and compete for a market. Competing with the northern industry was a problem encountered by all southern textile manufacturers (see Chapter 8). Thus, access to raw materials and access to market finished goods were the limiting factors.

Late Factory 1870-1883

In the early 1870s John M. Nelson (1831-1882) became a stockholder in the Bay Spring Union Factory (Figure 4.1). Nelson, of Eastport, Mississippi, appears to have been in charge of company operations and had full ownership in the factory and enterprises by 1877. At various times during the period Nelson's partners, who were involved primarily in the store and merchandising, were W. J. McGavoch, Sam Tate, Jr., and Robert C. McMechan. In 1879, the store operated as Nelson and McMechan with the post office either located in the factory commissary or store (Martin 1978:55).

Postmasters for Bay Springs during the 1870s included: E. H. Reno (1871-1876) a bookkeeper for John M. Nelson during the same period, Thomas H. Ladd (1876-1877), and Robert C. McMechan (1877-1881). John M. Nelson became postmaster at Bay Springs in March of 1881 (U. S. Post Office Department n.d.).

The Census of Population in 1880 indicated 8,774 people living in Tishomingo County. Of those, 1,359 individuals resided in the Fifth District, which included Bay Springs. There were 28 blacks living in the district at that time, 2% of the total population. Tishomingo County always had one of the lowest percentages of blacks of any county in Mississippi, partly because the physiography of the region precluded any plantation-type operations typical of the Black Prairie and the Delta areas to the west and south. The little community of Bay Springs had a population of 65 (Martin 1978:59). The economic hardships precipitated by the Civil War and Reconstruction were for the most part finished by 1880. However, hard times had forced many people westward. As a result the population growth rate declined in Bay Springs and in the region. In 1860 the population for the state of Mississippi was 791,303 (Table 4.1). By 1870, the figure for the state was 702,304, a 12.6% decrease from the previous decade. For the period from 1870 to 1880 the population for Tishomingo County rose from 7,350 to 8,774, a 19% increase; for the Fifth District the respective figures are 1,055 and 1,359, a 28% increase.

By 1880 the economy of Bay Springs was on the upswing. Nelson's operations were reportedly prosperous and there was talk that the Bay Springs Mills had the potential to become one of the largest enterprises in Mississippi (see page 1). In addition to his cotton mill, Nelson had a cotton gin, sawmill, gristmill, and store. The 1880 Census of Population lists a total of 22 individuals employed at the Bay Springs Union Factory: eight adult males, nine adult females, and five females under the age of sixteen. The mill had about 800 spindles in operation by 1880, a 39% increase from the 1870 figure (Nabors 1940:67).

Despite predictions for increased expansion and productivity for the Bay Springs Union Factory in the 1880s, fate was to ordain otherwise. John M. Nelson, Sr. died on April 1, 1882, and his passing altered the future of both the factory and the community of Bay Springs. Following his death management fell into the hands of his 21 year old son, John M. Nelson, Jr. However, the younger Nelson did not possess the business acumen of his father. As a result Nelson's widow, Marion E. Nelson, his daughter Jessie E. Paden, and her husband took charge of the operation. Nelson's widow became postmistress of Bay Springs until the post office was moved to Tynes in July of 1885 (Martin 1978:59).

In the period following Nelson's death the factory began to decline. John M. Nelson, Jr's. actions concerning the enterprise caused dissension among the management, and this ultimately placed a severe strain on management/employee relations (Martin 1978:59; Powell 1937:n.p.). Sometime in the mid-1880s a fire of "suspected incendiary origin" destroyed the factory and adjacent warehouse (Martin 1978:59). The loss from the fire was estimated to have totaled $40,000 (Powell 1937:13). The exact date the factory burned remains a mystery, however it must have been between 1883 and 1885. We know that trouble did not begin until Nelson's death. Marion E. Nelson remained postmistress at Bay Springs until July of 1885 when the post office was moved to Tynes. We can assume the post office remained at Bay Springs while the factory was operating. With the factory gone the community began to deteriorate and thereby providing a reason for moving the post office. Martin places the fire at 1885-1886, but does not provide any reference. A resident of the area, W. W. Shook, recalled that as a boy living with his family on Rock Creek he saw the night sky around Bay Springs "glow red" from the fire (Martin 1978:59), implying that the fire could not have occurred much later than 1885, since he was born in 1866. For ease of discussion, the year 1885 will be given elsewhere in the text as the burning date.

Transition (1885-1900)

With the factory closing many residents were forced to rely upon other livelihood. While some families looked elsewhere for employment, others returned to the land for their subsistence. Despite the relatively poor soil quality of the area surrounding Bay Springs most inhabitants were engaged in subsistence agriculture. Corn was the primary crop grown as feed for livestock and for human consumption. Cotton was grown as a cash crop on many farms and the proceeds from its sale were used to purchase goods not produced on the farmstead. The production of cotton there never approached the scale common to other parts of Mississippi. The soils of the area are not of particularly good quality for growing cotton and the yield per acre is limited without the use of fertilizer. Nevertheless, the coming of the railroad into the area in 1857 did stimulate the production of cotton. As new land was cleared the ratio of cotton to corn grown increased to an average of 1:2.

Most farmers grew a variety of other crops, including: sweet potatoes, potatoes, various types of beans, peas, squash, tomatoes, onions, okra, lettuce, melons, pumpkins, and turnips. These vegetables were intended primarily for home consumption. Infrequently, enough surplus was produced to sell on local markets. Well into the 20th century, most plowing, planting, and cultivating was with horse or mule-drawn implements. Fertilizer, when used, was usually distributed by hand and almost all harvesting was done by hand (Orvedal and Fowlkes 1944:17).

The percentage of owner-operated farms in the area decreased from 75.2% in 1880 to just over 50% by 1940 (Orvedal and Fowlkes 1944:19). This gave rise to a system of land tenure whereby absentee landlords made available to tenants parcels of land for cultivation. There were three main classes of

tenants. The first was the cash renter, the second was the "third and fourther", and the third was the sharecropper.

> "A cash renter pays the owner a stipulated cash rent per acre and manages the farm and furnishes all the equipment, work animals, seed, fertilizer, and labor. A 'third and fourther' gives the owner one-third of the feed crops and one-fourth of the cotton, manages the farm, and furnishes all the labor, equipment, work animals, seed, and fertilizer. A sharecropper gives the owner one-half of the crops and furnishes all the labor, half of the seed, and half of the fertilizers; the owner manages the farm and furnishes the work animals, half of the fertilizer, and half the seed. Occasionally the sharecropper furnishes the work animals instead of the owner" (Orvedal and Fowlkes 1944:19).

After the factory fire, people still came regularly to Bay Springs. The Masons held their meetings upstairs in the lodge while church services were held on a regular basis downstairs, and the Confederate reunion continued to be an annual event celebrated the first week-end in August. In 1887 Harvey Medford, Mayor of Tupelo, Mississippi, proposed that the state penitentiary be moved from Jackson to Bay Springs, where convicts might be put to work quarrying building stone. The stone, according to Medford, could be used to build "fireproof" prison walls (Martin 1978:60). The mayor saw other advantages to Bay Springs:

> "There is no better water power anywhere. Good timber is in great abundance. Close by are beds of the finest clays. . . . With that water power the cotton factory and mills could be established and do a good business. From Baldwyn to Bay Springs is about 24 miles. There is a railroad charter to Marietta about half-way. The famous Purple Shell Springs are here. Let this charter be extended to Bay Springs. Let the state build this road with convict labor and with what other help can be had from outside" (Martin 1978:61).

Mayor Medford's suggestion was not acted upon and Bay Springs continued to decline. In 1895 the Bay Springs voting place was deemed inconvenient and was moved to the Cotton Springs schoolhouse on the Eastport and Fulton Road; however, the Bay Springs name was retained (Martin 1978:63).

Logging (1900-1930)

When settlers first arrived in the area around Bay Springs the land was forested with tracts of deciduous trees and conifers, especially blackjack oak, post oak, and shortleaf pine (Martin 1978:5). Although there always had been a certain amount of logging conducted in the area, even in the earliest period when logs were used for building purposes or floated down Mackeys Creek to the mills at Aberdeen, much of the virgin timber was removed to provide tillable land for cultivation. Beginning in the last decade of the 19th century, however, logging began to rise in economic importance for the residents in the vicinity of Bay Springs.

Many, if not most, of the first sawmills were comparatively small operations, often powered by water and employing few workers. In 1840 31,650 sawmills operated in the United States, 309 located in Mississippi. By 1850 figures for each were 17,475, in America and 334 in Mississippi

respectively (Table 4.2). The apparent drop in number for the nation in 1850 was probably due to establishments like shingle mills, cooperage shops, planing mills, etc. being included in the earlier figure, inflating the total (Defebaugh 1906:489). By 1860 the number of mills in Mississippi had dropped to 229, while the value of products had risen to $1,832,227, more than double what it had been 10 years earlier. Over the next four decades the number of sawmills in operation in Mississippi continued to increase.

Table 4.2. Mississippi Sawmills 1850-1900

Year	Mills	Workers	Capital	Wages	Product Value
1850	259	1,079	711,130	$ 221,628	$ 913,197
1860	229	1,441	1,049,910	$ 436,116	$ 1,832,227
1870	265	1,954	1,153,917	$ 580,056	$ 2,160,667
1880	295	1,170	922,595	$ 197,867	$ 1,920,335
1890	366	4,427	4,498,788	$1,169,673	$ 5,770,387
1900	844	9,676	17,337,538	$2,790,780	$15,656,110

*from Defebaugh's History of the Lumber Industry in America, 1906.

The number of workers employed in sawmills in Mississippi also increased through the late 19th century. In 1850 there were an average of 4.2 employees per mill. By 1900 this figure had increased to 11.2 per mill (Table 4.2). These figures reflect a shift in trend away from the small family owned and operated sawmill toward larger commerical operations. In 1900 the average annual wages for an individual employed in sawmilling was $369.42 nationally. However, in Mississippi the average was $288.42 for the same period, reflecting a general trend in the South of a lower per capita income when compared to the rest of the country (Defebaugh 1906:504; Berglund et al. 1930:45). While the latter figure seems somewhat low, for many people sawmilling was a seasonal occupation supplementing income derived from farming and other economic pursuits. In Bay Springs sharecroppers and renters worked in the portable sawmills in the summer after the crops had been laid by (i.e., when the crops are left to grow on their own, usually in July after they are hand-cultivated) and in the fall and winter after the crops had been harvested. In Mississippi, sawmilling developed in importance as a major economic concern during the latter decades of the 19th century (Table 4.2). The rise was precipitated by the availability of an inexpensive means for transporting timber out of the area, railroads, and by the appearance of large, steam-powered sawmills which could produce more lumber than the earlier waterpowered mills. Although the steam-powered mills proved to have distinct advantages over their earlier counterparts, they were not without drawbacks. Steam-driven sawmills were semi-permanent operations. The cost and effort of dismantling and moving the mills made frequent shifts in location impractical, yet the longevity of any such operation was dependent upon the source of raw materials. When all timber had been cut from the area around the mill, the enterprise was forced to move to a new location. As a result small temporary communities populated by employees and their families often developed near the mills. Because of their temporary nature these sawmill communities frequently did not exhibit features characteristic of more permanent communities.

When sawmilling became of economic import the physical appearance of a community changed little since the lumbering concerns who began buying up

the large tracts of land were reluctant to expend much money to improve an area having a limited lifespan. Thus, the major tangible evidence of the shift in Bay Springs economy toward logging and sawmilling was the appearance of sawmill houses in the area. These crudely constructed shelters were intended primarily as temporary housing for the industry's employees and were not erected with any eye toward permanency.

Another development to have a profound affect on the Bay Springs area was the introduction of the portable sawmill shortly after the beginning of the 20th century. Unlike its steam-powered counterpart, the portable mill was driven by an internal combustion engine and was mounted on skids to facilitate its movement from area to area. These portable saws were also inexpensive. Several operated in the area during the first two decades of the 20th century. Although sawmilling continued to be of some economic importance to those in and near Bay Springs after the 1920s it would never again achieve the scale reached during the period just after the turn of the century.

Decline (1930-1957)

By the 1930s the sawmill industry throughout the southern portion of the country had declined. The Depression placed a severe economic strain on the industry and the large tracts of timber which once had been so prolific had begun to disappear. Farmers fared little better. Programs instituted by Roosevelt's New Deal, particularly the Agricultural Adjustment Act, brought farm controls. Livestock were killed and crops were destroyed or plowed up, and excessive production discouraged (Martin 1978:190). Many young men in Tishomingo County joined the Civilian Conservation Corps. These workers set out trees, built reservoirs, made terraces, and cut trails (Martin 1978:190).

At Bay Springs little remained of the once prosperous mill community. The few remaining buildings continued to decline. The store had operated sporadically in the first decades of the 20th century, but by the 1930s was being used to store lumber cut from the nearby tracts of timber. The old Masonic Lodge at Bay Springs continued to serve as the meeting place for the Masons until the mid-1950s when it finally closed. In 1953 the Masons held their 100th Anniversary at the old lodge with nearly 200 people attending. The occasion was observed with a fish fry, speeches, renewal of old acquaintances, and talk aboutold times (Martin 1978:222). The Old Soldiers Reunion, long a part of Bay Springs' tradition, had ceased. Perhaps the best remembered reunion was the in 1910:

> "The second day featured the real highlights. Noted fiddlers and banjo pickers came from all over the area . . . the staunch, proud Confederates organized and paraded in rank with appropriate music. . . . Following the marching of the Confederate veterans came political speeches galore. . . . Often, speakers praised the Confederate efforts to keep their way of life and vehemently blasted the hardships of Reconstruction. Lemonade stands . . . were always in evidence. The vendors had rectangular enclosures of pine boards or heavy cardboard in the more strategic locations around the lodge. . . . Usually, there was an unneeded overabundance of another beverage that did not come from the springs or the lemonade stands. Some drank too much of it, and free-for-all fights erupted . . . the

Confederate Reunions at Bay Springs were not only reunions for the aging Confederate soldiers but also massive social gatherings for thousands of acquaintances and friends which time and space separated" (Martin 1978:123-124).

Recent (1957-1980)

The closing of the Masonic Lodge marked the end of most activity at Bay Springs. Occasionally, families returned to the area to picnic near the drip springs or to visit the remains of the dam where it once spanned Mackeys Creek. Sometimes visitors would pick up scraps of metal from the old factory to take home. The old Masonic lodge building and store were not spared from the hands of souvenir hunters and vandals either.

In the mid-1970s construction began on the Tennessee-Tombigbee Waterway. Serious plans for the waterway began in the 1930s and many of the longtime residents of the area around Bay Springs still remember the speeches of politicians during the Confederate Reunions who prophesized that the construction of such an inland waterway would bring prosperity to the area and its residents. Early in 1979 the last remaining standing structure in Bay Springs, the old lodge, was bulldozed. Physically, little remains to remind one of the activities which once took place on Mackeys Creek over 100 years ago. The large tracts of pine--where visitor to the reunions once spread their pallets and later served as the source of livelihood for numerous loggers and sawmillers--were destroyed in 1979. Perhaps someday a visitor's center at the dam will acquaint strangers with a brief outline of the area's history. For the older residents many of the events which transpired there still live on. Yet the Bay Springs of the past is only in people's memories, and as time passes these images dim and begin to fade away.

CHAPTER 5. SETTLEMENT PATTERNS

Introduction

Bay Springs existed throughout most of its history as a node or central place in the area's transportation and redistribution network. Within Bay Springs were several focal points of settlement. These are examined here in order to place the area in the perspective of human adaptation to a particular place. What were the geographic factors and responses? Where were sites located? How did they change through time?

The settlement pattern is the observable dispersal of human activity areas across the physical landscape, whereas the settlement system is the reason for those particular locations. For example, at Bay Springs the observed settlement pattern consisted of houses and roads usually located along ridgetops. Post offices as central places were located at about two mile intervals. The settlement system, the reason for this pattern, is less certain, but the correlation between road locations, soils, and topography (presented later) suggest that wagon traffic was easier there than in the valleys. Thus, we might argue that in any dissected hill country where long, connected ridges are typical, like Appalachia, the roads will follow those ridges, but in more rolling landscape roads will follow valleys. We believe the transportation network was a major determinant of house location.

Defining the Community

As stated previously, the Bay Springs Project tried to focus its attention on the community level, where possible. But how can the community be defined in any useful way other than the vague notion of its existence? The problem in defining the community is common to most rural communities--a lack of specific boundaries. From land rolls and abstracts of titles we can know who owned nearly every bit of land at Bay Springs, how much they paid in taxes, and from census data we can learn their family structure, their livelihood, and amounts of livestock, home industry, and produce. But we cannot know what social interaction bound them into a whole. Individual families on the periphery may have interacted nearly equally with other families in two or more other communities. Nevertheless, people tend to identify themselves with one community because of economic, legal, and other factors.

What avenues are there to approaching the delineation of the community boundaries? The ideal is to derive an emic statement on the boundaries through oral testimony and direct evidence left by the members of the community: in other words, what they would have said the boundaries were. Such a statement has not appeared for the 19th century. However, by combining information from several sources we have "reconstructed" the area of the community and called this the Bay Springs Locality. This must be tempered with some skepticism, for at best it is only a probability statement based upon reading each census schedule and comparing that with landownership and topography. It is the researchers' analog for the community. While we feel it does have some emic value, that is the residents in 1860 might <u>generally</u> agree with our determinations, from the analytical standpoint it matters much less. The Bay Springs Locality includes most of the Bay Springs community, but it may exclude some farmers

on its periphery. Brief examination of census data for surrounding areas of Old Tishomingo County does not reveal any great differences between other communities and Bay Springs in terms of farm size, occupations, or economic activities, with the exception of the cotton factory and workers at Bay Springs. There is no reason to assume that one farmer in this area was substantially different from other farmers. This is not to assume a culturally homogeneous landscape, but merely affirmation of the number of shared attributes.

Several lines of evidence were used to define the study area in the political division of Prentiss and Tishomingo Counties. In 1870, the county line passed along the west edge of Sec. 26, where the mill complex was located. After county division, we may assume that traffic to the new county seat at Iuka (25 miles away) would have been enhanced and traffic to the Old Tishomingo County seat at Jacinto diminished although Jacinto was the same distance from Bay Springs; at least this was the situation for the rest of the county (Weaver and Doster 1981). In any case political alignment and presumably both economic and social interaction, would have been toward the north prior to 1870 and shifting to the northeast after 1870. Orientation to the county seat town can usually be assumed in the absence of towns closer to the study area. There were no major towns or villages nearby to the south, east, or west of Bay Springs until the arrival of the railroad at Belmont, some eight miles to the east. Thus, the political boundary does appear to be a useful factor for definitional purposes. Of course, people rarely pay attention to political boundaries when choosing neighbors.

Bay Springs was included within District 5 for the U. S. Census and this is the smallest political unit available. The only other political factor is in the distribution of post offices. The closest post offices to the Bay Springs Post Office were all between 1.5 and 2 miles away (Figure 5.1). These did not operate at the same time, as the following list (compiled from Martin 1978) indicates:

Bay Springs	1844-1885			
Barnes Store	1854-1867	moved to	Hillside	1867-1898, 1898-1905
Hunt	? -1906			
Tynes	pre-1885-1902			
Allen's Store	pre-1867-1884	moved to	Emma	1894-1905
Elma	? - ?			
Millican	? - ?			

Of these, only Barnes Store and Allen's Store appear to be substantial competitors for Bay Springs. The other post offices were operated from the house of the postmaster or postmistress. When the post offices closed the mail was assigned to a nearby post office (Figure 5.1:arrows). Likely the closings in the 1903-1905 period reflect the institution of rural free delivery in 1906, eliminating the need for many small post offices. If we assume an isomorphic plane, the post offices appear at remarkably regular intervals of about 2 miles, each having a catchment area of about 4 sq mi, in the late 19th century. Although the data are largely absent for the early settlement, we guess that area would be twice to four times as large.

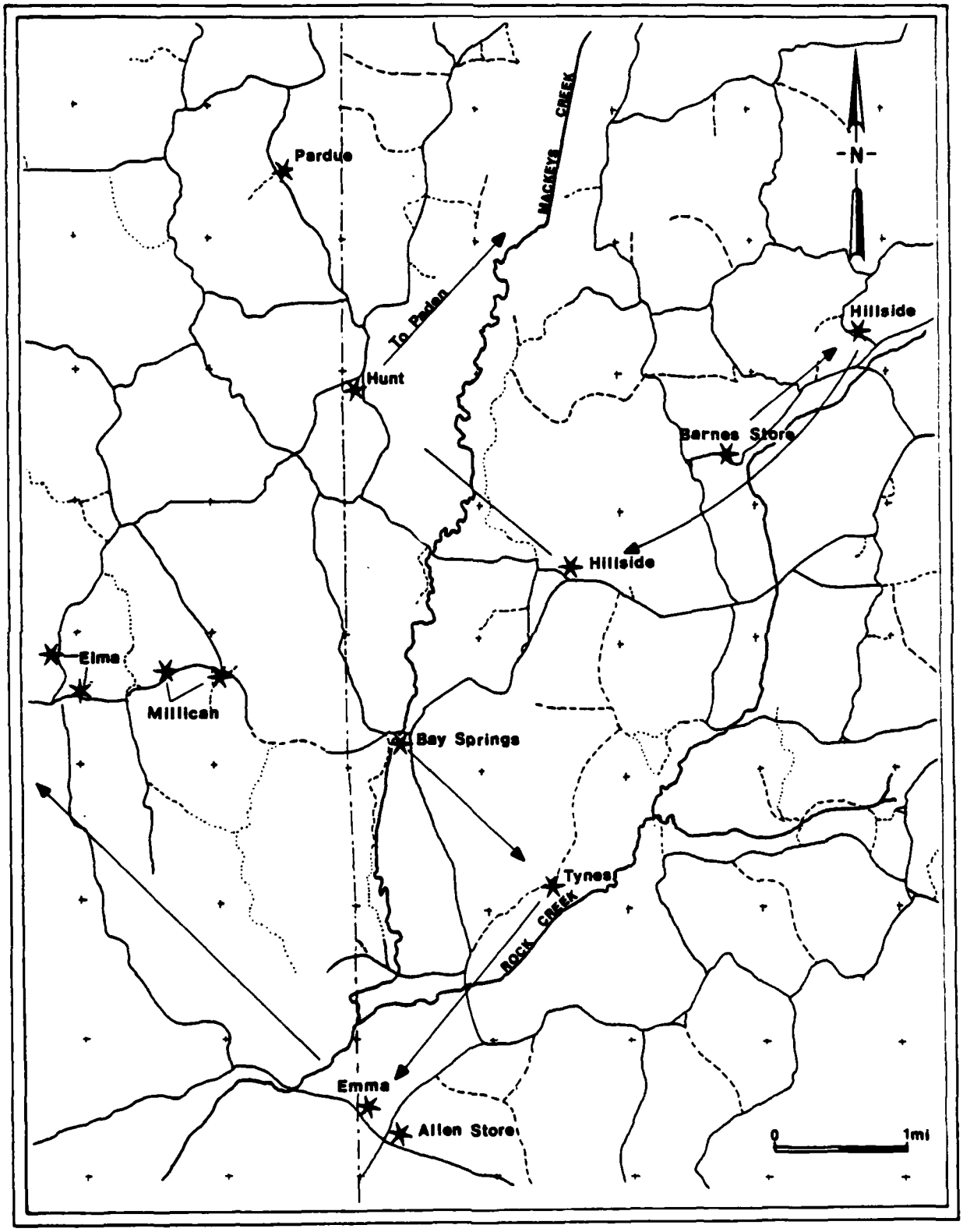

Figure 5.1.--Locations of Post Offices Near Bay Springs. (Arrows Indicate Where Mail Went When Post Office Closed).

The census schedules use the post office area as the units within each district. It seems a simple enough matter to take the people listed under Bay Springs Post Office as defining the community, however, several of the individuals we know are living in Bay Springs, for example, James F. Gresham, are listed under Barnes Store to the east. Thus, the post office is a good indicator of residence within a particular community, but it cannot be taken as definitive. Post offices probably indicate a neighborhood level, low order central place and when combined with a store or mill they represent a higher order central place.

Mackeys Creek Church and the Masonic Lodge Members

Another source for defining the community is Jerry Martin's history of the area. He lists the founders of the Mackeys Creek Church and the Masonic Lodge at Bay Springs (Table 5.1; Martin 1978:29-32). These provide some clues as to the interaction of community members at those times. The church was founded as Predestinarian Baptist on August 16, 1845, on land donated by John R. Martin, a mile north of Gresham's Mill (Figure 5.2). If we assume the founders were living on the land recorded on their deeds, we can see that the church drew its members from some distance, including several persons from what was then the Allen's Store community (later Moore's Mill). Of course, riding once a month to the church some four miles away was no great hardship, but those people were not apparently part of the community on a regular basis.

Table 5.1. Early Members and Founders of Mackeys Creek Church and Founders of Bay Springs Masonic Lodge.

Church Founders:			Lodge Founders:
George Gresham	William H. Riddle	George Lee	Lewis R. Pate
Rachel White	John Allen	Joseph Allen	C. G. Pardue
Andrew McCreary	Frances McCreary	Sarah Allen	Hugh Moore
Moses Holland Allen			George Tankersley
Early Members:			
Stephen R. Moore	W. C. Lacey	James F. Gresham	James F. Gresham
J. M. Riddle	Elisabeth Martin	John R. Martin	John R. Martin

The Masonic Lodge was founded in 1853 and met at the mill until a lodge building was erected in 1874. Of its founders, only J. R. Martin, J. F. Gresham, and C. G. Pardue are listed on any land titles within the study area. The others could have been mill employees or lived outside of the study area.

Settlement History

The initial settlement of the southwestern part of Old Tishomingo County was along Little Brown Creek and along Mackeys Creek (Figures 5.3, 5.4). In 1836, W. H. Files bought the SW 1/4 of Sec. 26, the gorge area of Mackeys Creek where eventually Gresham's Mill was built. The quarter section to its south was bought in 1837 by Ephraim H. Wygle. By the end of 1839, the valley had been purchased north of the mill area for three miles. Settlement had also begun on Rock Creek to the east of Bay Springs, when in 1838 Micajah Lindsey arrived. The surrounding ridges were bought later than the valleys. By 1840, the Bay Springs settlement had expanded outward into

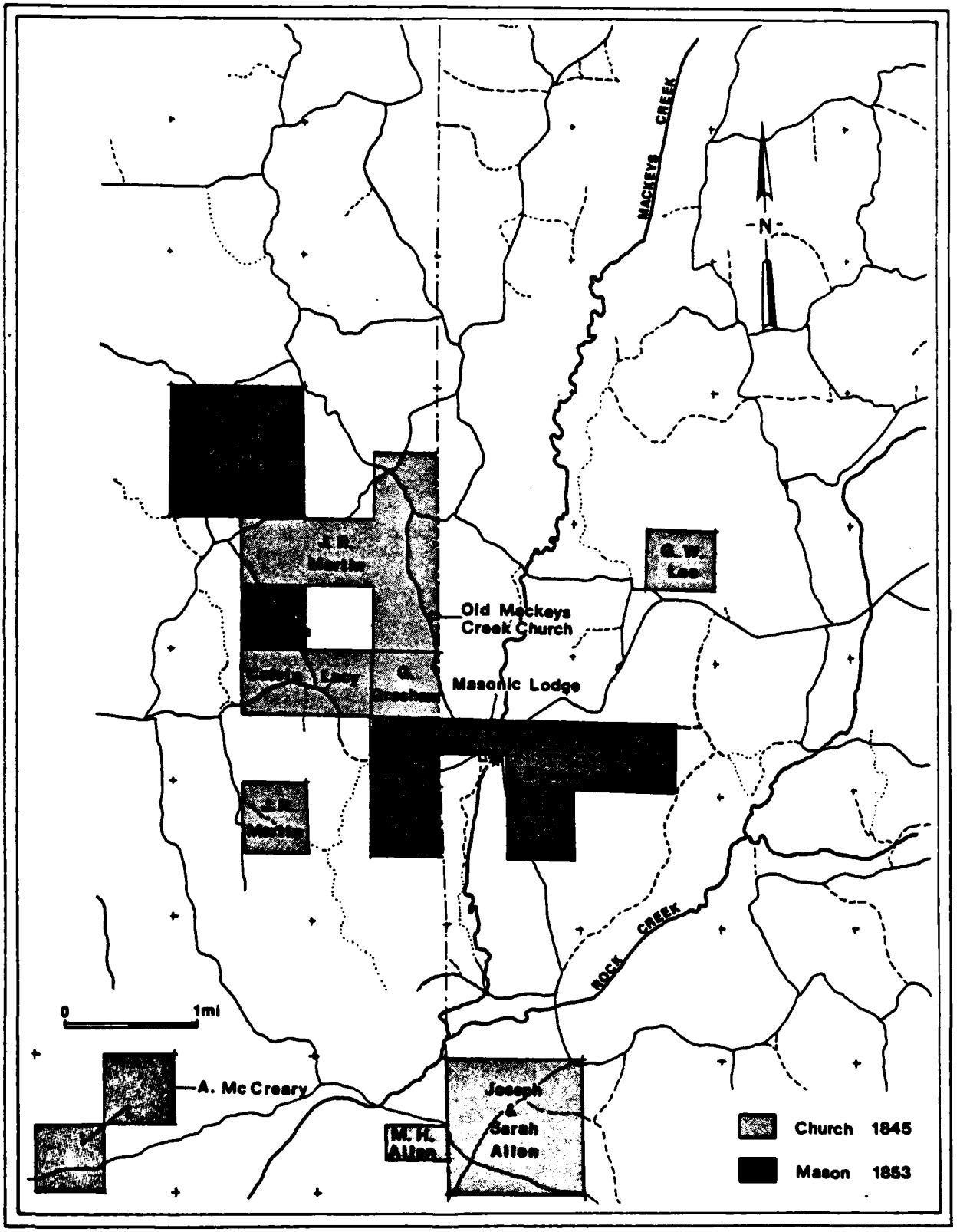

Figure 5.2.--Location of Foundèrs for Mackeys Creek Church and Masonic Lodge.

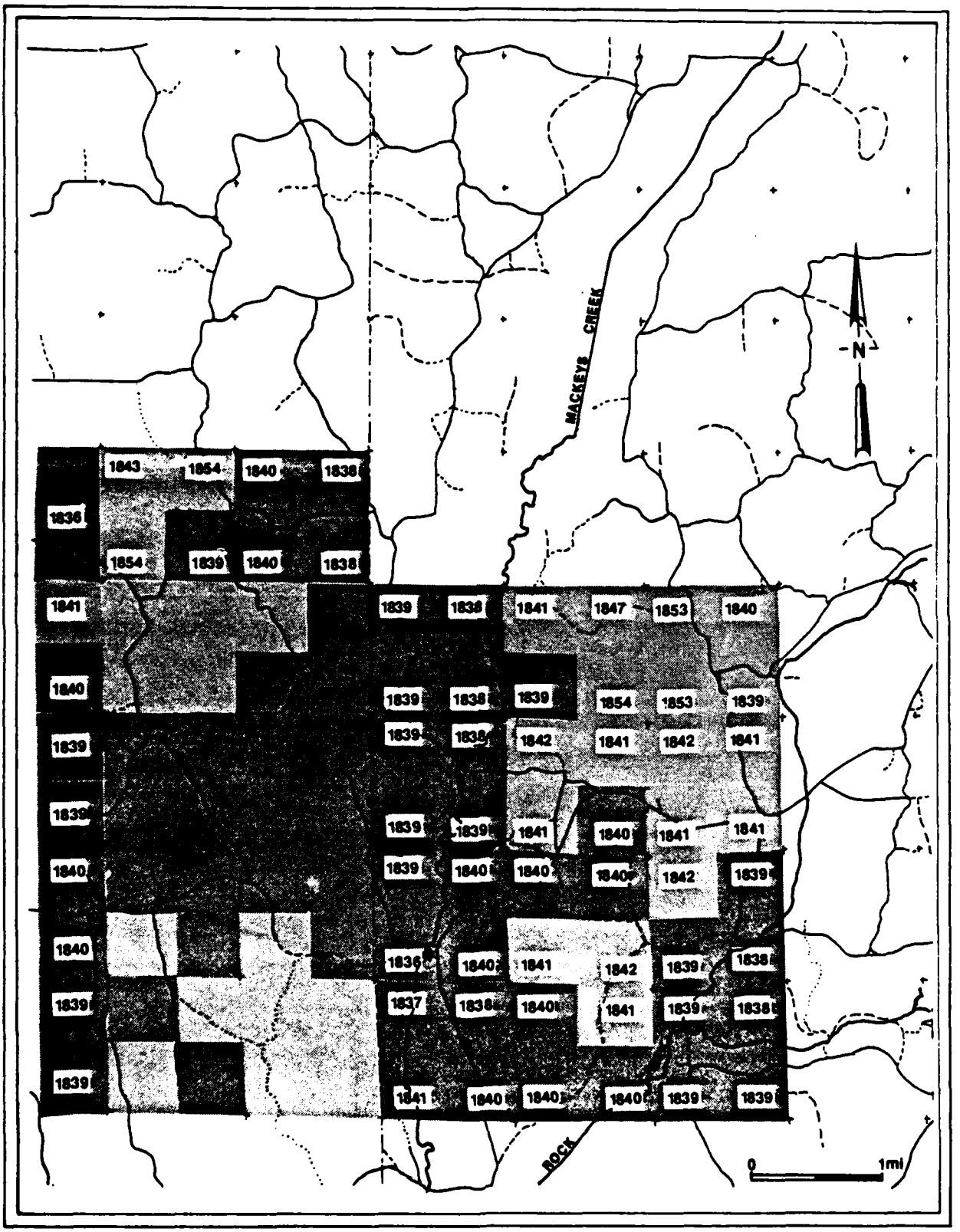

Figure 5.3.--Date of Filing for First Deed.

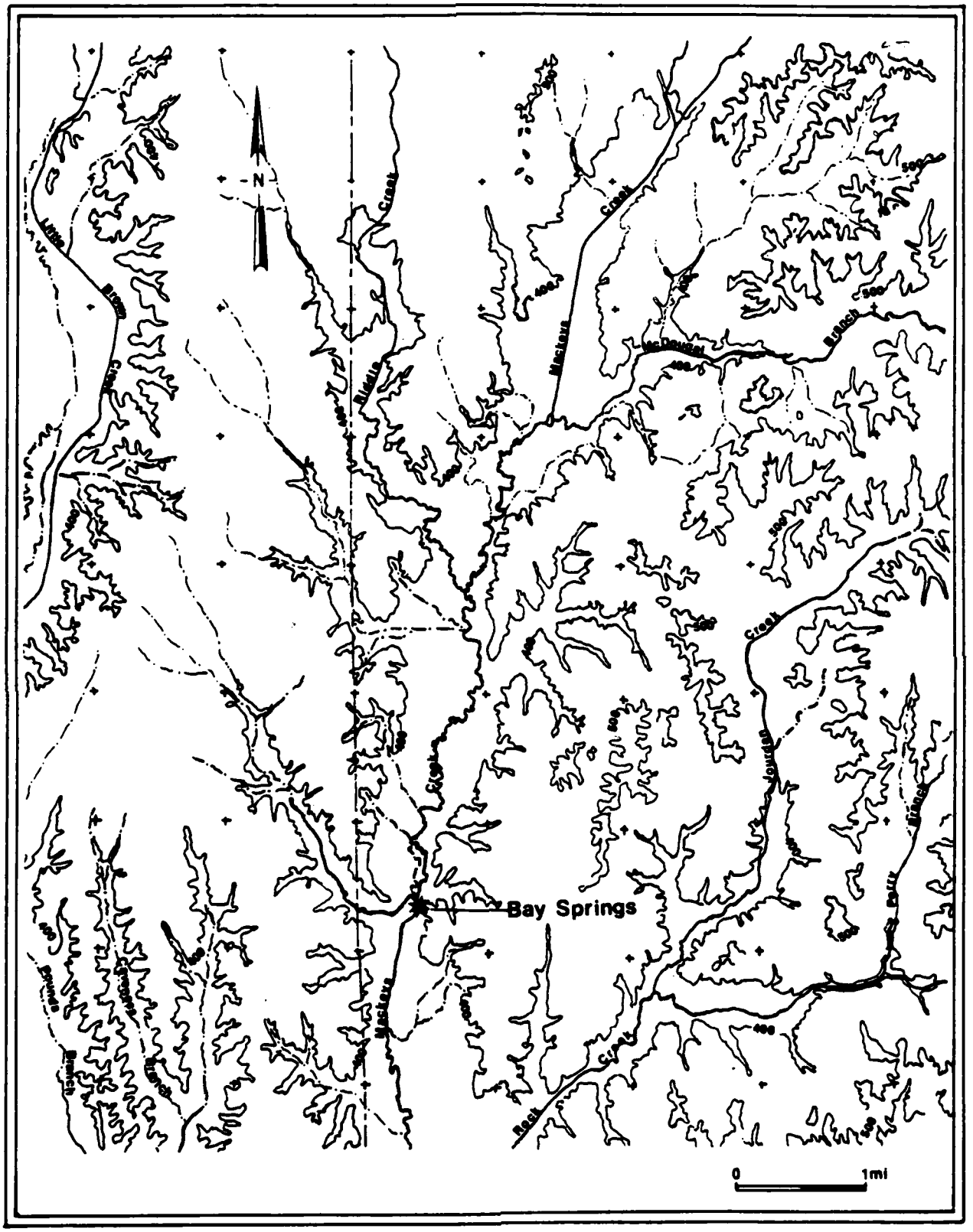

Figure 5.4.--Physiography of the Bay Springs Area.

the ridges flanking Mackeys Creek (Figure 5.5), but many parcels of land were owned by the government. By 1854, all the nearby land had been purchased. Changes in landownership for various years are presented in Figures 5.5-5.9.

While the settlers first purchased the bottomlands along Mackeys Creek and Rock Creek, their houses likely were built on the hillsides and ridge flanks. The valleys are narrow enough that each parcel contained at least one small ridge projecting into or along the floodplain.

Many of the early land purchases were by land speculators or by farmers perhaps experimenting with different tracts. The same names appear on widely scattered parcels in the cases of J. Neal and Kenneth McRae, while in other instances the individuals owning the land never appear on census schedules. While the latter may be because they were missed by the census taker, some at the least must be absentee landowners. Many people are listed on the census who did not own land there, like the mill workers and those people listed as farmers on the Census of Agriculture who do not have any acres shown on the tabulations. Were the latter people tenant farmers or were they in the process of buying the farm?

The 1840 landholdings (Figure 5.5) present a clear suggestion of a developing rural community as it spread outward from the gristmill and sawmill nucleus. On the south lay the unpurchased land where Mackeys Creek is joined by Pounds and Caveness Branches and Rock Creek. On the southeast lay Rock Creek and on the east Jourdan Branch. These creeks tend to serve as the community boundaries and often as individual farm boundaries. Census data from 1860 seems to indicate that Joshua Jordan was part of the Bay Springs community, for he is listed under that post office and between mill workers. Jordan's farm straddled Jourdan Creek, where in the 1850s he was reported to have operated a gristmill and gin at his home (Martin 1978:33). Such an operation would be a central place competing with Bay Springs Mill, probably attracting some of the farmers from the Bay Springs area nearest Jourdan Creek.

North of Jordan's place, in 1840 the ridge lay unpurchased for two miles. In the four sections (13, 18, 19, 24) between Mackeys Creek and Jourdan Creek only four quarter sections had been purchased by 1840 and one square mile took until the 1847-1854 period to sell, clearly poor land. Samuel B. Sherrill finally bought the NE 1/4 of Sec. 18, and he later sold it to Samuel A. Barnes who operated a general store and post office there until he was killed in the Civil War (Martin 1978:33, 43). Ransom Davis became postmaster (1867-1877) and the post office moved. After 1873 it was called Hillside.

The northern boundary of the community is not as distinct as others. It appears the people on the eastern side of Mackeys Creek were oriented towards Barnes Store. In 1860 the census taker appears to have ridden along the road from G. B. Schooler to Holland Lindsay to John Smithers, then way east to Ransom Davis by way of Barnes Store (U. S. Census of Agriculture 1860). Those people are listed under Barnes Store in the Census of Population as well. However, this alone cannot serve as the definition of community boundary since James F. Gresham was listed under Barnes Store. On the western side of Mackeys Creek the community apparently extended further to the north to include farms to the west of Riddle Creek (in Sec. 8, 9, 10,

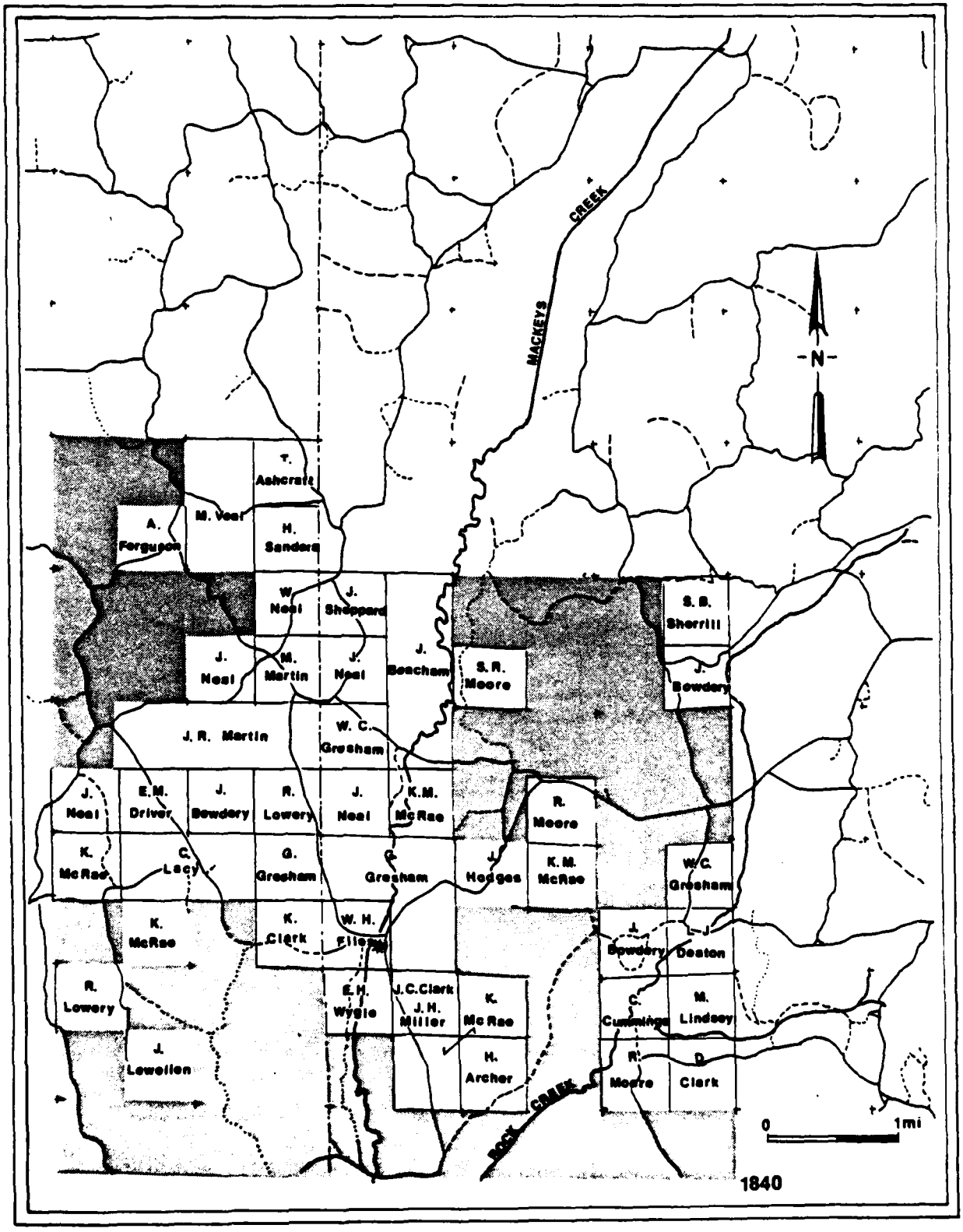

Figure 5.5.--Landownership in 1840.

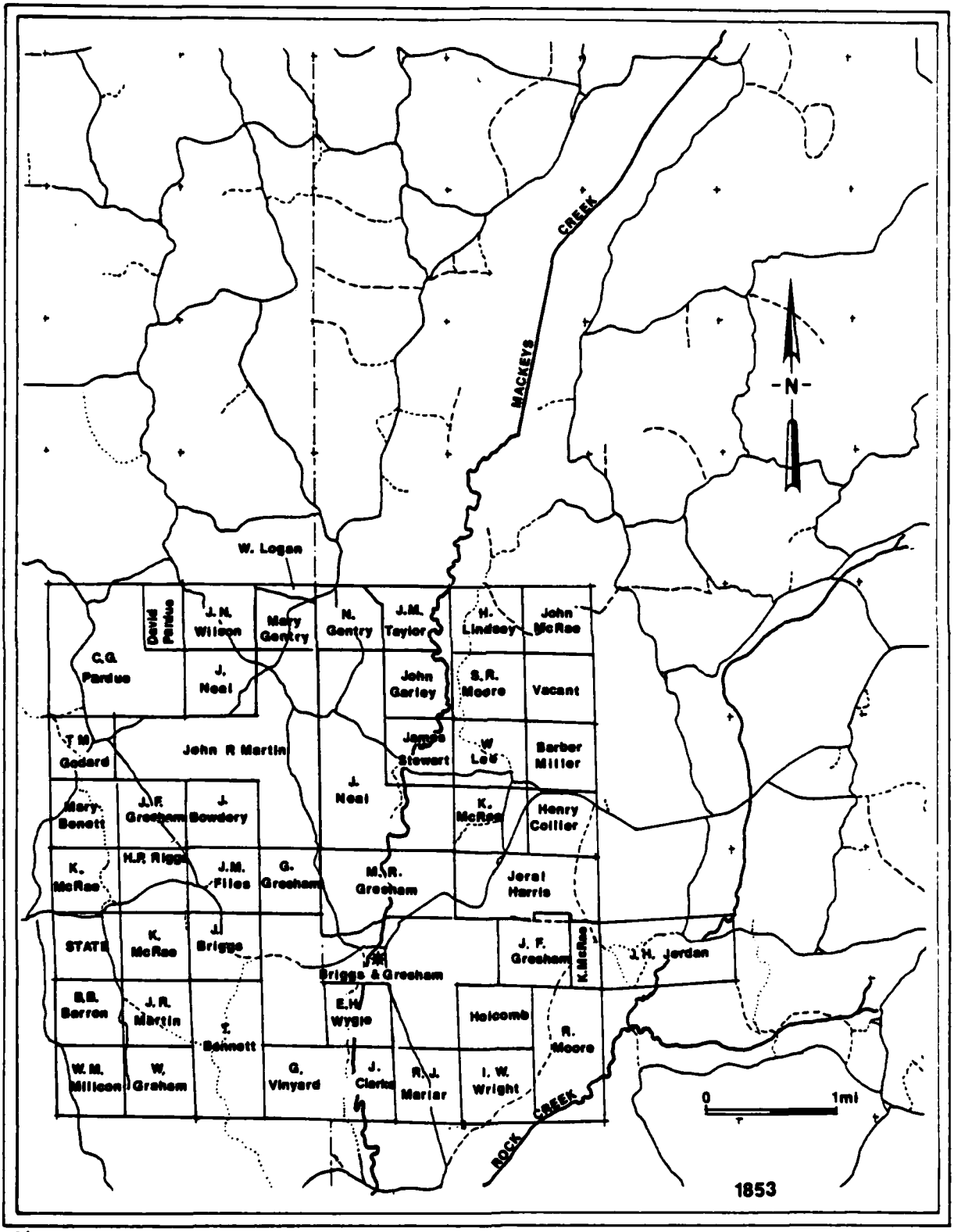

Figure 5.6.--Landownership in 1853.

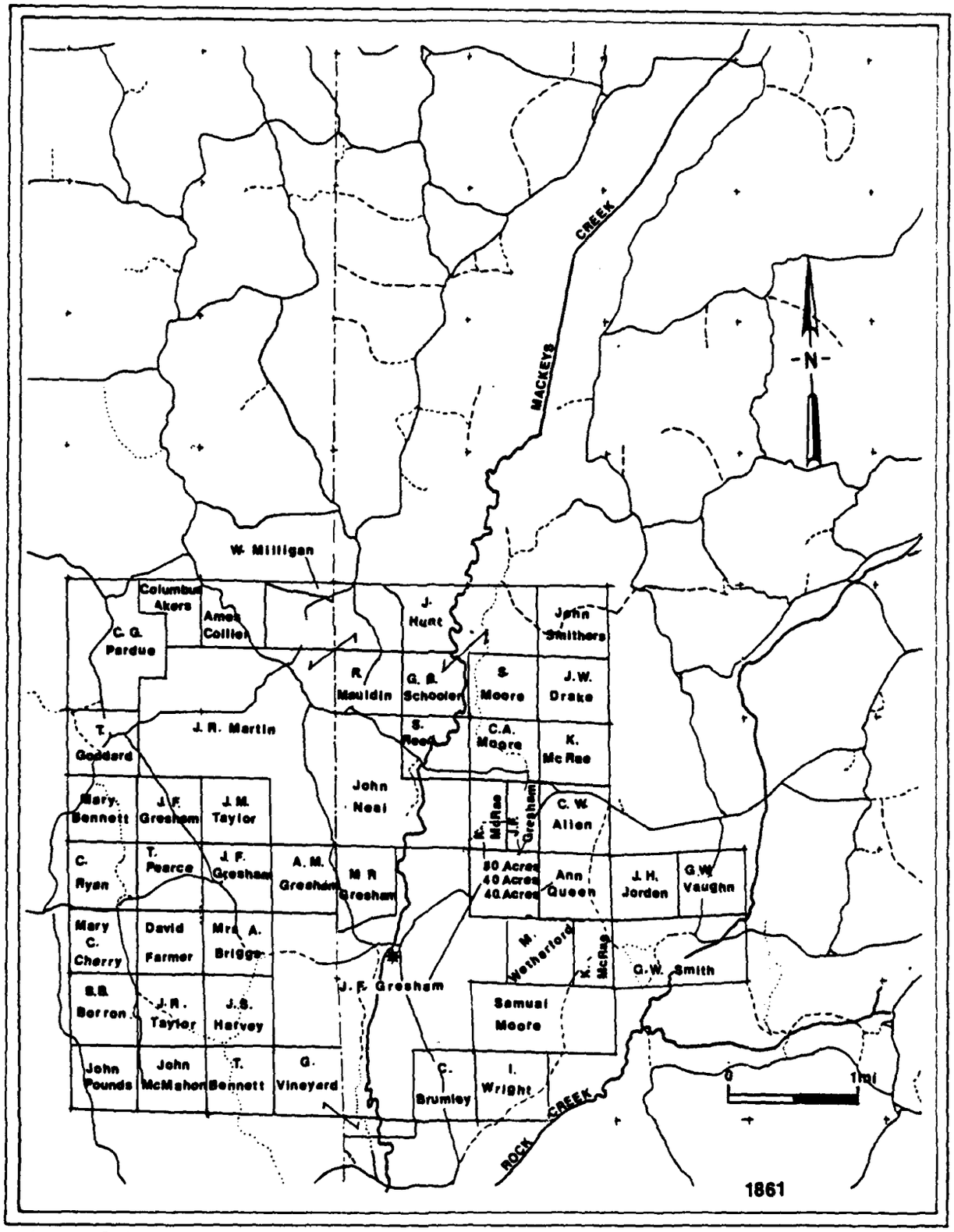

Figure 5.7.--Landownership in 1861.

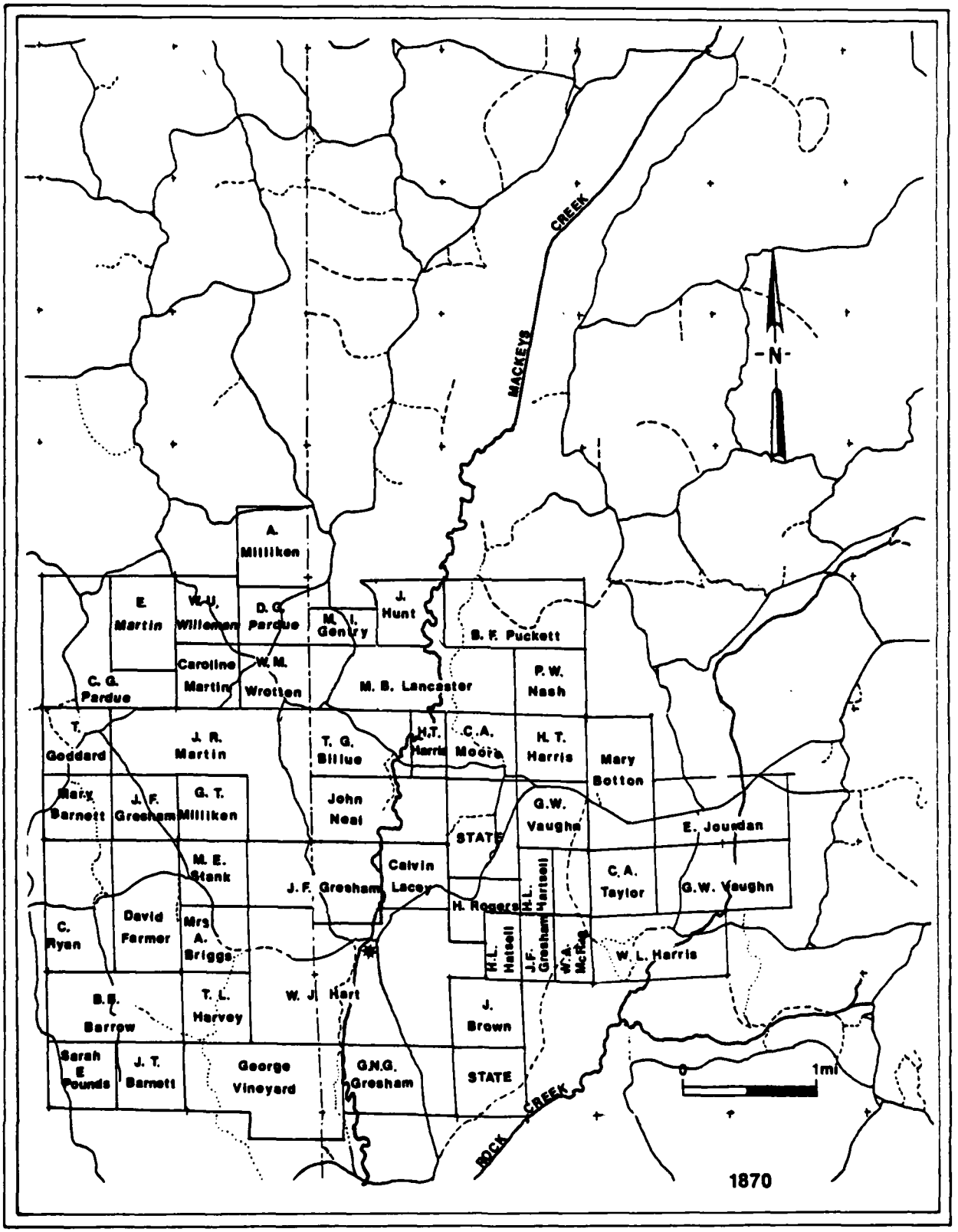

Figure 5.8.-Landownership in 1870.

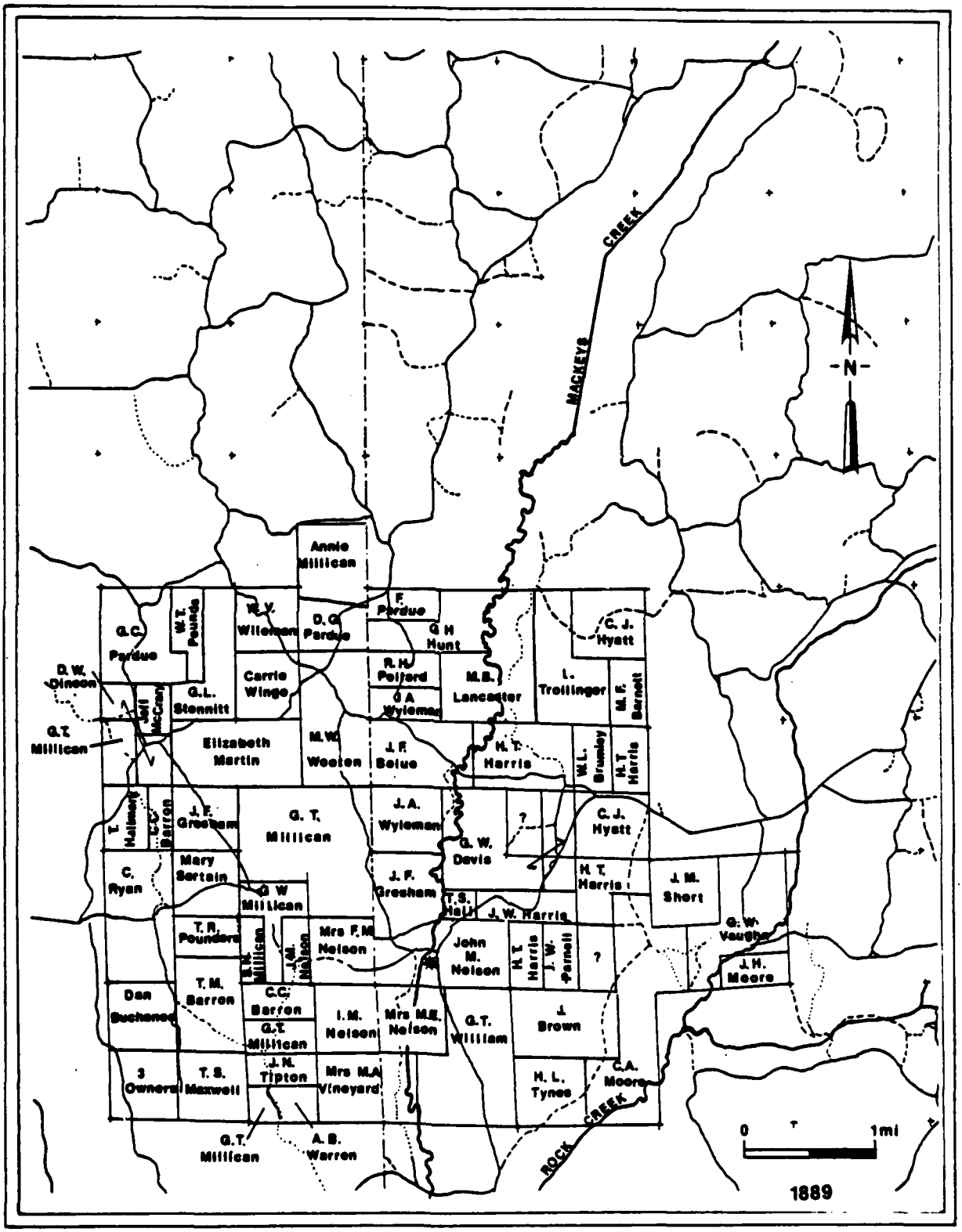

Figure 5.9.-Landownership in 1889.

and 11) owned by Joseph H. Allen, Charles Riddle, C. G. Pardue, and Calvin Lacy. These people are all listed under Bay Springs Post Office in the 1860 Census of Agriculture.

In order to define our research universe we will use the township line between T6S and T7S as our southern boundary. This was also the boundary used in the 1870 census. The western boundary parallels, and lies two sections/miles west of the county line. The northern boundary is defined by the north side of Sec. 13-16. Such boundaries appear to include most of Bay Springs community and appear to have some past reality.

Settlers came to Bay Springs mostly from other areas of the South (Table 5.2). Native born Mississipians were the most frequent immigrants in 1850, followed closely by people from Tennessee and Alabama. Given the county's location bordering those states this probably should be expected. However, those people may reflect a movement from the settlements in eastern Tennessee, as the next generation headed west. The number of immigrants from Tennessee decreased through time, while in contrast those from Alabama remained about the same.

Table 5.2. Origin of Area Residents, 1850-1900

	1850		1860		1870		1880		1900	
	N	%	N	%	N	%	N	%	N	%
Mississippi	93	33.5	104	42.4	55	67.9	150	59.8	144	66.0
Tennessee	86	30.9	41	16.7	10	12.3	15	6.0	7	3.2
Alabama	60	21.6	57	23.3	12	14.8	67	26.7	57	26.0
N. Carolina	17	6.1	16	6.5	2	2.5	4	1.6	6	2.7
S. Carolina	10	3.6	12	4.9	1	4.9	6	2.6	1	.5
Georgia	7	2.5	8	3.3	-	-	8	3.2	4	1.8
Kentucky	3	1.0	3	1.2	-	-	-	-	-	-
Virginia	2	0.7	1	0.4	-	-	-	-	-	-
Arkansas	-	-	2	0.8	-	-	-	-	-	-
Illinois	-	-	-	-	-	-	1	0.4	-	-
England	-	-	1	0.4	1	1.2	-	-	-	-
Total	278	99.9	245	99.9	81	99.9	251	100.0	219	100.0

Source: U. S. Census of Population, District Five, Tishomingo County, 1850-1900: 1890 census destroyed.

Because of the general tendency for people to seek out familiar environments for new settlements (Owlsey 1949:55) we assume that the settlers from the Carolinas, Georgia, and Alabama are most likely from the Upland South rather than the Tidewater South. They share common traits with the rest of the Upland South and it has been assumed this reflects the cultural baggage brought during migration rather than the development of similar culture resulting from adaptation to similar environments.

Intra-Site Patterning of Upland South Farmsteads as Represented at Bay Springs

A few authors have explored aspects of intra-site patterning of farmsteads in the Upland South during the late 19th and early 20th centuries (Weaver and Doster 1981; Hart 1977). Consistent functional arrangements

appear on Upland South Farmsteads: (1) individual buildings constructed by function (i.e., dwelling, barn, storehouse, chicken house): (2) particular outbuildings constructed near the dwelling (e.g., storage shed, smokehouse, chicken house, well, privy): (3) other outbuildings like barns and large equipment sheds built at some distance from the dwelling: (4) dwellings face the road; (5) barns lie to the rear of the dwelling: (6) male activity areas associated with the barn area; (7) female activity areas associated with the dwelling and farmyard: (8) irregular cropland and pasture patterns; (9) presence or absence of fenced livestock enclosures.

One informant, Hubert Davis, indicated several features of these intra-site patterns were common in his experience in the Bay Springs area. He remembered many farmsteads in the early 1900s had separate houses, storehouses, chicken and hog pens, smokehouses, and barns. The barns were often between 50 and 75 yards from the house with a log fence around them to keep in the hogs. Sheep and cattle were often left to forage on the open range. In addition, he stated that men cultivated crops in irregular shaped fields to take advantage of the best available soils, and that men tended livestock and kept their tools in the barn. Women stayed near the house tending the garden and doing household tasks.

At Bay Springs, we tested one of these Upland South farmsteads, the Wilemon/Searcy house occupied in the early 20th century, Site 22TS1106. This was the homesite of the factory owner, John M. Nelson, but the house had burned in the 19th century. The outbuildings were all 20th century based upon their appearance and styles. The layout for this farmstead can be seen in Figure 5.10. The porch of the house faces the old State Highway 4. Clustered around the dwelling are an outhouse, a well, and two light equipment sheds. To the house's rear were the remains of a transverse crib barn and hog pen. No stock fences were observed. Agricultural fields were not seen or at least recognized. Noel Caveness stated that the cotton fields were located a few hundred yards west of the site.

Landownership

In order to evaluate the census data, and reconstruct the community boundaries we selected five years (1840, 1853, 1861, 1870, 1889) and reconstructed a plat map of ownership (Figures 5.5-5.9). These years were selected to show the initial settlement by 1840, settlement just after the Bay Springs Union Factory was established in 1852, the settlement just prior to the Civil War and after, and the settlement a few years after the mill was burned. The 1840 data come from Division of Section lists (Prentiss Co.) and Abstracts of Titles (Tishomingo Co.). The other years are based upon Land Rolls for assessment purposes. In some cases the individuals shown must have been in the process of buying the property, as they paid the taxes on the parcel but their deeds were never recorded in the courthouse. The major landowners of the various parcels are shown in Table 5.3. The list only includes those persons appearing in more than one sampled year. This does make it possible for some persons to have been there for nearly two decades without appearing in our sample. Despite this sample interval problem, certain trends do appear regarding continuity of landownership. We must also bear in mind that this does not reveal continuity based upon inheritance, especially in the case of female inheritance. When a widow inherited the property she was included as the same owner. But in the case of daughters and sons-in-law this requires detailed geneological research.

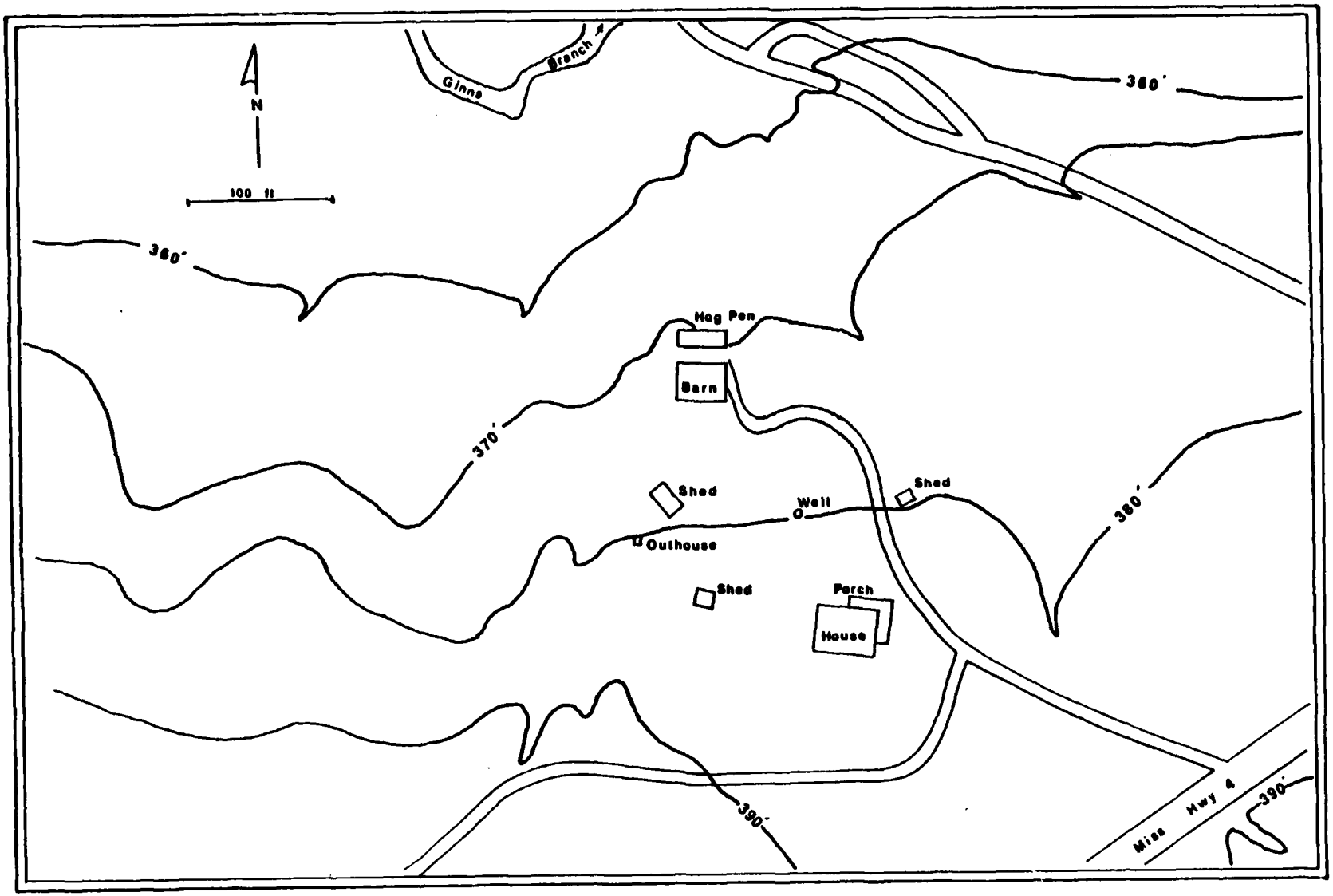

Figure 5.10.--Upland South Pattern of Farmstead at Bay Springs.

Tables 5.4 and 5.5 provide a view of the continuity of landownership. Leaving aside inheritance, we can see that only about half of the landowners shown in one sample year are still there the next decade. For example, of the 24 settlers there in 1840, only nine remained in 1853, five in 1861, and three in 1870. While mortality must be a significant factor, movement from the area must also be considered important. This can be approached a different way by examining the proportion of new landowners (Table 5.5). Here we see a decrease in the percentage of new landowners until after the Civil War. This is interpreted as reflecting the development of a fairly stable farming community with fewer newcomers acquiring property there. The period from 1870 to 1889 could be seen as the reverse of this trend, however, we feel it reflects other factors more than an influx of new people. More landowners and smaller parcels characterize this period, but we feel this resulted from the deaths of the original settlers (born in the 1795-1806 period) and Civil War deaths passing these properties on to the next generation of the family. As mentioned above, without accompanying geneological research we cannot adequately address the aspect of inheritance. In many cases, where the last name is the same, we assume the sons have inherited their father's land, but son-in-laws also inherit land. Just because the land is in a different name does not mean it has passed out of the original family's hands.

In 1840, a third of the Bay Springs area was still government land. The 1850s saw almost all lands purchased, and the beginning of re-sales. Men like Kenneth McRae bought discontinuous parcels as investments, while others like John R. Martin, J. Neal, Robert Moore sought to build a farm or, in the case of James F. Gresham, build an industrial enterprise as well. They might and, in fact did, buy parcels when available, but their livelihood was from their home place. With only a few exceptions, like the men above, most tracts of land were 160 acre parcels until after 1870 (Table 5.6; Figure 5.11). But by 1889, nearly half were small parcels of between 40 and 120 acres. The trend toward a smaller farm was constant.

The Civil War decade increased the number of individuals with large parcels because a few men expanded their farms. Of the thirteen large parcels in 1870, nine represented either the old owner retaining an already large parcel or expanding a smaller one: three old owners with their parcels unchanged; six old owners expanding their holdings; two new owners with parcels in the same area; and two new owners consolidating smaller parcels. All those who retained parcels of 320 acres or larger reduced their holdings by 160 acres or more, in keeping with the trend toward smaller tracts. No evidence suggests an exodus of large landowners or an influx of new ones following the Civil War. The area was certainly affected by the war through the deaths of many citizens and by the destruction of farms and livestock by the armies. But while new names are constantly appearing on the land transactions, many families stayed in the area.

Table 5.3. Acreage of Major Landowners in Bay Springs, 1840-1889.

	1840	1850	1861	1870	1889
George Gresham	640	160	--	--	--
James Gresham	--	360(2)	1560(2)	600(3)	360(2)
The Mill Owners	*	880	**	960	1000
John R. Martin	480	960(2)	1230	640	--

Table 5.3 Continued

Ken McRae	800(5)	560(4)	400(4)	--	--
John Neal	640(3)	800(2)	480(1)	320	--
S. R. Moore	160	160	160	--	--
Calvin Lacy	320	--	--	160	--
J. Bowdery	480(3)	320(2)	--	--	--
E. H. Wygle	160	160	--	--	--
Robt. Moore	320	320	160	320	--
Government	4320	640	--	240	200
C. G. Pardue	--	560	400	400	280
David Pardue	--	80	150	150	150
T. M. Godard	--	160	160	160	--
Mary Bennet	--	160	160	160	--
B. B. Barron	--	160	160	160	--
Wm/Annie Millican	--	170	170	170	--
John Briggs	--	160	160	160	--
T. Bennett	--	320	160	--	--
George Vineyard	--	220	260	340	340
Isaac W. Wright	--	160	160	--	--
Joshua Jordan	--	320	160	--	--
G. W. Vaughn	--	--	160	320	160
Chas. Ryan	--	--	160	320	320
David Farmer	--	--	160	320	--
Joseph Hunt	--	--	130	290	--
C. A. Moore	--	--	240	160	680
Elisabeth Martin	--	--	--	240	320
G.T. Millican	--	--	--	160	560
W. M. Wrotten	--	--	--	160	320
M. B. Lancaster	--	--	--	360	360
H. T. Harris	--	--	--	240	520(4)
Jas. Brown	--	--	--	160	240

* owned by George Gresham; **owned by J. F. Gresham; in parentheses are the number of discontinuous parcels owned

Table 5.4. Number of Landowners Appearing in Next Sample Year.

	1840	1853	1861	1870	1889
1840	24	9	5	3	0
1853	-	41	17	13	4
1861	-	-	39	17	7
1870	-	-	-	34	15
1889	-	-	-	-	50

Table 5.5. New Landowners, 1840-1889.

	1840	1853	1861	1870	1889
New owners	24	32	22	17	35
Old owners	0	9	17	17	15
Total	24	41	39	34	50
% New owners	100%	78%	56%	50%	70%

Table 5.6. Relative Frequency of Parcel Size in Acres.

Acres	1840		1853		1861		1870		1889	
	N	%	N	%	N	%	N	%	N	%
40-120	-	-	4	9	6	14	3	9	31	49
160-280	30	86	34	79	30	70	19	54	22	35
320-	5	14	9	12	7	16	13	37	10	16
Total	35	100%	47	100%	43	100%	35	100%	63	100%

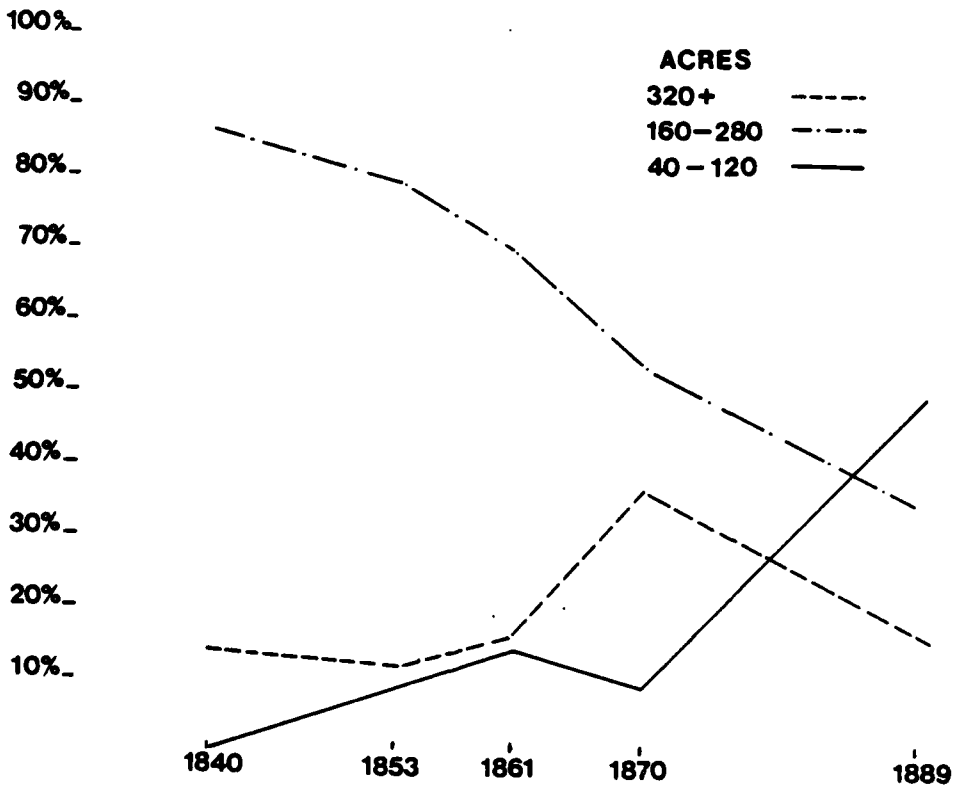

Figure 5.11. Changes in Parcel Size, 1840-1889.

"During this period [1880-1940] the average size of farms decreased from 188 acres to 74.8 acres, whereas the number of farms increased from 1,078 to 2,402. The percentage of land in farms decreased from 74.1 in 1880 to 62.2 in 1940. . . . The percentage of all farms operated by owners decreased from 75.2 in 1880 to 52.7 in 1940" (Orvedal and Fowlkes 1944:19).

The pioneers who came in 1836 had grown old by the time of the Civil War. Most of the original settlers were born in the 1795-1806 period, although a few (some their children) were born in the 1820-1825 period.

Thus, by 1870 the founders of the community were largely replaced by their children and grandchildren. The family farm was being divided among the heirs into 40 and 80 acre parcels. This trend continued until the turn of the century. At that time, about 1905, and probably coincident with thedevelopment of the portable sawmill, lumber companies began acquiring land. In 1913, the company of Webber & Coffin appears on nearly every section of land in the Bay Springs area.

Soils and Settlement

The soils of the Bay Springs area consist of two basic groups, Upland and Bottomland. In Tishomingo County, the 1937 soil survey classified 37 different soils for mapping purposes and grouped these into five classes. The soil survey of Prentiss County recognized six groups. Because the two counties were classified using different criteria the following discussion is limited to Tishomingo County. The first class and second class soils at Bay Springs are those located in the creek floodplain and the terraces, respectively. Given the entrenched valleys, there was little good soil available. First class soils were only about 3% of all Tishomingo County soils, about the same percentage in Bay Springs. Second class soils are less productive, more difficult to work, or erode more than first class soils. They cover about 23% of the county. Third class soils are moderate to low in their productivity and cover about 17% of the county. Fourth and fifth class soils, representing 8% and 49% of the county, are extremely poor soils for agriculture. Orvedal and Fowlkes (1944:79-81) divided the county into three different land types based upon soils and slope:

> "Land type 1 is composed chiefly of First-class, Second-class, and Third-class soils . . . probably about 90 percent of the land in this type is physically adapted to crops requiring tillage. . . . The greater part of the corn and cotton are produced on this type."
>
> "Land type 3 consists chiefly of Fifth-class soils. The greater part of this land is in forest, and the physical character of most9of it suggests continued utilization of this land for forestry. Nearly all is hilly and steep, and the soils are of such a physical character that they are unsuitable for crops or pasture on such strong slopes."

Land Type 2 is not found at Bay Springs; it is primarily fourth class soil used for hay, pasture, and some corn. The land types at Bay Springs can be seen in Figure 5.4, where the land above the 400 ft contour line is Land Type 3, and the rest Land Type 1. Apparently the early pioneers there knew which land was the best, for the valleys with Type 1 were the first purchased.

The 1937 Soil Survey Map also distinguishes slope gradients within Tishomingo County, delimits the county road system, and locates structures. In our analysis we attempted to determine if the placement of roads and structures was influenced by slope gradients. Using a Curvimeter we computed that there was a total of 19.6 road miles within the Tishomingo County part of the study area. Twenty-four per cent were on bottomland soils, 48% on ridge tops with 7-15% gradient, and 28% on ridges with a 15-30% gradient (Table 5.7). Correlating the structures present in 1937 we

see that 24% of the structures are on relatively flat terrain, 36% on a 7-15% slope area, and 40% on a 15-30% slope gradient (Tables 5.8, 5.9, 5.10, 5.11).

Bottom land accounted for 38% of the area being sampled. If settlement had been a random event then we would expect 38% the structures and 38% of the roads to be located there (38% x 19.6 miles = 7.4 miles; 38% x 47 structures = 17.9 structures). Instead, only 4.7 miles and 7 structures were found in the bottoms on the 1937 map (Table 5.11). Given these differences, a predictive model can be stated for these two settlement aspects. Old roads followed along ridges. Between ridge tops the roads will stay on the flatter parts of the ridge and will traverse areas primarily of 7-15% gradient. Those soil areas will contain 28% of the roads and 40% of the structures. The above were observed from the 1937 soil map for Tishomingo County; for Prentiss County in 1957, all 17 structures in the study area were located in upland soils. While one hestitates extrapolation from the 1937 data too far back in time, we feel that the road system shown represented the pre-automobile period, since Mississippi's paved road system did not reach Tishomingo County until World War II. While some structures may have been located on the floodplain and in other situations not anticipated by the above we feel the model probably is applicable to the settlement from its beginning.

Some final general comments may made concerning roads. As mentioned earlier, the road system evident on the 1937 soils map and the USGS topographic map follows the ridges. Virtually no roads follow section lines or fractional section lines, that is, none go due east-west or north-south. While roads do cross the creeks, Mackeys Creek appears as a major barrier. In 1937, it is crossed at Bay Springs Mill, and again one mill to the north. From there it was not crossed for six miles, until near Jackson's Camp Church. Very few roads parallel creeks, except along the terraces. Generally roads do not appear in the bottomlands.

Table 5.7. Location of Roads and Slope/Soil.

	Bottoms		7-15% slope		15-30% slope	
	Miles	%	Miles	%	Miles	%
Total Roads	4.7	24.0	9.4	48.0	5.5	28.0

Table 5.8. Location of Structures in Relation to Soils for Tishomingo County Part of Bay Springs Study Area, 1937.

	Bottoms	Terrace	Upland
First class	--	--	--
Second class	1	6	4
Third class	--	--	17
Fourth class	--	--	--
Fifth class	--	--	19
	1	6	40

Table 5.9. Location of Structures in Relation to Slope Gradient, 1937.

	Bottom 0-1%	Terrace 2-7%	Upland 2.5-7%	Upland 7-15%	Upland 15-30%	Total
Structures	1	6	4	17	19	47
Percentage	2%	13%	9%	36%	40%	100%

Table 5.10. Percentage Distribution of Soil Type in Each Section.

Section	Bottom	7-15%	15-30% slope
25	11%	18%	71%
24	27%	18%	55%
36	22%	11%	67%
30	29%	9%	62%
26	34%	9%	57%
13	25%	7%	68%
14	68%	4%	28%
23	79%	3%	38%
35	65%	2%	33%
avg.	38%	9%	53%

Table 5.11. Expected vs. Actual Location of Roads and Structures on the Basis of Soil Type and Gradient.

		Roads		Structures	
		Expected	Observed	Expected	Observed
Bottoms	(38%)*	7.4 mi	4.7 mi	17.9	7
2.5-15%	(9%)*	1.8 mi	9.4 mi	4.2	21
15-30%	(53%)*	10.4 mi	5.5 mi	24.9	19
	100%	19.6 mi	19.6 mi	47.0	47

* see Table 5.10 average

The Mill Workers

The land office records revealed the ownership of land at Bay Springs, however, many non-landowners lived there also. These included tenant farmers and sharecroppers, a wagoner, and mill workers. Chapter 6 on social systems examines those people in greater detail. Except for the mill workers we do not know specifically where those people lived--they are somewhat ephemeral in the historical records. On the basis of archaeological survey and oral data we have determined where many of the mill workers lived. But the census data reveal clues as well.

The 1860 Census of Population schedules (pp. 323-325) list the mill workers and their neighbors (Table 5.12). Charles Ryan (#2157) began his career as a school teacher (1850 census), but during the 1850s he became a physician and bought a farm on the western edge of the study area. Since he was on the census list between the mill owner--James F. Gresham--and the

Table 5.12. Part of the 1860 Census of Population.

	Name	Age	Sex	Profession	Estate Value real	pers.	Birthplace
2155	John Moore	85	M	Farmer		205	N. C.
	Mary	83	F				N. C.
	Hugh	35	M	Gunsmith		1025	N. C.
	Louisa	23	F			50	Alabama
	Caroline	19	F			20	Miss.
2156	James F. Gresham	39	M	Manufacturer	10800	20000	Alabama
	Servilla	34	F				Alabama
	Nancy M.	16	F				Miss.
	William G.C.	14	M				Miss.
	Frances E.	11	F				Miss.
	Mary M.	6	F				Miss.
	Andrew J.	2	M				Miss.
	George T.G.	19	M	Farm laborer			Miss.
2157	Charles Ryan	38	M	Physician	200	865	Alabama
	Elizabeth	31	F				Tenn.
	Sarah F.	12	F				Miss.
	Kisiah	10	F				Miss.
	Elizabeth	8	F				Miss.
	Luther M.	6	M				Miss.
	Mary J.	3	F				Miss.
2158	Alfred M. Carrol	59	M	Blacksmith		80	N. C.
	Elizabeth	30	F				Alabama
	Elizabeth	19	F	Domestic			Miss.
	Lydia	16	F	Domestic			Miss.
	George W.	4	M				Miss.
	Jamie W.	4	M				Miss.
	Sarah F.	1	F				Miss.
2159	William Thompson	27	M	Factory Laborer		50	Tenn.
	Julia	27	F				Tenn.
	Agnes	3	F				Tenn.
	Samuel Morton	30	M	Carder in Fact.	300	98	England
	Rebecca	26	F				Alabama
	George W.	5	M				Miss.
	James L	2	M				Miss.
2160	Joshua H. Jordan	50	M	Farmer	500	595	N. C.
	Jemima	50	F				N. C.
	William A.	21	M	Blacksmith			Tenn.
	Nancy C	23	F				Tenn.
	Lickin	17	F				Tenn.
	John M.	18	M	Farm Laborer			Tenn.
	James C	16	M	Farm Laborer			Tenn.
	Thomas J	12	M				Miss.
	Mary E.	8	F				Miss.
2161	Theodore D. Rogers	28	M	-Spinner, Fact.		100	New York
	Eliza J.	30	F				Tenn.
	Semula	10	F				Tenn.
	William J.	1	M				Alabama
2162	Job Gidwell	36	M	Wagoneer		100	Alabama
	Anna N	37	F				Tenn.
	Mary J.	11	F				Alabama
	Martha A	8	F				Miss.
2163	Frances Hannah	45	F			132	S. C.
	Elizabeth M.	18	F	Domestic		75	Alabama
	Lycingus P.	16	M	Factory Laborer			S. C.
	Martha A.	13	F				Alabama
	Francy C.	10	F				Alabama
2164	Jonothan Auston	50	M	Miller		220	Tenn.
	Mary	45	F				Tenn.
	Martha E.	17	F				Alabama
	John A.	16	M	Factory Laborer			Alabama
	Henry D.	13	M				Alabama
	Margaret E.	13	F				Alabama
	Nancy M	9	F				Alabama
	Mary M.	7	F				Alabama
	George W.	3	M				Alabama
2165	Martin Weatherford	28	M	Farmer	600	500	Alabama
	Rebecca	24	F				Alabama
	Sylvester M.	5	F				
	Nancy D.	3	F				
	Irene	5mo	F				
2166	Celia B. Brumley	49	F			123	Kentucky
	Mary A. Y.	22	F	Domestic			Alabama
	Sarah U. L.	20	F	Domestic			Tenn.
	William L.	18	M	Farm Laborer			Alabama
	Augustine Z. Y.	11	M				Miss.
	Sarah E. F.	2	F				Miss.

mill workers we suggest he may have lived near the mill until the Civil War. The mill workers are listed in 1860 in household numbers 2159, 2161, 2162, 2163, and 2164 (Table 5.12), between James F. Gresham and Martin Weatherford. We assume that the order on the enumerations reflects the census taker's route. Unfortunately, we do not know for sure where Gresham lived because he owned so much property in the area. Tax evaluations have not been helpful here, either. He would have lived near enough to the mill to supervise it, given such a small operation. The best bet appears to be in the NW 1/4 of Sec. 26, northwest of the mill and just north of Ginn Branch. This was probably the area of his parents' home, but perhaps different house. Rev. Samuel Agnew, traveling west on August 3, 1854, stopped briefly at the mill: "The works were in operation but we did not have time to inspect for it was after 12 and we wished to feed and get a bite ourselves. So we drove on about a 1/4 mile to the dwelling of Mr. Grisham, the owner of the factory and cooled ouselves and got dinner" (Agnew 1854).

The owner at that time was J. F. Gresham. Assuming Gresham lived in the NW 1/4 of Sec. 26, we can follow the census taker through the neighborhood (Figure 5.12). Beginning at Gresham's house, the 1860 census taker rode south across Ginn Branch to the bridge at Mackeys Creek. Possibly the general store existed by then, and was located at a spot just before he would have reached the bridge. On the north side of the road were a couple of mill workers' houses. Perhaps the family of Alfred Carrol, the blacksmith, lived in one house. Sharing the other houses were William Thompson's family and Samuel Morten's family--both men worked in the factory. These families were listed ahead of #2160, Joshua Jordan living three miles east. Since the rest of the mill workers are listed immediately following Jordan, we assume that either the census taker rode six miles out and back, or he met Jordan at the Bay Springs Post Office located in the factory commissary just across the road from the factory. Jordan's son was a blacksmith and perhaps he also lent his expertise to the mill. According to informants, the mill workers' houses were located on the hillside surrounding the commissary (Figure 5.13). Although no structural remains were encountered in the area during our testing operations, a survey of the area, in which we had virtually 100% surface visibility and test excavations, noted five artifact concentrations. These concentrations are interpreted to be the location of the commissary, one mill worker's homestead, perhaps two of the later sawmill worker's homesteads, and their trash dumps. The 1860 Census of Population data specifies five mill workers lived in four households in this area; those of Theodore D. Rogers, Job Gidwell, Frances Hannah, and Jonathan Auston. The 1860 Census of Industry, however, specifies 30 employees worked at the mill; the occupations of these other people might have been listed as farm laborer, domestic, or not listed at all. Because of the nature of the disturbance in this area as a result of clearing by heavy equipment, we were unable to confirm the exact number of structures in the area.

From the mill, the census taker headed east to record Martin Weatherford (2165), then south along Rock Creek and north along Mackeys Creek to record Celia B. Brumley. Passing the Bay Springs Post Office again, he headed north and recorded Calaway Moore and Holland Lindsay before leaving the community to head toward Paden and Tishomingo.

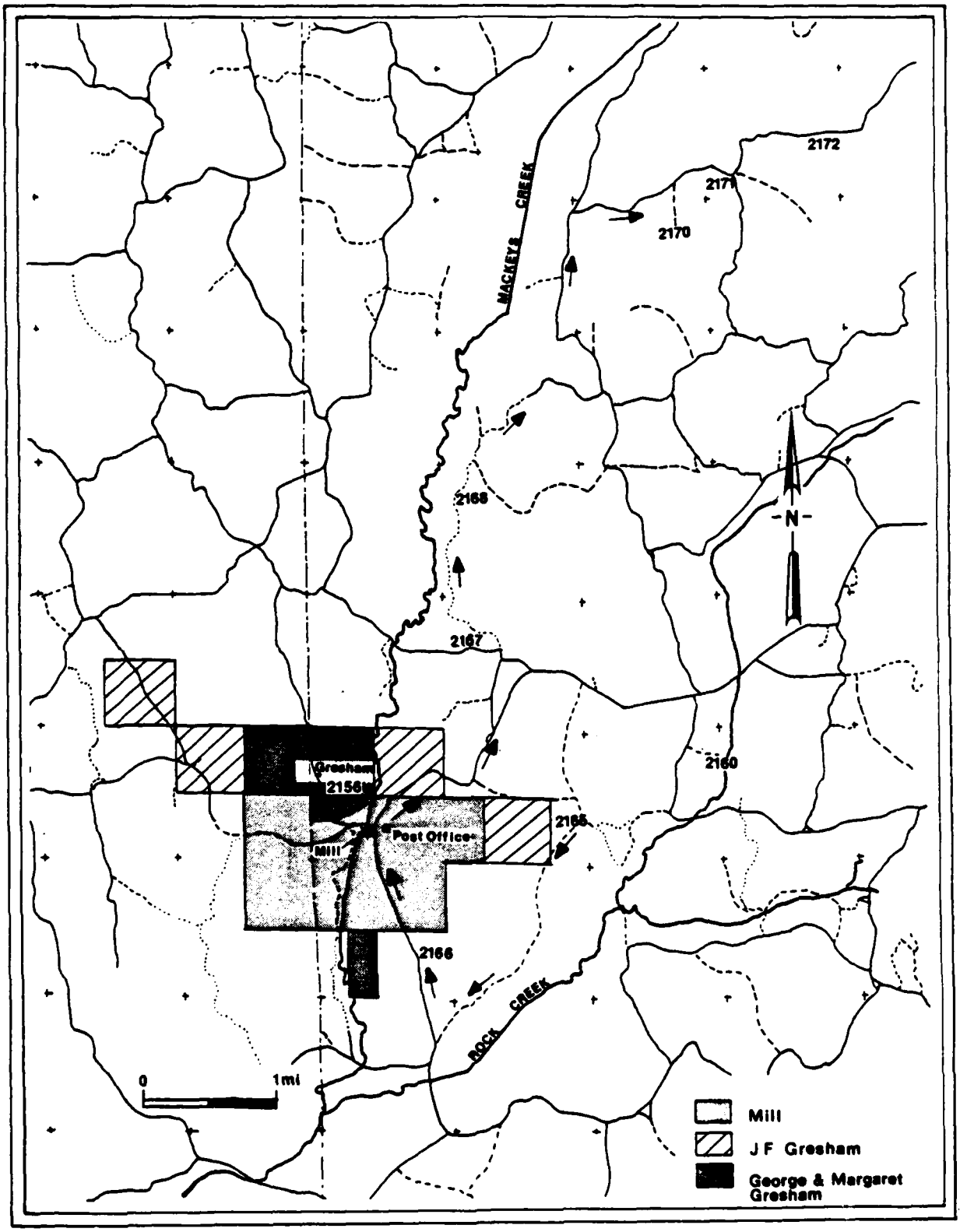

Figure 5.12.--Ownership by the Gresham Family and Probable Route of the 1860 Census Taker.

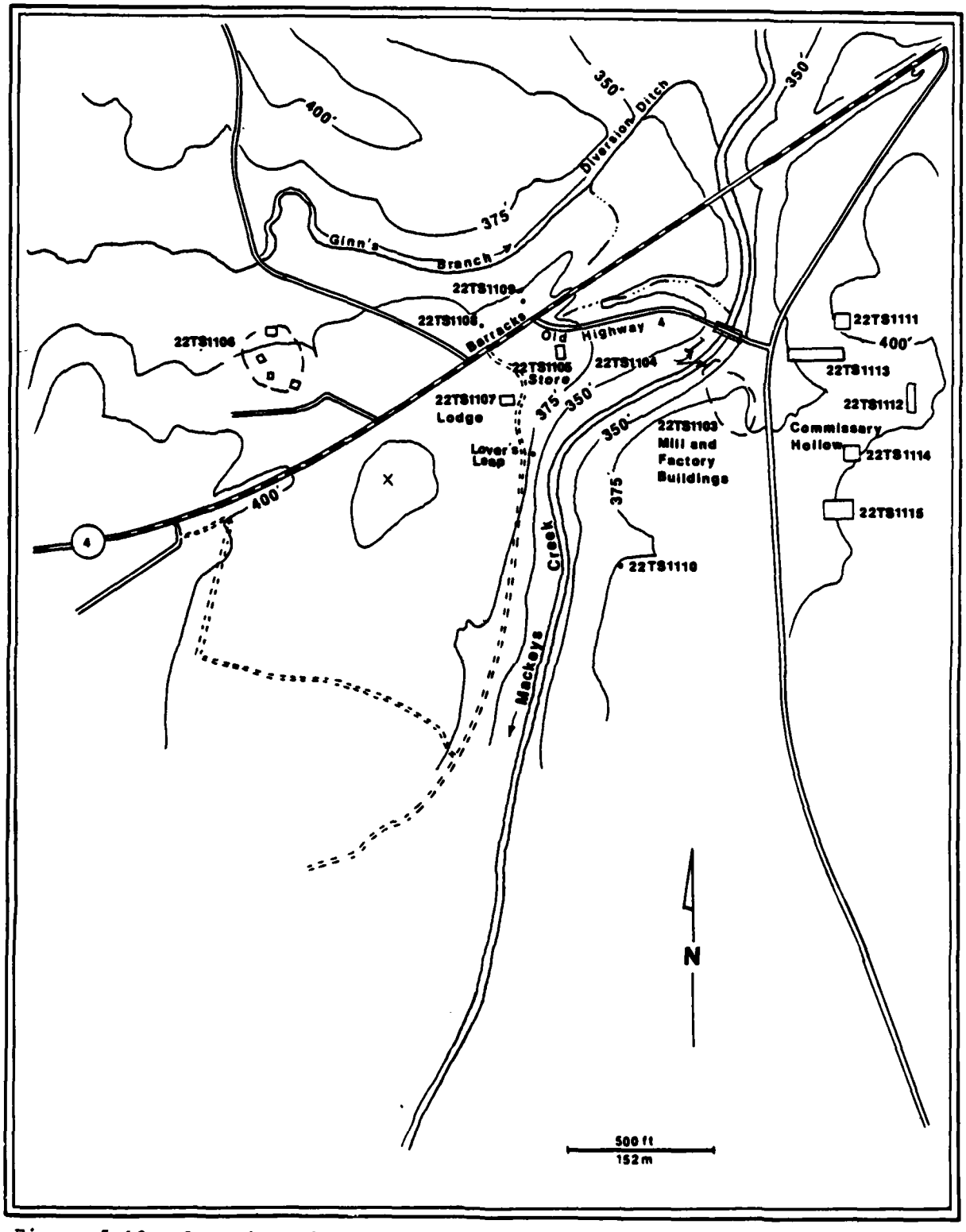

Figure 5.13.--Location of Archaeological Sites at Bay Springs.

In summary, the mill owner lived on the west side of Mackeys Creek, as did at least two households of mill workers. Sometime after the Civil War the general store and the Masonic Lodge were constructed near the Mackeys Creek Bridge. We assume by this the commissary east of the mill had closed. Located next to Mackeys Creek was the mill and right across the road were more of the mill workers' houses. The location of these houses was probably determined by a need to provide accessible housing, but a factor may have been Gresham's desire to exercise control over the workers. Since the houses were built on the ridge fingers and slopes, they tend to follow the Upland South pattern for farmhouses except for a probable lack of outbuildings. They do not appear to have exhibited the concentration or regularity we might normally associate with company provided housing.

Oral Perspectives on Settlement

The concept of Bay Springs as "place" is still retained in the memories of the longtime residents of the area, despite the fact that the demise of the community began more than 90 years ago with the burning of the factory in 1885. Although none of the informants interviewed was alive when this happened, most remembered hearing "stories" about Bay Springs in their youth, usually from their parents and grandparents. When asked to recount these narratives the majority of the informants only were able to provide sketchy accounts of the historical events transpiring there prior to the burning of the factory--accounts lacking the detail accorded through firsthand experience. As one informant put it, she remembered hearing her parents talk about Bay Springs, however, she "didn't pay any attention--you know how kids are." Others stated, "Oh, you should have been here when [so-and-so] was alive, he could have told you a lot more than I can." What the informants do remember about Bay Springs are their own personal experiences there, whether based on their having grown up in the vicinity, or merely having gone there once a year to the old soldiers' reunion. In large part, these latter memories are based on the social interaction which took place there--the gathering of family and friends to reaffirm old ties and create new ones. From this evidence we must assume that the main reason many people in the area remember Bay Springs is because it represents to them a positive time in their own lives and thus is retained as part of the folk memory.

Within the Bay Springs study area we may speak of a farming community with one neighborhood devoted to industrial activities; scattered throughout the community during the 20th century were logging foci. Within the 19th century community we should expect a series of neighborhoods. These would be the mill area where the mill owner and his workers lived, the ridge area to the east and the one to the west, the individual neighborhoods of people who actually were in face-to-face association.

This section includes a detailed discussion of the community as remembered by the informants. Unlike most histories derived from written sources, the information included in this section is based solely upon the informants' memories and, as such, it is frequently lacking in detail, particularly regarding events which transpired at Bay Springs prior to the 20th century. For example, none of the informants was alive when the factory was in operation and the information obtained from the informants on this point comes from secondary sources--primarily recollections of what

was told them by older relatives and acquaintances. Also, the passage of time has taken its toll on informants' memories and, as a result, some of their accounts are hazy, vague, or in some cases, conflicting. The degree of knowledge about Bay Springs also varies with each informant; their familiarity with particular episodes of the community's history ranges from extremely detailed accounts to little more than a passing awareness of individual events. Another variable which must be taken into consideration is the influence local historian Jerry Martin's book had in shaping informants' responses to certain questions. When asked about areas with which they were unfamiliar a few of the informants turned to Martin's work for reference. Thus, the information provided herein on the history of Bay Springs prior to this century is primarily a composite sketch, based to a great extent on secondary sources, whether oral or written.

The informants' knowledge of the history of Bay Springs during the period after the turn of the century was much more extensive since they gave their own personal experiences rather than those of others. As will be discussed in a later section of this study, much of what the informants did remember about Bay Springs revolved around the social events transpiring there. These events, in particular, were remembered in greater detail than were the more mundane aspects of life. For instance, most of the informants recalled having attended the annual old soldiers' reunion held the first week in August, and their descriptions of these occasions were quite vivid and detailed. On the other hand, with the exception of both the Masonic Lodge and the general store, which remained in business for some years after the factory itself burned, memories of most of the other buildings in the general area of Bay Springs were vague. Informants disagreed on which side of Mackeys Creek the factory had been located. However, based on interviews with a number of people who once lived in or near Bay Springs a fairly detailed composite of the community as it appeared from the first decade of this century onward was reconstructed. The following paragraphs discuss structures once located there.

The focus for Bay Springs during much of the latter half of the 19th century was the factory and mill structures (Figure 5.13). The oldest informant interviewed was Hubert Davis; his earliest recollection (ca. 1900) of the factory site, was that little remained there but rubble. Some informants related that for some time after the factory burned a large amount of "metal" was lying around, but that in subsequent years it disappeared from the site, probably to be sold as scrap or recycled locally. L. P. Allen, Jr., remembers the dam across Mackeys Creek below the factory site:

> "There was a eleven or twelve foot dam across Mackeys Creek right there below the mill, the mill site . . . . But there was a flume that went beside the dam, on the east side, next to the rock deposits there. And the water was let through that flume, and I understand there was a turbine in the bottom of that flume. The water, as it went down, turned the turbine and it had a shaft that went straight up, you see, and that's how the power was made, right through there . . . I remember seeing some remains of the old dam. It was made of rock, yeah. See that wasn't raising that creek too awful high . . . course it was adequate for their purposes . . . now it was a pretty large dam, what I'm talking about, thick dam. Had to be to hold that water."

Estimates of the number of people who worked at the factory when it was in operation range upward to one hundred; however, Allen believed this figure to be too high:

> "I've heard different theories about it. I've heard that as many as a hundred worked there. I don't believe that though--I believe that's way out of line. I don't believe the factory was large enough. You've seen the foundation . . . . It just wasn't that large, was it?"

Some informants indicated that as many as 700 to 1000 spindles were in operation in the factory at one time, this corresponding well with the 1860 Census of Industry figure of 744 spindles. Again, there is considerable descripancy as to what the factory produced. Most informants stated that thread, roving, twine, and rope were manufactured there; however, others stated that cloth was produced at the factory as well. Both Census of Industry and the archaeological data indicate that no cloth was woven at Bay Springs.

Far better known to many of the informants was the general store at Bay Springs. Originally constructed to serve the people working at the factory and living in the community, it was operated for a number of years by the Nelson family and, after John M. Nelson's widow left the area, it was run by a man named John Parsons. W. Reed Akers still has some of the receipts given for purchases at the store during the late 19th century. Clara Caveness remembers the store and the man named Parsons who ran it:

> "Well, it was just a big, old, huge building, you know. And it was just like it was back in the Nelson time; big old counters and big, old stair steps go up, fireplace and chimney. Well, he just had what little he had just sitting up on the far end of the counter there, close to where they eat and slept . . . just one great, old, big [room] that rode down at this end, facing---there was two doors there; and there'd be the steps to walk up in them doors. And then you was in the store; and then the counters was on both sides. And you'd get a way on down at that end, well, there was some awful, big, pretty stairs."

L.P. Allen, Jr. also remembers the store:

> "It was a long, rectangular building. Beautiful carpentry. The carpentry in that building would amaze you. I saw it after it was torn down. You could see some of the activity of the carpenters, you know, their marks and everything. It was made mostly with pegs, put together with wooden pegs. And the nails were cut nails . . . ."

Several of the informants stated inside the building was an elevator used to lift supplies into the storage area upstairs. Allen remembers the opening for the elevator, six to eight feet wide, was octagonal and that the elevator was "hand drawn, you know, counter balanced situation, and I think it was not for the transportation of people but the transportation of merchandise from one floor to the other."

Several informants remembered the store sold dry goods and other necessities for the factory workers and members of the community and that a system of bartering was employed between the store owner and area residents engaged in home industries. Noel Caveness remembers his grandmother trading there:

> "my grandmother would spin cotton and make gloves and socks to be traded at the store. She also made lye soap and put it in barrels to be hauled up there [from Moore's Mill]. Chicken and eggs and dried fruit would also be traded for Fall and Spring clothes. It took all day to get up there and back in a heavy steer wagon."

Noel's wife, Clara, also recalls her grandmother trading at the store:

> "my grandmother, she was always carding and spinning and making socks and gloves, you know. Now I think she'd take 'em there at the store, or maybe, Mr. Nelson's the only one I ever heard 'em talk about. He would want 'em, and I don't know what she got for 'em, but she would knit 'em, fix 'em, and carry 'em, so she probably traded it, lotted it out in groceries and things they needed . . . and snuff, you know."

In the rear of the building, living quarters were located for the person who ran the store. Allen recalls their appearance:

> "Well, it was attached to the main building, and as I remember elled to the west. It was the same dimensions as my recollection of the building . . . it might have been a room that was built later, an off-shoot that, I just simply don't remember that, but I've seen it lots of times . . . [it had] a rock chimney [if] my recollection's right."

Clara also remembers the living quarters in the rear of the building, "the fireplace was in a little, smaller room back there. Mr. Parson and them used that for a kitchen and bedroom." According to the Cavenesses, John Parsons remained at the store only for a few years, and after that it was occupied sporadically by others until World War II, when it was used by Ellis Wright. By this time Wright had begun to purchase most of the land around Bay Springs for the timber, to store lumber from a peckerwood mill located on the west side of Mackeys Creek:

> "Ellis just kept lumber stored in it . . . . Last time I ever seen it before people went to tearing up the place, Ellis had lots of lumber . . . pretty cedar lumber . . . . I think a lot of that come hauled off, and he didn't know about it . . . people would just go in, and it was such pretty, wide plank, you know, dressed on one side, and people liked it because it was pretty, and they . . . would just go in and get it, a lot of it was hauled away . . . . They just go and pull off such things as they wanted."

The Masonic Lodge was built in 1874, replacing the original lodge located about one-quarter mile south of the mill site, on the west side of the road to Moore's Mill. Like the store, the Masonic Lodge was constructed of "old growth" pine and was two stories in height (for a photograph of the Lodge see Chapter 11). The upstairs was used for Masonic meetings

held monthly into the 1940s, while the downstairs served as church for several different denominations through the years. Furnishings for the Lodge included homemade slat-back chairs, an old bureau, and a long dining table, while the downstairs church contained three rows of eight foot handmade benches.

In the early days a number of additional structures existed on the cultural landscape; however, these all have disappeared with the passage of time. In April of 1979, in a preliminary survey of the area, David F. Barton took several longtime residents of Bay Springs and the surrounding area back to the community in an attempt to relocate the sites where these early structures once stood. Although there was some disagreement as to the exact location of some of the sites, overall the reconnaissance proved to be quite helpful. Although each reconstruction varies slightly from the others, an overall consistency in memory was apparent. Considering the radical changes to the locale due to the replacement of Highway 4 and the construction of Bay Springs Lock and Dam, informant recollections were generally clear and concise. The vagaries of time, as expected, have clouded the picture somewhat.

By September of 1979, however, when the project began the detailed study of the oral history and folklife of the Bay Springs area, the landscape had been radically altered by the ongoing construction of the lock and dam. As a result, attempts to transport informants to the sites in hopes of reconstructing the proximity of the various structures proved to be fruitless. The removal of the last remaining structures in the area, coupled with the pronounced reshaping of the general contour of the land by heavy machinery, proved to have a disorienting effect on the informants; and as a result any further attempts at using this technique for the reconstruction of specific sites were pointless. Therefore, the data on each of the various sites in the general area obtained by Barton in his preliminary survey remains the most detailed and accurate presently available, although complementary data on these and other, previously unknown, structures were obtained during the later study. The information which follows, then, represents a composite of the two field investigations.

There were a number of "sawmill houses" (a description follows) located in relatively close proximity to the mill site. Four of these houses were located in an area northwest of the factory site, underneath and across from present Highway 4 (Figure 5.14 A-D). According to informants Hubert Davis and L.P. Allen, Jr., three of these houses were demolished prior to 1915. Davis also stated that there were three sawmill houses located on the west side of Moore's Mill Road within two hundred yards of the mill. The houses, which were destroyed prior to 1910 according to Davis, were situated along the edge of the old road which followed the creek bottom (Figure 5.14 K-M). These may be the structures excavated at the mill site (22TS1103 A-C), or they may be located south of Area C, under the spoil pile. There were three additional houses located approximately one-half mile south of the mill site according to informants Monroe Gilley and Noel Caveness (Figure 5.15). Finally, Caveness remembered another sawmill house located near a clump of "bodock" trees, east of the bridge and up the commissary hollow. Caveness referred to this area as "Miss Aldridge's place".

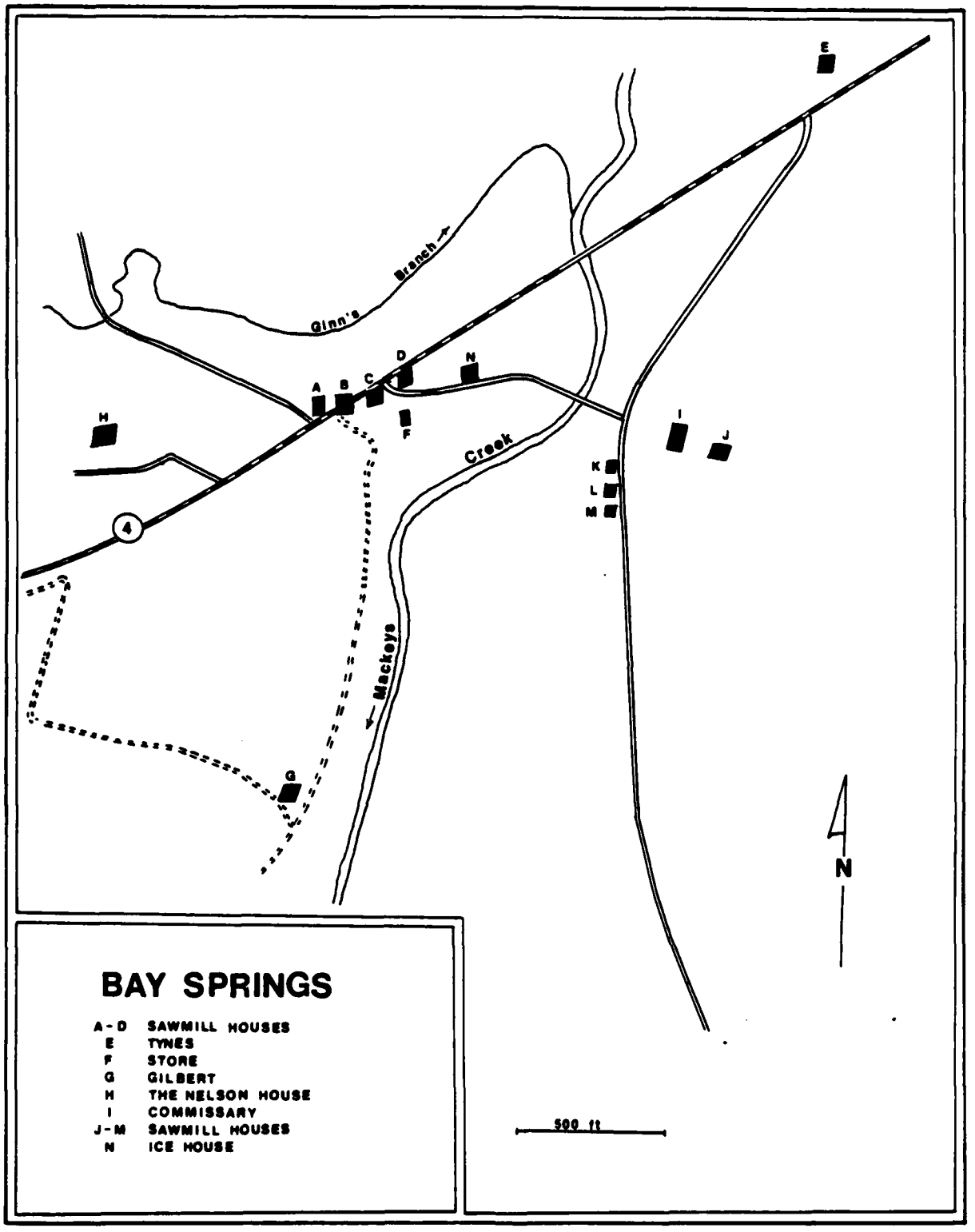

Figure 5.14.--Location of Sites Mentioned by Hubert Davis and Paul Allen.

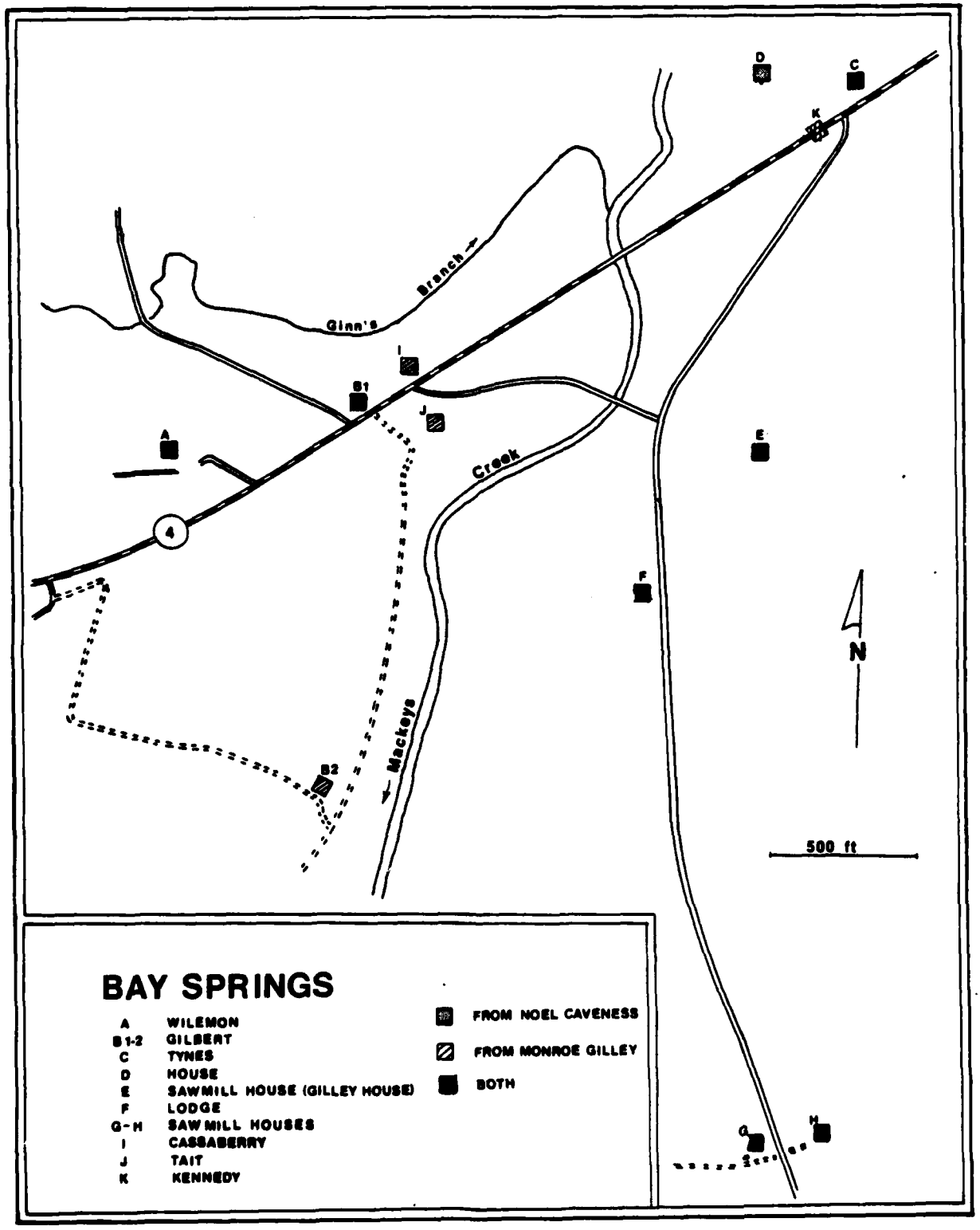

Figure 5.15.--Location of Sites Mentioned by Noel Caveness and Monroe Gilley.

Three informants, Gilley, Davis, and Allen, indicated a three room boarding house lodging four to six loggers was located approximately 400 to 500 m southeast of the lodge along the old Mackeys Creek Road. The boarding house was run by a man named Sye Gilbert according to the informants (Figure 5.14 G, 5.14 B2). Gilley stated that a house owned by his employer, Gip Kennedy, was located immediately under present Highway 4, approximately 20 m west of its junction with Moore's Mill Road (Figure 5.15 E), and that the Gilley home was situated 50 m east of Moore's Mill Road, parallel to the present iron bridge, constructed in 1921. This corresponds well with the 20th century domestic site, 22TS1111.

Noel Caveness remembered two tenant houses near the factory site. The first, the Wilemon house was located on the site of the original Nelson homeplace (which burned in the late 1800s), and remained standing until the mid-1970s (Figure 5.15). The other house, according to Caveness, was 50 m west of the Tynes house, north of Highway 4 and near the Drip Springs. This may be the house Gilley referred to above as being under the road.

Two other structures were associated with Bay Springs. The factory commissary was located at the approximate spot where Gilley had described his sawmill house as being. Davis said that the 20 x 50 ft structure, which sold groceries to factory workers, had disappeared by 1910. The exact location of the ice house remains somewhat of an enigma, for although several informants remembered having seen it, they could agree neither on its location nor its construction materials. According to L.P. Allen, Jr., the ice house was carved into the rocks:

> "where the dam went into the wall on the west side there was an ice house, dug into the rock wall there. I've been in that thing, and I've looked for it since then and I haven't been able to find it. I don't know what the story is on that. . . . I've heard my father and mother tell about it. They'd cut ice off of that impoundment in the wintertime and fill the ice house with ice, and have ice way over into summer."

Mrs. Forrest Wright also remembers the ice house at Bay Springs, although she provides a somewhat different description of its appearance:

> "It was just a little old house. . . . I been in it, it was walled up, you know, with planks, and they used sand to fill that up, dry sand . . . that was insulation . . . I been told whenever they'd have these big freezes--we used to have big freezes down here--that they'd get that ice up, big pieces of ice, and put it in there, and they'd keep it . . . Way back yonder we had heap bigger freezes then than we do now . . . Why you could skate across Rock Creek down there."

One of the more impressive homes in the Bay Springs area was that of John M. Nelson, Sr., located north of present Highway 4 and west of the factory site. Mrs. Forrest Wright remembers the house being located in a cluster of cedar trees near Ginn Branch:

"this big, white house stood there, but it burnt when I was a child . . . now I don't remember too much about that, the more I remember about it is what my mother told about it . . . burning . . . it was a two story house, and it was built out of siding . . . as well as I remember my mother telling me about it. And I guess it had seven or eight rooms, maybe ten rooms . . . John M. Nelson, Sr. built that house."

L.P. Allen, Jr. also remembers hearing his mother speak of the Nelson house, which burned in the 1880s:

"And I've heard her speak of going to dances at the Nelson old home . . . It was quite a home for that period of time . . . As I understand it they built this tenant house right on the Nelson old house place. . . where Jack Searcy lived, I think was about the last person that lived there."

The Tynes family was among the better known families in the Bay Springs area. The elder Tynes was a physician, and lived in a large house on the Old Cotton Springs Road, south of Bay Springs. L. P. Allen, Jr. stated that his mother used to go to dances at the house when she was in her teens, and he described it as being "one of the finest houses in that country." Mrs. Forrest Wright also remembers the house, which is no longer standing:

"It was a pretty, old house . . . it was built kinda long, and had about three chimneys, and they were rock, and they had several rooms--they had several children--but I do know they had a kitchen, but it was dirt floor . . . so you had to go down steps to this kitchen . . . it wasn't underground, but it was just built . . . [the original] part of the house was built a little higher than that was, and you went down on that dirt floor and that's where the kitchen was. . . . They had a stove and a fireplace too."

As Mrs. Wright stated, Dr. Tynes had quite a large family, and one of his sons, Carl, who was a dentist, lived in a house near the Drip Springs, just north of Bay Springs. According to Monroe Gilley the house had three rooms and a root cellar.

Estimates of the number of people who lived in Bay Springs vary with each informant and the time period being examined. Hubert Davis stated that about 50 people lived in Bay Springs around the turn of the century, while Noel Caveness estimates that as many as 200 to 300 people resided in the area during the same time period. L.P. Allen, Jr. remembers his mother saying that between 30 and 50 people lived in the community at that time. These figures suggest that there were undoubtedly other houses in the general vicinity of Bay Springs, however, in all likelihood most disappeared long ago and the informants no longer remember their existence. Discrepancies in estimates of the population of Bay Springs probably are due to several factors. There is great diversity of opinion the extent of the community in the early part of this century. Most informants defined Bay Springs as being an area approximately one and one half miles in diameter with a mill complex as its center. However, if an informant included a larger or smaller area in his estimate of the spatial dimensions of the community the population figures would have to be adjusted accordingly. In addition, there was great variation in the population of Bay Springs

depending upon the time period. For instance, in all probability more people lived in the community when the factory was in operation than after it burned. Several informants stated that there has been a general decline in the population of Bay Springs over the past half century, due in part to the fact that much of the land was purchased by timbering interests. The construction of the Tennessee-Tombigbee Waterway has displaced a number of families in the past few years.

Bay Springs Area Architecture

The traditional architecture of the Bay Springs area closely mirrors that found in the rest of northern Mississippi and Alabama and southern Tennessee, part of an area generally referred to by cultural geographers as the Upland South (Kniffen 1965:571). When settlers first entered the area in the late 1830s they brought with them as part of their cultural baggage traditional architectural styles which had gradually diffused westward from the Middle Atlantic states during the great population migrations of the late 18th and early 19th centuries. These styles, whose roots were firmly planted in European tradition, had been modified somewhat to accommodate to the dictates of frontier life in North America.

Although there are no known extant examples remaining in the immediate vicinity of Bay Springs, in all likelihood the earliest settlers constructed rudimentary log cabins which served as temporary shelters until more permanent dwellings could be constructed. The cabins were often hastily constructed and exhibited few of the marks of craftsmanship common to the log houses of the later period, owing to the need of the settler to devote most of his energy to clearing the land and getting in the first year's crops. These early structures were approximately 16 feet square and usually consisted of a single log room, or pen, one story in height and covered with a split shingle roof. Hubert Davis describes the construction technique for such a structure:

> " . . . just logs out of the woods, round logs, notched up and then hewed down, you know, flat on the side and sealed with strips of lumber, of a stuff they split out of the wood. Houses back then were made mostly out of homemade stuff. And there's log houses, hewed, what we called hewed down, made the wall sort of smooth, you know, scored it and hewed it and then sealed the cracks, you know . . . some people stuffed them [the interstices between the logs] with clay, took clay dirt, you know, and put it there. . . . It had a board roof made out of board. We had old growth pine then and, of course, made oak boards sometimes, but most of the buildings was covered with pine boards."

These first structures were soon replaced with more permanent dwellings, with the predominant house type in the area being what is generally referred to as a "dogtrot" (Kniffen 1965:561). This type of structure had a fairly wide distribution throughout the Upland South, first appearing in southeastern Tennessee in the early decades of the 19th century (Glassie 1968:89). It consists of two single pens placed side by side, sharing a single roof, and separated by a central passageway, variously referred to as a dogtrot, possum trot, turkey trot, or breezeway, the latter term describing the apparent function of such an opening. Although none of the informants used the term "dogtrot" to describe the type of house in

which they were born and reared, accounts of the physical appearance of their respective structures closely corresponds to the above description, as evidenced by W. Reed Aker's comments about his own homeplace, which his father purchased in 1869:

> "They bought a home, a quarter section of land there close to Burtons and Mackeys Creek Church. And it had a log house . . . big sixteen square feet rooms built of logs . . . it was two of 'em, and there might be some others built on, but that was the main building."

Materials used in the construction of such houses varied widely from region to region, however, in the Bay Springs area essentially two techniques were used. The first, and probably earliest, method of construction was to erect two log pens of equal dimensions, which shared a single roof, usually covered with split oak shingles, or "boards", as the residents in the vicinity of Bay Springs refer to them. The interstices between the pine logs were then "chinked" with wood billets and mud to seal out the weather. Finally, the pens frequently were covered with weatherboarding of oak or pine (board-and-batten technique), for aesthetic reasons and to protect the logs from deterioration. Many of the earlier houses had puncheon floors, produced by splitting logs and placing the smooth face of the log in an upright position, thus creating a relatively smooth surface upon which to walk. The dogtrot houses were heated by chimneys placed on the gable ends of the house. The first chimneys constructed were composed of a stick framework erected on a stone firebox, which was then covered with mud—referred to by the inhabitants as "cat" or "cattail" chimneys. One informant gave the following description of how such a chimney was constructed:

> "You know how they made cattail chimneys don't ya? They took some of this red clay and mixed sagegrass with it . . . you know what the sagegrass looks like . . . apparently to make it stick together. They'd make cats, they called cats, 'bout so big. I don't know if I'm accurate, totally, but it's something like this . . . and they just stacked them up with mud, the same kind of mud in between...And they'd build a framework first of loose strips of wood. They stack that all around it, kinda lined it so the fire wouldn't get to the wood too much, which it sometimes did and burnt the durn house down."

There were two inherent problems with this construction technique, however. Although relatively easy to erect, cattail chimneys were subject to erosion by the elements and, more importantly, frequently caught fire. For these reasons the roof of the house extended out over the gable end to protect the chimney, and, in addition, the chimney was constructed away from the walls of the house so that if it did ignite it could be pulled down without endangering the entire house.

With the increased availability of milled lumber during the early part of this century there began a gradual transition away from log building toward the use of balloon frame construction; and as a result, dogtrot houses of frame construction began to appear with greater frequency. Finished lumber replaced puncheon slabs as flooring material. These frame houses shared essentially the same form with their predecessors; however, there was more attention to individual variation with each attendant structure, partly due to idiosyncratic tastes, perhaps as a statement of

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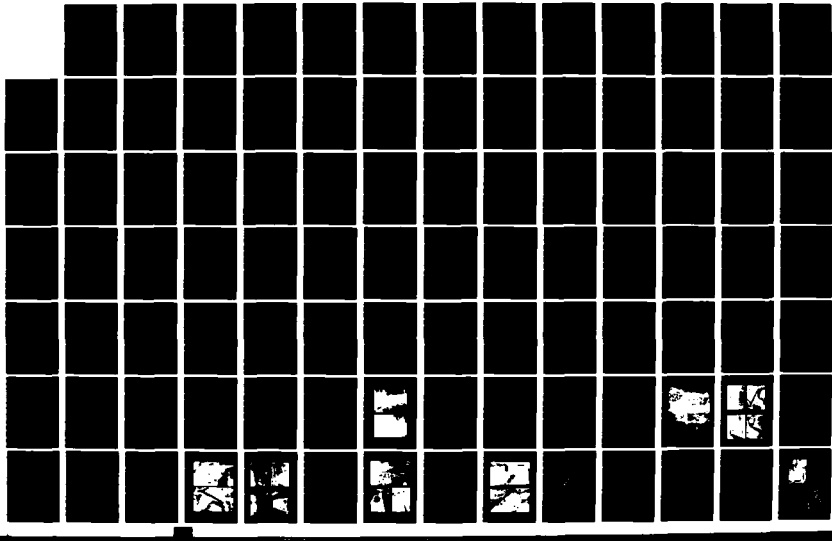
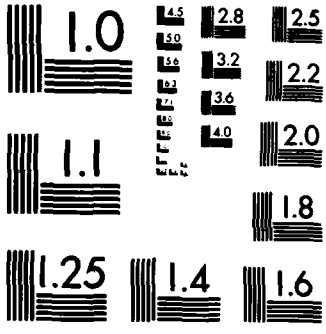




MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

individuality, and partly because of an increased awareness of the influences dictated by elitist architectural trends current during the period. Thus, although the basic form of the house remained constant--two pens separated by a passageway, sharing a single roof with no porch--the external appearance took on new meaning, both to the owner and to passersby who viewed the structure and its embellishments--like Queen Anne siding on the gable ends, or the enclosure of the central passageway to create a hallway reminiscent of Georgian style architecture. Such ornateness was not restricted to the more recent structures, however, for with the coming of the railroads there also came new markets from which owners could purchase prefabricated ornamentation which could be appended to the existing structure, enabling one to create a new image simply by altering the facade rather than the basic form of the structure.

In addition, many of the houses in the area underwent a number of structural modifications, necessitated by larger family size, the accumulation of material possessions, and varying tastes of subsequent owners. This type of modification often took the form of an ell frame addition to the original house, commonly referred to as a "sideroom" by the local inhabitants. The term is a misnomer, however, for most of the additions were in actuality appended to the rear of the house, not the side. A possible explanation for the use of the term sideroom stems from the fact that in the British Isles most appendages were built onto the side of the structure rather than the rear; thus, it could well be a linguistic retention surviving from when the ancestors of the present generations first came from Europe (Glassie 1975a:166). Most often the sideroom served as a kitchen for the inhabitants of the house, and contained a cookstove, table, chairs or benches, and shelves or a cupboard for canned goods and utensils. In addition to the above, it appears that the sideroom/kitchen served an equally important social role in that its construction marked the transition away from the hearth as the center of the interactional sphere of activity for the family. When asked which was the most important room in the house, most informants (Caveness, Davis) replied that it was the kitchen; not only because it was the area where food was served, but also because it was the place where the members of the family came together to interact with one another.

While the dogtrot was the most common traditional housetype in the area around Bay Springs, other forms occurred with less frequency, but deserve mention. One of these, the saddlebag house, was very similar to the dogtrot in appearance, having two single pens--usually of log construction; however, unlike the dogtrot, there was no passageway between the pens. Instead, the saddlebag had a central chimney with a firebox opening into each of the two respective pens. There were other differences as well. Unlike its counterpart, whose two pens usually were constructed contemporaneously, as evidenced by the shared roof and its supportive plate log, the saddlebag often resulted from the addition of another log pen to the original strucure. The resulting house was then covered with clapboards or board-and-batten giving the outward appearance of a single, uninterrupted continuum.

Perhaps the most important house type with regard to this particular study is that which is referred to by the local inhabitants around Bay Springs as the "sawmill house." Resulting as an outgrowth of the timbering and sawmilling operation, sawmill houses formerly dotted the cultural

landscape in great numbers, although today there are few remaining examples to be found. These houses were unique in that their presence was dependent upon economic factors rather than being culturally determined. Both of the aforementioned house types had a wide geographical distribution throughout the Upland South, and their form remained relatively constant throughout time—characteristics largely determined by the fact that they had as their basis European antecedents which were part of the traditions of the people who built them. Sawmill houses, on the other hand, arose in response to a particular industry; and because of this, enjoyed a relatively limited distribution which was dictated largely by the presence of sawmilling operations in any given area. Based on information provided by informants we may assume that this type was present throughout northern Mississippi, Alabama and Georgia, and into southern Arkansas-wherever the men and their families went in search of work in the sawmills.

The sawmill house primarily functioned as a temporary shelter for the worker and his family, and there was little regard for aesthetic considerations in its construction. One informant gives an account of their appearance:

> "They were [constructed] of vertical boards, board-and-batten . . . they varied in size from, say, ten feet square to thirty . . . roughly. Most of them were board-and-batten--rough lumber, one [foot] by one inches thick; battens over the cracks. Some of them a floor, some no floor . . . board roofs split out of oak or cypress or somethin' like that . . . maybe sometimes pine. [Heated] with either a mud fireplace or a little stove. Sometimes a stove made out of an oil drum with a pipe stuck in it . . . .

Whenever a portable, or peckerwood sawmill came into an area one of the first tasks was to saw lumber to be used in constructing of sawmill houses. Because the houses were designed as temporary dwellings little care went into their construction and their maintenance, for they soon were abandoned after the timber in the area played out. Clara Caveness, who lives near Moore's Mill, provides an insightful commentary:

> "We had a little garden started sometimes and the time come the timber's gone. Well, you had to move on. Find something else. But it is allright. I guess sawmillin's about as contented as you could live because it didn't matter whether you ever straightened up much or not, because you'd soon be gone further, and we didn't have very much with us. We just carried bedding and a few dishes and clothes and things like that. We called it just batching along."

The sawmill houses were occupied not only by men employed in the sawmills, but also by itinerant sharecroppers who frequently moved from place to place in the course of the agricultural seasonal round. Sometimes they would get a crop in the ground and then go to working in nearby sawmills, leaving when the land or the timber, or both, played out. The scarcity of these structures today on the cultural landscape is likely due to two factors: first, shoddy construction techniques, coupled with the use of unseasoned lumber, precluded any hopes of longevity for such dwellings; second, with the decline of sawmilling operations over the past few decades there was little need to preserve the remaining houses, or to construct new ones to take their place.

Besides the various house types discussed above there were also a number of other traditional structures present on the cultural landscape around Bay Springs. Collectively referred to as outbuildings, they include barns, cribs, smokehouses, chicken coops, and other attendent structures--each serving a specific function necessary for successful farming operations. Perhaps the most important of these was the barn, for it was there that animals were housed, grain and hay stored, and tools kept.

As is the case with the various house types, the barn appears in a number of different manifestations in and around the area, the form dependent upon the needs of the individual farmer as well as the period in which it was constructed. The basic unit of barn construction is the crib, a square or rectangular unit similar in appearance to the pen used in house construction. The form of the barn is determined by the arrangement of the cribs, and barn types are simply variations on this theme. Whenever two cribs are placed side by side, separated by a center drive which opens onto the side, the resultant structure is referred to as a double-crib barn. Two double-cribs housed under a common roof with drives that crisscross one another in the center is called a four-crib barn. The final step in this development is the transverse-crib barn, the most common type found in the Bay Springs area today. It is simply a variation on the four-crib theme and is produced by enclosing the two drives which open onto either side of the ridgeline in a four-crib barn, thus leaving a single drive which opens onto the gable ends of the sturucture. In discussing the various types of barns it would be easy to ascribe an evolutionary schema to the typology, arguing that the more complex types evolved from the simpler, replacing them as time progressed; however, such an assumption would be fallacious, for the more complex types exist contemporaneously with the simpler, often appearing together on the same farmstead. The incongruity may be explained by understanding that each of the types serves a somewhat different function on the farm. For example, the single crib is used primarily as a storage receptacle for locally grown corn; whereas the transverse-crib, with its numerous stalls and shed additions, provides housing for animals, as well as storage space for feed and farm implements. Therefore, as each type satisfies a different need, they are retained as part of the builder's repertoire. Noel Caveness briefly describes three such structures located on the farm on which he was raised:

> "Well, it was an old log barn . . . had a hallway in between it, stables on either side. And the crib, it was an old log crib off to itself. . . . It [the roof on the barn] had boards, oak boards. . . . I think the hallway was eight foot, and then the stables, they was big stables. I imagine they was twelve by twelve, or somethin'like that . . . [the log crib was used] to put corn in. . . . There was a plank crib built out of lumber. And then there was stables all around the outside . . . about three small stables to each side."

Barns were typically located between 50 and 100 m from the house, according to informants. Built of frame or log, each barn may have housed as many as a few dozen sheep and cattle in inclement weather; the stables may have held as many as 10 horses and/or mules. Many barns also commonly housed four milk cows (Davis).

Another outbuilding which was an integral part of most farmsteads was the smokehouse, where butchered meat was smoked as part of the preservative process. Most smokehouses were relatively small structures, rarely averaging more than ten to twelve feet on a side, and usually were constructed of pine logs, although examples of frame construction were not uncommon. The meat was hung above a smoldering fire built on a dirt floor. Because it was essential to retain the smoke within the structure so that the meat would dry properly and take on the desired flavor, all of the gaps and cracks between the logs and boards, respectively, were sealed. As George Wooten put it, they were "built good and tight."

Most farms had a ready source of water, either in the form of a well or a nearby spring. In the former case a well house frequently was constructed to protect the water source; in the latter, the resultant shelter took the form of a springhouse. Mrs. Forrest Wright describes the springhouse located on her property:

> "They had it (the spring) rocked up, you know . . . My mother had what they called a springhouse, and she had shelves in that, 'course a door, and she carried her milk--we didn't have ice--she carried her milk and dig out holes down in there and put the churned milk down in there, and put butter in them churns . . . and it'd keep just as firm. Then she had shelves in there, when she canned anything, why she could take it down there and put it in that springhouse. And we washed down there, too--had our pots and tubs and everything down there."

Perhaps most noticable are the changes to Bay Springs brought about through technological innovations in the field of transportation. In the latter half of the 19th and the first decade of this century Bay Springs could be characterized primarily as a self-sufficient community, its members relying upon resources close at hand for their wants and needs. This was dictated more out of necessity than by choice, for travel to outside areas was limited by the lack of improved roads, and a trip to one of the larger cities like Booneville and Iuka required the better part of a day's journey by horse and wagon. In this light many respondents said that such trips were made only once or twice a year. However, in the first decade of this century profound changes to the community of Bay Springs, as well as other towns in the area, were brought about by the coming of the railroad.

The first railroad in this part of Mississippi was the Mobile and Ohio, which ran from Mobile, Alabama to Ohio. According to W. Reed Akers the railroad was completed in the 1840s, and he remembers hearing his grandfather speak of helping in its construction:

> "My great grandfather was a schoolteacher. And he . . . taught at Liberty Church. . . . And then his two older boys, that was the grandfather and then the older brother. . . . They would walk to Booneville and work on . . . building that railroad. And my grandfather said he had drove a mule, pulled a little cart and the men that filled it up, see they were strong men, and they would dig it and shovel and throw it in. Now that's the way they built those railroads, have to cut through a hill, just that way."

Until 1907, when the railroad came through Bay Springs, people went to Booneville to purchase items which were unavailable in the immediate area, as evidenced by Clara Caveness' statement, "Well, they'd go to Booneville. That was the closest railroad they'd have."

The coming of the railroad, owned by the Illinois Central but referred to as the Mississippi and Alabama Railroad, opened up new markets for the residents of Bay Springs, and provided a means of transportation into and out of the area. One of the benefits provided by the completion of the railroad was the effect it had on commerce in the area. The members of the community now had access to factory-made items which heretofore had been unavailable to them. As a result, many informants said that they remembered ordering merchandise from mail order companies like Sears, Roebuck and Montgomery Ward's. Clara Caveness comments:

> "We'd order clothing . . . just anything you wanted . . . the first wood stove, me and Noel, after we married we ordered our stove. And then you could order harness and stuff for stock, you know, and tools, just most anything. . . . We really doted on the catalogs. Menfolk didn't so much, but nearly all the women looked to get a catalog . . . Lot to choose from . . . we just enjoyed looking at . . . shoes and, oh, just a lot of nice things."

In addition to commerce, the railroad carried passengers, and most informants remembered a local train which ran from Corinth, Mississippi to Vina, Alabama. W. Reed Akers describes the train, referred to as the "Doodlebug":

> "...it's a little train, and it had one mail car, and a mail clerk on there, and had that thing that'd pull down and catch the pouch if it didn't want to stop. Then, had two coaches for people to ride. Now they's hanging all over it on the third Sunday in May . . . that was a big day for the Primitive Baptist Church up here at Dennis. They called it, some of these did, 'foot washin'."

Mrs. Forrest Wright also remembers the Doodlebug:

> "Well, it was a little bitty train, it was a small train, had about three coaches and a caboose . . . run from Haleyville (Alabama) to Corinth, and it'd go up in the mornin', go to Corinth, then back in the afternoon--you'd go to Corinth and do your shopping . . . It'd stop at ever feed track, pick up people, you know."

About the same time the railroad came, the first Model-T Fords also appeared. A few informants said that the first automobile they remembered seeing was at one of the Confederate reunions at Bay Springs, and that its owner would take couples for a ride for a fee of twenty-five cents. The introduction of the automobile also had a profound effect on the families whose members worked at jobs associated with logging and sawmilling, for they were no longer forced to relocate if the sawmilling operation moved to a new location. Mrs. Forrest Wright again comments, "But when they was, before they got to havin' trucks, you know, and things, they usually always had to move because it was too far, maybe, for them to go backwards and

forth." The automobile made visiting of friends and relatives more practical and may also have been, at least partially, responsible for the demise of the reunion at Bay Springs.

If technological innovation associated with transportation affected the lifestyles of Bay Springs residents, the same may be said with regard to advances in other areas as well. Home industries, in particular, have been inhibited by the availability of mass-produced items; as a result many of the crafts which formerly were practiced with great regularity have become less commonplace. Goods like cloth, and even ready-made clothes, are purchased rather than being produced at home, and this has had a direct effect on associated crafts like spinning, weaving, quilting and knitting. Today, these crafts are still practiced by a few members of the older generation, although few of the younger women in the area have much knowledge of these traditional skills.

In addition, the widespread availability of factory-made furniture all but spelled the demise of traditional craftsmen, like cabinetmakers, chairmakers and woodcarvers. The blacksmith also has felt the brunt of technology, as farmers now purchase their tools and implements from stores supplied by factories rather than having them made in the blacksmith shop. The role of the smith has become, then, one of repairman rather than producer.

Another area which has been affected by technology is that of food preservation. Formerly, vegetables and fruits were either canned or dried as a means of preservation. Today, few of the homes visited were without large freezers, and in many cases the practice of freezing foods rather than canning them has become the rule, due largely to convenience and the availability of processed foods. Meat also is now commonly preserved by freezing, and the smokehouses which once were a part of every farmstead have all but disappeared from the cultural landscape.

Improvements in the field of medicine, coupled with the availability of medical services, have altered the practice of folk medicine to a great extent. Instead of relying on traditional cures and remedies most of the people in the area now consult physicians for their ailments; although ,just as elsewhere, many of the residents still retain a knowledge of traditional cures for minor afflictions and maladies.

Technology, then, has had a profound effect on the lives of the residents of Bay Springs. Some of the changes have been minor and have caused little modification of the traditional lifestyles. Others have altered the society to a great extent, and only time will tell their long range effects on the residents of Bay Springs.

CHAPTER 6. SOCIAL SYSTEMS

Introduction

The settlement of Bay Springs consisted of houses strung along ridgetop roads. These houses contained people who worked their individual fields and co-operated with their neighbors in log rollings and house raisings; produced slat back chairs and quilts; met at church, family get-togethers and yearly Confederate Reunions; celebrated holidays and weddings, and held all night mournings for their family dead. Bay Springs was a social landscape of differing groups. Bay Springs changed from a pioneer village to a community with manufacturing and industrial operations to a site used for yearly Confederate Reunions, and finally to a cluster of shacks populated by transient sawmillers and semi-permanent tenant farmers. The population of Bay Springs ranged from a few in the early 1840s to several dozen in the mid-1880s. After the mill fire, many residents moved away to seek employment but a few stayed as farmers and farm laborers. Over the past 150 years, the main types of people living at Bay Springs included manufacturers, craftsmen and professionals, a few slaves, tenants, sharecroppers, large farmers, and small landowners.

Using a variety of oral, historical, and archaeological sources, the social setting at Bay Springs through the years may be described. This chapter indicates the group networks operating at Bay Springs, deals with elements of group interaction, and reviews institutions which were part of the community. The discussion of group networks, group comparisons, and institutions is derived primarily from historical and archaeological sources. The section on group activities in the form of social occasions was compiled from the memories of oral informants. Unless otherwise noted, the oral historical descriptions deal with activities occurring during the period from 1900 to 1950.

Human Groups

Cultural anthropologists and sociologists have developed a great many ways to divide people into groups. Statistical groups are etic constructs, that is, groups created by researchers in terms of common characteristics displayed by its members. The people in the groups may not be aware of the existence of the group. These groups, such as the total of all people in a community over the age of 10, are created for the purpose of analysis. Another form of etic group might be all people living in the same geographic setting.

Anthropologists also recognize emic human groups, that is, groups existing in the minds of group members. Two varieties of emic groups include societal and social groups. Inherent in the term societal group is the concept of common identity, a recognition by members of belonging to a group. One feature of a societal group is a shared mental set by which people sort themselves out, though members may never interact. Masonic Lodge members from Boston may never meet other Masons from Los Angeles, yet they share a common identity. By processing the various societal groups into their mental template, people acquire a model of the way their society is organized. Social groups also exhibit a common identity; the difference

between the two types of groups is that social group members interact and associate with one another. Social groups may also be distinguished in terms of the kinds of bonds which hold members together. Two major types of social groups determined by recruitment include: 1) groups based on birth or kinship: 2) groups based on common interests or characteristics.

Groups Represented at Bay Springs

Societal Groups

In general, the diverse people living at or near Bay Springs may be divided into seven separate societal groups: large landholders/speculators, small landholders, laborers, mill workers, tenants, sharecroppers, and slaves. These groups were comprised of members who shared a common identity with others living where similar settlement and economic systems developed in the Upland South.

Community membership at Bay Springs varied greatly through time. During the late 19th century, large landholders were gradually replaced by small landholders who often employed tenants. Manufacturers moved on to other business opportunities; craftsmen and professional people remained as long as there was a demand for their services. Tenancy increased steadily. Employment for these individuals varied from farming in the summer to sawmilling in the winter.

Large landholders may be defined as individuals who owned a half section (320 acres) of land or more. Table 6.1 indicates the number of landholders in the Bay Springs area who fell within this range in the years of 1840, 1853, 1861, 1870, and 1889. In addition Table 6.1 includes the number of individuals for the sample years who owned more than 640 acres; these large landholders in many cases were land and/or timber speculators.

Table 6.1. Large Landholders in the Bay Springs Locality

	1840	1853	1861	1870	1889
Owned 320-639 acres	10	11	8	13	10
% of Total Landholders	41.7	26.8	20.5	38.2	20
Owned 640 acres or more	3	3	2	2	2
% of Total Landholders	12.5	7.3	5.1	5.9	1
Total Landholders	24	41	39	34	50

Source: Tishomingo County Land Rolls

Although several individuals fell into the group large landholders or speculators, probably none of these owners may be considered planters. The

term "planter" traditionally has been applied to farmers based on the number of slaves (later tenants) employed and the size of landholdings. A small planter generally owned between one and 16 slaves (Fogel and Engerman 1974:200). In 1840 there were only 19 slaves in the Fifth District of Tishomingo County which includes Bay Springs. By the end of the Civil War, only 38 blacks lived in the Fifth District. On the basis of acreage, the Bay Springs farms cannot be regarded as plantations either, since plantations were generally 800 or 900 acres, although they could be as small as 260 acres in more productive areas (Weaver 1945:38; Gray 1958:483).

Farmers in Tishomingo County did not rely heavily on cotton as a cash crop as had farmers in the more fertile Black Prairie country to the south. Often Tishimingo County farmers diversified into stock raising and subsistence agriculture. The amount of improved agricultural acreage in the county was lower than counties to the south. Of the 40 farms listed in the 1860 Census of Agriculture served by the Bay Springs post office, only five of the 40 had more than 100 improved acres. These five owned an average of 41 hogs and 15 sheep.

Small landowners were individuals who owned less than 160 acres of land. Nearly 100% of the small landowners in the Fifth District in 1880 were white. Only one black, T. Morason, is listed as a landholder on the 1880 Census of Population. These small landholders made a living through subsistence agriculture planting a variety of crops in dispersed fields and raising stock. In most respects they are similar to their large landholding neighbors, except for the size of their landholdings.

Manufacturers were individuals who maintained ownership in manufacturing or industrial operations. Bay Springs Mill, like most industrial operations in the United States, was run on a hierarchical organizational structure with the manufacturers at the top and laborers at the bottom. The manufacturers, either Gresham or Briggs or Nelson, managed the mill, while the laborers produced the roving yarn, flour, and lumber. James Gresham was paid a yearly salary to supervise the mill, possibly indicating that he performed certain duties usually relegated to a foreman. Manufacturers at Bay Springs Mill typically were among the large landholder class.

Mill workers/laborers included those individuals who worked at industrial operations. In general, the various occupations at a cotton factory and mill included carding supervisors, bobbin boys and/or girls, spinners, roving frame attendants, machinists, teamsters, and general laborers. Spinning and carding were skills which probably afforded persons with a degree of status higher than those of doffers. Since the spinner was from New York and the carder from England we might assume that they were brought to Bay Springs for their skills (U. S. Census of Population 1860:324). Also the skilled blacksmith may have acted as machinist and teamster. Mill workers typically were paid wages for their work; often they lived in company housing or as boarders with other families. Store clerks at the mill commissary may also be included in this group.

Tenants/sharecroppers were farm laborers who did not own land. Following the Civil War, many whites and former slaves entered into informal or formal crop lien relationships with landholders. In the South

tenants/sharecroppers were people who paid for the use of agricultural land either with a share of the crop or by cash rental. At Bay Springs, two types of tenants were distinguished from sharecroppers. Cash renter/tenants provided all agricultual equipment, mules, and tools in addition to paying a cash rent for use of the land. "Third and fourthers" paid one-third of their corn and one-fourth of their cotton in exchange for the use of the land. Sharecroppers paid one-half of all cotton and corn produced in exchange for use of land, tools, and seed. The number of tenants, sharecroppers, and wage hands in the Bay Springs area increased following the Civil War as reflected in Table 6.2. (the census data were not of sufficient detail to distinguish tenants from wage hands). This trend is due, in part, to the difficulty of obtaining cash for land purchases during Reconstruction.

Table 6.2. Percentage of Farmer/Farm Laborers in District Five, Tishomingo County, 1850-1880

	1850	1860	1870	1880
Farmer (N)	122	25	17	195
Farm Laborer (N)	2	20	14	207
Total Agriculturalists	124	45	31	402
% of Farm Laborers	1.6	44.4	45.2	51.5

Source: U. S. Census of Population, 1850-1880

Besides those skilled professionals whose talents were necessary to operations at the factory other skilled craftsmen/professionals included individuals who were experienced tradesmen, master craftsmen, educators, or practitioners of law, medicine, or religion. A variety of these individuals lived in the Bay Springs area during the second half of the 19th century. Since many of these people practiced their craft or profession part-time or seasonally, they often were also small farmers. Table 6.3 indicates the number of skilled individuals falling within this group and living in the Bay Springs area from 1850-1880.

Table 6.3. Number of Skilled Craftsmen/Professionals in the District Five, Tishomingo County

	1850	1860	1870	1880
Blacksmi	1	3	0	2
Grocer/merchant	1	0	0	1
Gunsmith	0	1	0	0
Brickmason	1	0	0	0
Mechanic	2	0	0	0
Schoolteacher	1	0	0	1
Minister	0	0	0	1

Table 6.3 Continued

Lawyer	1	0	0	0
Physician	0	1	1	1
Shoemaker	0	0	1	1

Source: U. S. Census of Population, 1850-1880

Throughout the South, slaves were used to perform agricultural labor and domestic service including field tasks, household duties, and commerical functions such as milling and bricklaying. Southern Slave Codes and other regulations restricted the education of slaves and the practice of religious beliefs (Stamp 1956:156, 192). Of the approximately 25 slaves living in the Fifth District of Tishomingo County prior to the Civil War, there is little oral or documentary evidence concerning their lifestyles and work. Several oral informants indicated that they had heard that no slaves ever worked at the Bay Springs Cotton Factory; the slaves were either field hands, laborers, or domestics. The fragmentary census data support the oral history.

Social Groups

Social groups at Bay Springs included the societal groups of large landholders, small landholders, manufacturers, laborers/mill workers, professionals, and tenants/sharecroppers. Slaves are not included as a social group because with such small numbers, interaction of this group with other groups was probably insignificant. During the periods when the various societal groups were present at Bay Springs, group members interacted and associated with members of the same and other groups. Members of societal groups were also members of several social sub-groups.

In antebellum Bay Springs, large landholders and manufacturers like George and James Gresham were members of socio-economic, political, and kin groups. George Gresham helped organize the Predestinarian Baptist Church at Mackeys Creek; his son, James, was a successful Board of Police member and Bridge Commissioner for Tishomingo County. He also organized the Bay Springs Masonic Lodge. Farmers, laborers, professionals, and manufacturers alike were affiliated with the Mackeys Creek church and the later Bay Springs church. On a more informal level, farmers, laborers, manufacturers and their respective families probably met regularly at dinners or picnics to discuss current economic and social trends or just to enjoy themselves.

Bay Springs residents retained group membership in many of their church and social groups after the mill burned in the mid-1880s. The Mackeys Creek Church and the Masons met regularly. The Confederate Reunion became a popular institution in the late summer. The manufacturers and mill workers had either moved away or stayed to become tenants or farmers; the remaining residents met informally to help each other in community work projects, like house raisings and quilting bees. Courtin' at the Drip Springs and baseball were also popular activities.

Groups Based on Birth

An examination of 19th century Census of Population records for District Five of Tishomingo County indicates the recurrence of numerous

proper names. Common names represented at three or more separate contemporaneous households in the Bay Springs area in the period 1840-1880 include: Priest, Gresham, Martin, Moore, Matthews, Hopkins, Billingsly, Adams, Byram, Cornillius, Davis, Paden, Brumley, Rogers, Clingan, White, and Tipton. Often, as Census Schedules indicate, farmsteads with the same proper names cluster together indicating extended families in two or more households occupying a contiguous tract along a ridge.

The 1880 Census of Population indicates a kin-based mill operation. In 1880, the Bay Springs cotton factory employed 22 mill operators. Fifteen of the workers were female with six aged less than 15 years, seven between the ages of 15 and 25, and two over the age of 25 with the youngest at 10 years and the oldest at 37. Six of the workers were males between 18 and 30, except for one gentleman, age 66. These 22 workers came from 11 households. The family head of one household was a female mill worker with four daughters and one son also working in the mill. Wallace described a similar situation in a 1850 woolen mill in the hamlet of Rockdale in eastern Pennsylvania:

> "The web of kinship was probably even more complex than the available data indicate, for census records and ledger numbers do not reveal most of the affinal connections and fail to show whether male heads of different families with the same surname were consanguineally related. . . . The statement that four out of five workers in the card room had relatives working in the same mill, or that nearly half of them had a housemate in the card room itself, is simply an understatement of the pervasiveness of kin relationships" (Wallace 1978:60).

Among the 11 mill worker households at Bay Springs in 1880, 63.6% (N=7) were female-headed. One of these females is listed as a widow, the rest are noted as single. Whether they are divorced or separated is not indicated. Apparently the female household heads were working alongside their children in the mill in order to produce a living wage to pay for room, board, and other necessities. "Widows . . . often moved into cotton-manufacturing districts for the express purpose of supporting themselves by putting their children out to work in the mills" (Wallace 1978:36). For comparison, we sampled 70 households in District Five outside Bay Springs and found that 90% (N=63) were male-headed.

The kin-based nature of the mill would probably have been desirable to manufacturers Gresham and Nelson. By having family members working in the spinning and carding rooms, desire for job security would keep operations running relatively smoothly. In addition, having family members and close neighbors working together would possibly enhance the rapport among mill employees. Perhaps a network of social control through activities like gossip would dissuade operatives from behaving abnormally.

Groups Based on Common Characteristics and Interests

Social class may be defined as a stratum of people who share a common rank or status in a social hierarchy, whether based on economic factors or social prestige. Both before and after the mill burned, two basic social classes operated at Bay Springs, an upper class and a working class. The class system at Bay Springs closely follows the system described by Wallace for the mill hamlet of Rockdale in Pennsylvania in 1850:

> "There was . . . a highly solidified managerial class, gentlemen farmers, and their wives and children, an amorphous and embryonic middle level, probably with little clear awareness of itself as a group, composed of people who performed skilled services on a contractual basis for all classes--ministers and physicians, schoolteachers, and the various mechanics, such as masons, blacksmiths, carpenters, and machinists, and a large and reasonably self-conscious working class made up predominantly of people who worked by the day as operatives in mills, as manual laborers, and as domestic servants" (Wallace 1978:44).

Manufacturers and large landholders/speculators were members of the upper class due to possession of prestige and wealth. The working class included laborers, tenants/sharecroppers, and mill workers. These people possessed the lowest prestige and wealth in the community: few of them owned real property and other material goods. Like Rockdale, the middle class at Bay Springs was an amorphous group with members having little clear awareness of group membership. This class generally included small landholders, skilled craftsmen, and professionals. They were probably closer in rank to the working class than to the upper class. Still, in the Upland South class lines were flexible; upward mobility was an element of the Protestant ethic. A man could move from the worker class to the manager class within his lifetime. Gresham's rise from middle class miller to an upper class industrialist indicates this mobility. Various class members did not seclude themselves from others; James Gresham probably worked closely with mill laborers. Oral informants mention that Nelson held large community dances regularly at his home north of the Masonic Lodge.

The one fraternal group represented at Bay Springs was the Masons. Freemasonry has been popular among Bay Springs area residents; the first log lodge was built south of the mill site in 1853. The spirit of Masonary appears quite compatible with the self-sufficient, yet cooperative nature of many within the area. As Hill explained, "Masons are a fine thing. You have a place to stay when you're away from home. If you need help, you can get it from a Mason." Allen mentioned that a "world of Masons were raised there" since the lodge's inception. The second lodge built in 1874, was occupied by monthly meetings of the Bay Springs chapter into the 1950s. It also functioned as a Grange Hall once a month for a few years in the 1870s. The lodge was used as a church on Sundays beginning in the late 19th century. The lodge members met usually on Friday or Saturday nights and never conflicted with meetings of the Church of Christ. Through the years, the two organizations had friendly relations. Each year during the summer, the lodge had a small festival for members. The lodge was easily adapted to whatever specific function it served at a particular time. Caveness mentioned that lodge members reclined in "home-made, slat-backed chairs. We would move them any way we wanted them." Other than chairs, furniture included a 100-year-old bureau, a 15-foot-long linoleum-topped dining table, and a wood heater. The stove flue on the north end serviced heaters in both the church and lodge.

Churches always played an important role in the lives of the residents of Bay Springs and the area has seen a number of different religious denominations in its long history. Mackeys Creek Church, the earliest church in the area, was an interdenominational congregation that met in a log structure constructed in 1845 approximately one mile north of Bay

Springs. After the Masonic Lodge building was constructed at Bay Springs services were held downstairs. Later, a number of separate denominations began using the Lodge for their services, and each Sunday saw a different group meeting in the building. Hubert Davis described how the meetings were arranged:

> "That church was built for anybody, any denomination wanted to preach there. But they wouldn't conflict with one another. If the Church of Christ wanted to have a meeting there it'd be known, announced, you know, and generally known. They didn't pull out of there; and if a, Methodists or Baptists wanted to have a meeting there they'd just announce their time . . . set their time, and everybody just stood back."

Several informants stated that organized church services generally were held only once a month in the early 1900s, as the ministers for each congregation had to travel to various communities to meet with their respective congregations. Clara Caveness noted that a minister might serve four different congregations, visiting each once a month. By the 1920s the different churches in the area around Bay Springs included: Missionary Baptist Church south of Moore's Mill, United Methodist Church north of Bay Springs, Primitive Baptist Church in Prentiss County, and the Church of God of Prophecy nearby. During this same period the Church of Christ rented the downstairs of the Masonic Lodge for church services which were held there until 1958 when the church was closed. Most congregations held regular Sunday schools and nightly meetings during the week. Local church members were typically responsible for the repair and maintenance of the local church. Noel Caveness remembers his father built benches from donated lumber at Primitive Baptist Church.

Through the early 1960s, several of the congregations had annual services lasting from seven to ten days. They called these "protracted meetings" and were similar to present-day revivals. A feature of these protracted meetings were the baptisms which took place during services. Hubert Davis remembered that as many as 25 people would be baptized in Mackeys Creek during the week's meeting, with a large audience in attendence. Davis noted that initiates "went down right at the end of the bridge, right on the north side. . . . That's where they'd do the baptizing. Be a crowd standing down there . . . a hundred people sometimes, something like that, watching them baptize."

In addition to protracted meetings, "singings" were held throughout the summer months. These were all-day affairs in which several area churches participated, and included a "big dinner spread . . . on the ground" according to Noel Caveness. Both Noel Caveness and W. Reed Akers recalled that the Primitive Baptists would set aside the second Sunday in May for "foot-washings." These special services were also all day affairs, and after two or three "long-winded preachers" had given their sermons the members of the congregation would wash each other's feet as part of the service.

Comparison of Groups at Bay Springs

Material Culture

Through the mid-1880s when the mill burned, consumer goods could be purchased by large landowners, manufacturers, laborers, professionals, and tenants alike at the factory store or commissary. Unfortunately, the transaction records of this store have not survived. Several oral sources remember their fathers and grandfathers discussed driving wagons to Booneville or Iuka two or three times a year to purchase dry goods, seeds, or other supplies not available at the Bay Springs store (Davis, N. Caveness).

Data from the Tishomingo County Personal Property Rolls of 1882 indicate differences in the types and quantities of goods owned by members of various societal groups. For example, John Nelson, manufacturer, owned two horses, four mules, 10 pigs, six carriages, a watch, and four pistols. The assessed value of his property was $20,680. John Tipton a farmer with approximately 320 acres, owned seven cows, four mules, three sheep, a carriage, and $241 of merchandise. His assessed property value was $564. John Billingsly was a shoemaker who owned a mule, carriage, and $100 worth of merchandise. His property was valued at $190. J. T. Adams the factory commissary clerk, owned five sheep and a carriage valued at $30. F. Owens a mill worker, owned two head of cattle and a horse valued at a total of $48.

Oral history sources indicate that goods consumed by tenants, sharecroppers, and transient sawmillers in the early to mid-20th century were similar to goods used by mill workers (N. and C. Caveness). All groups ate the same basic foodstuffs including meal, pork, molasses, flour, and vegetables. One difference in material culture lies in domestic architecture. The mill workers and farmers of the mid-19th century were living in hewn log and frame buildings while the later sawmill workers were occupying impermanent, frame shacks.

Group Activities at Bay Springs: Social Occasions

Neighboring and Co-operation

Apparently, both before and after the mill burned, community co-operation was an important feature of social life. The family functioned together as an economic unit with individual members contributing to maintenance and stability. More importantly the family was a social entity and was dependent not only on its own members but also on members of the community for social needs. When asked if they got along with their neighbors, most informants stated that they did. For example, if a member of one of the area families was ill and unable to tend his crops, his neighbors would help out until that person was able to resume work. Perhaps a better illustration would be the type of social-economic interaction which took place during log rollings each spring. Hubert Davis comments:

> "Yeah, they had log rollings . . . in the Spring of the year. They'd have fresh ground cleared, a lot of standing timber dead on it, left when they'd fall, and every Spring you'd have to cut the

logs, roll 'em, burn 'em . . . and people'd help one another. . . . [They] summoned more than a lot of people [when] they's gonna have a rollin'. Maybe they'd have fifteen, twenty hands there, and have big dinner . . . several of the neighbors would come in and help . . . help cook dinner, and you'd have just a, they enjoyed it, you know. It was a regular feast, log rolling."

Noel Caveness adds:

"they'd invite everybody in, and neighbors and everything . . . have a log rolling . . . and they'd pile 'em [the logs] in a pile, and they had a lot of fun . . . they'd have a dance, you know, every night when they had the log rolling, and a lot of the neighbor women'd go in and help 'em cook their dinner. They had a big dinner and the old people enjoyed it."

Other co-operative activities practiced in the first half of the 20th century and mentioned by informants included house and barn raisings, and ground clearing for the spring planting. The events were looked upon as social occasions in which area families could get together. Dances were held after the work had been completed.

Few families ever got through a year without having one or more members falling ill. If the illness was not severe home remedies were employed as curative agents. Several informants extolled the virtues of elixiers such as spring tonics and asafetida in warding off sickness. Folk medicine was practiced as a tradition and out of necessity since there were few doctors in the Bay Springs area in the 19th century. Some individuals in the community were skilled at curing certain illnesses. Clara Caveness describes one example she remembers from the 1920s:

"Now we had an old man that lived in here . . . and one of my nephews was real sick when he was about . . . three or four year old—he'd vomit . . . and they went to a doctor, got medicine time or two, and it wasn't helping a bit . . . so this old man, he lived up kinda' in the woods there said [it was] worms what's a bothering him, and 'if you'll get this elder . . . and make him a tea out of that inside bark . . . he'll be easy by the time he drinks half a cup of it. . . . Well, he drank that and I don't reckon 'til today he ever had another spell like that."

The prescription for this tea called for scraping the elder bark downward rather than upward, for if it was scraped upward the patient would vomit up the tea. Other home remedies prepared by Bay Springs area residents include pennyroyal tea for relaxing muscles, fever weed tea for kidney ailments, and sassafras tea for blood poisoning. There also were women in the area who acted as midwives, assisting in difficult deliveries and performing other attendent duties.

Marriages

In the early 1900s, marriage was cause for celebration, and Mr. and Mrs. W. Reed Akers stated that often after a couple had married, their friends and neighbors would get together and "serenade" the newlyweds. Wedding celebrations often included shooting off fireworks and guns, ringing

cowbells, and a practice referred to as "shooting the anvil." Akers describes the event: "let's see, another thing, sometimes they'd usually put one [anvil] on top of the other, and there's two little holes in there that they could put powder in, you see, and then they have a fuse, and they set that on fire--and get away 'cause that thing's going to blow up . . . it'd throw it."

Funerals

Several informants stated that in the early 1900s whenever someone died in the area friends and relatives would visit the house of the deceased. Although none referred to it as a wake, some respondents said that people would sit up all night with the body until funeral services were held at the graveside. Most families preferred to bury their members in family plots in a particular cemetery which often meant traveling some distance to attend the funeral. The deceased in the area of Bay Springs were typically buried at Mackeys Creek Church Cemetery one mile north of Bay Springs, at Cotton Springs Cemetery one mile east, or the Brumly Cemetery one mile to the west (Martin 1978:258). Hubert Davis, who was born in 1888, discusses area funerals:

> "Yeah, had a funeral. Had to get a preacher . . . and have a funeral. Some cases they had a funeral and never even had a preacher. That was the real poor folk, they didn't pay much attention to it. But anybody that [was] anything like well off, they had a average sermon . . . preacher would preach at the funeral, and have it at the cemetery."

Clara Caveness comments further:

> "course way back yonder wasn't such things as funeral homes and the body was at the home and they . . . always (stayed) with the family, and they of course, if they went to the church there's always most times a big crowd, and they go on up to the cemetery . . . where the burying was, usually out in the country, way back then."

Her husband, Noel, remembers his great grandmother's funeral in the 1920s: "My great grandmother on my mother's side, she died down here about two mile below here and they carried her about seven miles back over on Twenty-Five Highway over there . . . I remember going to that. Went in a wagon."

Holidays

Most families living in the Bay Springs area in the 20th century observed the major holidays including Christmas, Thanksgiving, the Fourth of July, and Easter. Hubert Davis remembered that his family would organize a Christmas Dance replete with guitars and banjos. To a lesser extent days such as Halloween, Labor Day, and the like also were observed. Interestingly, most informants said that little fanfare accompanied birthdays. The only difference between that and any other day might be a special meal; few mentioned receiving gifts. One informant discusses Christmas and birthdays:

> "We just stayed at home most of the time and hung our socks up for the night . . . and got a few presents next morning when we got up.

Of course we had a little something to do, you know, on Christmas day. We'd have a dinner. Generally just the family though . . . . Little extra something to eat . . . I never knowed what it was to celebrate a birthday 'til after I married."

The Confederate Reunion

None of the oral informants knew why the reunions were held at Bay Springs, although L. P. Allen, Jr., through an analogy, offered a possible explanation:

> "this, I think, illustrates the question that you have about Bay Springs and why they came back there. That site, I told you that my great grandfather, Joseph Allen, settled what's presently known as Moore's Mill, was then known as Allen's Mill. They came to that old Mackeys Creek site to worship. They were Primitive Baptists, devout Primitive Baptists. Now then, they're buried there, and I asked my mother one time why our people were buried there when the Allen Cemetery was right there in front of their house, or the present Allen Cemetery--it might not have been there in those days--but anyway, I wanted to know why they were buried at Old Mackeys Creek Cemetery, which is quite a little distance, in those days, from Moore's Mill. And she said it's because they all worshiped there. They had a church . . . And that was customary back in those days, see, have a meeting place for people, congregated and met and worshipped or whatever, traded or whatever. And I think that may be the answer to your question--if it isn't, I don't know the answer."

Apparently, the reason people returned to Bay Springs for the Old Soldiers Reunion was because it represented a familiar place. Bay Springs was a place their parents spoke of or where they themselves had grown up. Whether L. P. Allen's analogy is correct or not is not of importance, for it reflects the basic need for social interaction--"a meeting place for people."

The formal Confederate Reunion at Bay Springs began in 1896 but before that was a day long picnic attended primarily by members of the local community. The reunion soon grew to be quite an affair lasting several days from the beginning of August. Participants came from throughout the region and Tennessee, Alabama, and Arkansas. According to Hubert Davis as many as two thousand people would gather for the picnic during its peak years. Upon arrival they would spread their portable beds, called "pallets" in the pine stands near the Masonic Lodge. Several people stated that during election years politicians would make speeches and provide entertainment for the picnickers. There was also the annual soldiers' march, ever-present lemonade stands, horse, mule, and knife swapping, lovers courting, and altercations. Several informants mentioned drinking often led to fighting.

Mrs. Forrest Wright and L. P. Allen, Jr. remembered that there once was a racetrack at Bay Springs where the local people would run their horses. Mrs. Wright recalls that the track was "up on the hill where they've got all those rocks there, from Bay Springs . . . up from the

bridge, you know, they've got a lot of rocks. Well, it was in there somewhere, they had that racetrack." Allen remembered it as being immediately north of the old church, "between Highway 4 and the church." He also stated that from time to time circuses were held there and that animals would perform in the ring. Baseball was also popular at an athletic field west of the Masonic Lodge.

The Confederate Soldiers' Reunion was held every year until 1931. The demise of the reunion probably was due to several factors. Most of the older veterans had passed away leaving only the younger participants who had fought in a war on foreign soil. The symbolic aspects of the old soldiers' gathering were thus altered from a remembrance of the Civil War. Improved transportation networks like the railroad no longer restricted the population to Bay Springs--there was more freedom to travel to other places to see friends and relatives who formerly might have been seen only during occasions such as the reunion. Finally, and most importantly, Bay Springs as a community had declined, many of its former residents had moved away or had died. Each year fewer families were in the area to carry on the tradition.

Institutions at Bay Springs

Institutions may be viewed as organized ways of doing things. They are formal, regular, or established sets of procedures, characteristic of groups performing a similar function in a society. At Bay Springs, institutions which have been present at various times over the past 150 years include slavery, schools, churches, and government entities.

Although slavery was a prominent aspect of life in the Black Prairie country prior to the Civil War, it was never a major institution in the Fall Line country. Expansive cotton and corn fields were not present in Tishomingo County. Agricultural production mainly was aimed at self-sufficiency. Small and large independent landholders and laborers performed many of the commerical and agricultural functions, which slaves performed to the south. Most of the approximately 25 slaves owned in District Five of antebellum Tishomingo County were probably domestic and field hands. Unlike the Black Prairie country, wealth was invested primarily in land not slaves.

Schools at Bay Springs were the only formal educational institutions. A few of the large landholders' or manufacturers' children may have been schooled at home or sent away to private schools. At least since 1895, many of the Bay Springs residents attended the Cotton Springs School located one mile east of Bay Springs near Moore's Mill. Hubert Davis remembers a one room school he attended. Grades one through eight were taught at the school and in the early days all grades sat together. The school was heated by a cast iron stove. Area residents would cut wood and haul it to the school in the winter. In the early days students sat on home-made benches made of split logs with wooden legs pinned to the logs. In later years a teacher who also was a carpenter made desks. Davis describes the school:

"the teacher had a table up where he sat and he'd set in the chair like that at that school over there when I was going to when I was a kid. And he had a table that he kept his books on...and you surrounded that table when he called a class. We had benches around it, but [when] he talked, he set at one side of that table and the class set over there, and he talked across the table."

Noel Caveness attended the same school, although some time later than Davis. He recalls using several different texts including primers for the various grades, grammar books, history and geography texts.

Many informants stated that school generally was held three or four months out of the year in the early 1900s, although there was disagreement as to just which months these were. Caveness remembers starting school in October or November and being out by March of the following year. School started so late, he said, because most of the students were busy harvesting crops and picking cotton. Students would attend school for six weeks in the Fall, break for six weeks to pick cotton, then return to school until March. Davis, on the other hand, said that school was held in the summer after the crops had been laid by (left on their own). Davis noted that he would work in the morning before he walked to school and perform chores in the afternoon after he walked home.

The Cotton Springs School, like most schools in the area, was overseen by Trustees who were responsible for the upkeep of the school. As Davis put it, "they seen after it [the school] and had done such work as was necessary. They'd have workins', you know, if you need to there-clean up the grounds, any work to do on the house." Davis stated that the teachers were paid by the county. Trustees were responsible for making certain that each teacher was accredited—referred to as "standing examination" by Davis. Because school was held for only three or four months out of the year many teachers also were farmers or worked at odd jobs during when school was not in session. The school was eventually abandoned in 1950.

The 1880 Census of Population contained information concerning; 1) whether residents attended school; 2) whether they could read; and 3) whether they could write. Table 6.4 reflects the literacy and school attendance of selected members from social groups in the Bay Springs area. The members selected for analysis include all residents of the Bay Springs enumeration district listed in the 1880 Census who were described by occupation as being manufacturers, craftsmen/professionals, or laborers/mill workers. In the general area in 1880 six of 34 (17.7%) of the sample population attended school, 24 of 34 (70.5%) were literate, and 16 of 34 (47%) could write.

Table 6.4. Literacy and School Attendance for a Portion of Bay Springs in 1880

	Attended School	Can Read	Can Write
Manufacturer			
Cotton Manufacturer (N=1)	0	1	1
Craftsmen/Professional			
Shoemaker (N=1)	0	1	1

Table 6.4 Continued

Physician (N=2)	0	2	2
Schoolteacher (N=1)	0	1	1
Minister (N=1)	0	1	1
Blacksmith (N=1)	0	1	1
Laborers/Millworkers			
Mill workers (N=22)	6	14	7
Grist miller (N=2)	0	2	1
Clerk (N=2)	0	1	1
Wagoner (N=1)	0	0	0
Total (N=34)	6	24	16
Percent	17.7%	70.5%	47.0%

Government offices or institutions at Bay Springs are represented by the Bay Springs Post Office (1844-1885) and District Five County Voting Precient, both probably located in the factory commissary. After the burning of the mill the post office was closed. The Bay Springs Voting Place was moved to Cotton Springs School house in 1895. The closest government offices to Bay Springs were the Prentiss County courthouse in Booneville (20 miles) and the Tishomingo County seat in Iuka (25 miles).

Disintegration of the Bay Springs Community

With the burning of the mill in the mid-1880s many local social groups dissolved. After the death of John Nelson, Sr. no one in the community had the capital or the business sense to rebuild the cotton factory; the manufacturer group was gone. Many large landholders split their lots into smaller parcels for sale. Timber interests in the late 1890s and early 1900s bought up many tracts of land. The mill workers and other laborers moved away to find other industrial-related employment or became local tenants, sharecroppers, or sawmillers.

The post office was disbanded shortly after the fire. Civic and religious organizations were more tenacious. The later Masonic Lodge was in use until the early 1950s. The Bay Springs Interdenominational Church was used through the early 1960s; protracted meetings with "baptisms" were a familiar summer occurrence.

The remaining few dozen farmers, tenants, and sawmillers pursued agricultural occupations through the mid-20th century around the Bay Springs area. Community co-operation was still practiced by local residents yet the numbers of construction projects dwindled with the outmigration of people. The Confederate Reunions, a focal point for local residents in the summer, ceased during the 1930s. All that remains now of the once thriving hamlet are a few displaced foundation stones and scattered debris.

CHAPTER 7. ECONOMICS AND SUBSISTENCE

Introduction

At Bay Springs environmental factors, terrain, climate, and soils constrained the growth of farming economy and society. The growth of industrial operations depended on the availability of local raw materials and labor force, and local demand for products like roving, yarn, twine, lumber, and flour.

The following is a synthesis of occupations pursued by Bay Springs residents, the shifting nature of economic pursuits, and discussion of economic networks at work in the Bay Springs area. Wherever possible, we have tried to develop synergism between the three approaches of history, oral history, and archaeology. However, from a chronological viewpoint, each approach could not contribute equally to every period of time discussed below. For instance, elements of economic networks operating at Bay Springs during the 19th century were not directly visible via informant memories. Thus, when studying regional and national networks a majority of our data is devived from archaeology and supplemented by history. Here, in our study of national networks we were able to offer a more synthetic thesis, comparing Bay Springs economic ties to the nation with other sites around the country. At the community level and commercial area level, economic networks were most fruitfully approached through oral history and history. Economic pursuits of the farming/sawmilling community were visible largely through oral history. Therefore, unless otherwise stated, the temporal context for the oral historical portions of this chapter was the period from about 1900 to 1950, although some elements were applicable earlier and some still are true today.

Occupations

Working at the Mill

From 1838 through 1885 Bay Springs Mill was the hub of industrial activity providing livelihoods for numerous individuals and thus became a likely area for the establishment of a post office, voting precinct, Masonic Lodge, church, and other organizations. Table 7.1 indicates the types of operations functioning in the village, and their size and value. Table 7.2 shows the numbers of individuals employed at the mill.

The saw and gristmill at Bay Springs were the earliest industries and apparently operated until the fire of 1885. First built around 1838 by George Gresham, the mill had two stones with an unknown number of sawblades and employees. In 1850 four employees, two grist millers and two sawyers (each paid $12.50 a month) ran the milling operation. The combined value of their annual product was $1,250. Four hundred logs were processed annually. In 1860 the sawmill operation had reduced production to 300 logs yet the grist milling operation, still staffed by two men, produced $1,440 of grain and meal. This was nearly $1,000 above the 1850 production level. The sawyers and millers were paid $18 per month, almost $3.50 per month more than the male cotton factory workers. Apparently their labor was

more highly valued. There is no indication in the census records as to how many months a year the milling functions ran. The Censuses of Industry for 1870 and 1880 do not mention sawmilling operations at Bay Springs, however the Census Bureau Report of the Water Power of the United States for 1887 indicates a grist and saw mill with cotton gin at Bay Springs. The report's location of these structures is questionable (see archaeological discussion of the mill).

Table 7.1. Industrial Operations at Bay Springs, 1838-1885.

	Capital Invest.	Raw Material	Value Raw Material	Annual Product	Kind	Value
1838 A	--	--	--	--	--	--
1850 A	$1,500	--	$400	1,200 bu	flour	$500
1852 A	$2,000	--	--	--	--	--
D	$3,000	--	--	--	--	--
1860 B	$1,000	500 bu corn	$400	500 bu	meal	$400
		1,000 bu wheat	$1,000	1,000 bu	flour	$1,440
C	$1,000	300 logs	$300	90,000 ft	plank	$900
D	20,000	91,000 lb cotton	$10,000	72,000 lb	yarn	$18,500
		1,300 gal. oil	$300	--	--	--
		18,000 lb wool	$5,400	18,000 lb	rolls	$7,200
1870 A	--	--	--	--	--	--
D	$30,000	100,000 lb cotton	$20,000	80,000	yarn	$28,000
		other	$1,000	--	--	--
1880 A	--	--	--	--	--	--
D	$40,000	--	--	--	--	--

A) includes gristmill, saw mill, cotton gin, blacksmith, and store:
B) includes gristmill only:
C) includes saw mill only:
D) includes cotton mill only.

Source: Census of Manufactures 1850-1870 (1880 census unavailable).

The cotton mill varied in size of operation over its 33 years of production. It began with 366 spindles in 1852, increased to 744 spindles with seven cards and a wool machine in 1860, reduced to 576 spindles in 1870, and at the time it burned had approximately 800 spindles. Employment levels varied over these years from a high of 30 in 1860 to a low of 20 in 1870 (Table 7.2). The apparent reason for this drop in number of employees may be a result of the factory stopping wool carding sometime after 1860. The marked decline in the number of sheep in the Upper Tombigbee Valley from an average of 10.4 sheep per farm to 2.1 per farm severely curtailed the availability of wool and may have been a factor (Doster and Weaver 1981).

Table 7.2. Employees at the Mill, 1850-1880.

		1850	1860	1870	1880
Male employees	A	2	--	--	--
Female employees	A	--	--	--	--
Male employees	B	2	1	--	--
Female employees	B	--	--	--	--
Male employees	C	--	15	3	7
Female employees	C	--	15	10	15
Youth	C	--	--	7	--

A) includes gristmill only;
B) includes saw mill only;
C) includes cotton mill only.

Source: Census of Manufacturers 1850-1870: 1880 data from Census of Population

When the Bay Springs Factory was processing wool in 1860, it is not known who provided the 18,000 pounds of raw wool. Census of Agriculture figures for District Five of Tishomingo County indicate that approximately 1,500 pounds of raw wool were produced in the Barnes Store and Bay Springs precincts. Apparently, the remaining wool came from farms or wholesalers outside of the Bay Springs area, although records documenting this activity have not been found.

Workers in the cotton mill maintained a fairly consistent cotton yarn production in 1860 and 1870. The 1860 production level was 72,000 pounds of cotton yarn from 91,000 pounds of cotton fibers. In 1870 the factory produced 80,000 pounds of yarn from 100,000 pounds of cotton fiber. Employees worked 12 hour days seven months a year in both 1860 and 1870 to produce this yarn.

Wages paid to mill workers in 1870 were increased over 1860 levels. In fact, the total wages ($2500) paid 30 employees in 1860 equaled total wages paid 20 employees in 1870. The average monthly wage for males rose from $15.46 in 1860 to $17.85 in 1870. The increase may be attributable to inflation. No records indicate the reason for the 15% pay increase.

Details of the living arrangements of mill employees are not apparent from the 1860 and 1870 Census of Population schedules. Of the 30 employees working at the mill only six mill workers are listed in the Census of Population: three laborers, one miller, one spinner, and one carder. Of these six mill workers three are boarders, one of whom owns a small plot of land, and three are heads of households owning no real estate. Thus all the mill workers listed were either boarders in someone else's household or renters. In 1870 no factory workers are listed in the Population Schedules. All mill workers were probably listed as farm laborers or farmers because apparently the mill ceased production for awhile for repairs or other reasons. Perhaps the 1870 census taker enumerated the community during the annual five month layoff period when the laborers were employed at some other pursuit. It is impossible to tell from the census data who was a mill worker and who was not.

The 1880 Census of Population gives a clearer insight into the living arrangements of the 22 employees. Only one mill worker is a boarder: the rest are living with their families. A more detailed discussion of the kinship network appeared in Chapter 6. Although census schedules for 1880 do not indicate whether mill workers owned real property or were renters, oral sources indicated that mill workers lived in rented houses or in group barracks, both male and female, situated near the mill. Informants traditionally place the location of this "barracks" at sites 22TS1108 and 22TS1109. It is not clear whether rent was paid or if housing was included as a portion of wages. Credit arrangements at the Bay Springs store and commissary are also unknown. Staffed by a grocer in 1850 and a merchant and two clerks in 1880, the store was in continuous operation through the life of the mill and factory complex. Workers bought foodstuffs and drygoods from the store by cash and credit. One informant, Clara Caveness, remembered her mother telling her that socks, knitted goods, and lye soap were traded at the store for foodstuffs and dry goods. A more detailed analysis of the store is presented in the Local Network section in this chapter.

Farming

Agricultural activities in the Bay Springs area were greatly influenced by the effects of Civil War and Reconstruction. Table 7.3 indicates changes in products of agriculture from 1850 through 1870 for selected farmsteads per head of household. The sample includes all farmsteads in District 5 for which original enumeration schedules were available at the Mississippi Department of Archives and History. An inspection of the table reveals several changing economic trends over the 30 year time span. The average number of acres owned per head of household decreases through time as large landholders are being superceded by smaller landholders. The total number of improved acres drops by 1870, after reaching a high in 1860 of 42 acres per head of household. The decrease probably stems from the difficulty in acquiring cash for tools and mules during Reconstruction. The value of farms and equipment also decreases by 1870.

As was typical of Reconstruction in other Tombigbee counties the number of horses, sheep, and especially swine decreases by 1870 (Doster and Weaver 1981). This is partly due to the decreased importance placed on self-sufficiency and the increasing desire of farmers to produce more cotton. Indicative of the lessened intensity placed upon self-sufficient agriculture, production of Indian corn, sweet potatoes, and peas decline. Additionally, home manufacturing declines although wool production increases by 1870 from its low in 1860. While it increases, the mill ceases production of carded wool.

In the Tombigbee counties declining cotton productivity was commonplace as large tracts of land were becoming over-cropped before the advent of fertilizers and pesticides. This is dramatically reflected in the Bay Springs area as the production level drops from 3.68 bales in 1860 to 1.57 bales per farm in 1870. Farmers looked to cotton as an answer to their economic problems and it failed them. Many small farmers went into debt, unable to pay for seed and tools. Increasing numbers become tenant farmers as indicated in Chapter 6.

Table 7.3. Products of Agriculture for Selected Farmsteads in the Bay Springs Area, Per Head of Household, 1850-1870.

	1850	1860	1870
Sample size	40	40	54
Total Areas	10,346	7,708	9,179
Average farm size	259	193	173
County average farm size	259	333	—
Improved acreage	20.6	41.9	32.4
% improved of total farm	8%	22%	19%
Unimproved acres	238	151	137
Value of farm	$572.03	$512.50	$495.64
County avg. farm value	$734.00	$1428.00	--
Value of equipment	$65.75	$69.68	$32.4
Avg. number horses	2.7	1.7	1.3
Avg. number mules	.3	.4	.5
Avg. number milk cows	.9	2.2	2.5
County avg. milk cows	5.0	5.3	--
Avg. number oxen	1.6	1.5	.9
Avg. number cattle	4.8	4.7	4.5
Avg. number sheep	9.0	9.4	6.7
Avg. number swine	29.0	14.0	8.8
County avg. swine	45.3	48.7	--
Value of livestock	$266.73	$372.88	$327.81
Indian corn (bushels)	207.8	248.3	174.7
County avg. corn	422.0	598.0	--
Tobacco (pounds)	—	--	4.9
Oats (bushels)	15.8	.9	9.6
Cotton (450 lb bales)	3.1	3.7	1.6
County avg. cotton (bales)	3.0	8.0	—
Wool (pounds)	14.6	7.4	12.1
Peas (bushels)	11.5	--	7.8
Sweet potato (bushels)	64.1	30.7	22.1
Irish potato (bushels)	3.0	--	4.5
Butter (pounds)	122.4	97.5	123.6
Home manufacturing	$20.40	$74.00	$26.76
Animals slaughtered	$29.93	$75.70	$54.16
Value of all farm products	--	--	$453.78

Source: Census of Agriculture, District Five, Tishomingo County, 1850-1870.

In the late 19th and early 20th centuries the major crops grown were corn and cotton. Today soybeans have largely replaced cotton due to increased demand, higher yield per acre and less expense. In addition most farms in the area grew a wide variety of vegetables in truck gardens which supplemented the families' diets and provided extra income. It is difficult to estimate the percentage of land devoted to each crop for the area owing to variables in farm and family size and preferences of individual farmers for one crop over another. However, generally most farmers grew quite a bit more corn than cotton. Hubert Davis for example, in the early part of the 20th century had a total of 75 acres in cultivation of which 15 to 20 acres was in cotton, and

the rest was in corn. By today's standards both the total amount of land in tillage and the yield per acre were comparatively small; however, this was due to necessity rather than choice, for most farmers lacked the equipment and manpower required for large-scale farming operations. In addition, family size often was a limiting factor in the amount of land which could be cultivated and it was only during harvest times that individuals, other than family members, were hired to assist in the farming enterprise.

Corn was raised for animal and human consumption. Other crops of sufficient importance to warrant their own "patch" included field peas, sweet potatoes, peanuts, sorghum, and watermelon. At the house garden, surrounded by a paling fence, would be grown a variety of vegetables. Mrs. Forrest Wright describes the types of vegetables grown in her mother's garden when she was a child in the second decade of the 20th century:

> "Well, we growed everything, nearly, that you wanted to eat, you know, like squash and beans and cucumbers, cabbage, okra . . . tomatoes--just everything. And my mother had a lot of, I know you've eat 'em, raspberry vines."

Clara Caveness who was born ca. 1910 remembers growing cabbage, collards, turnips, onions, beets, English peas, and pole beans. Her family dried apples and peaches to preserve them for use during the winter months, a practice she continues today. Other informants mentioned growing radishes, lettuce, mustard, white and sweet potatoes, and sorghum. The latter was pressed through sorghum mills located nearby, cooked until it was the consistency of thick molasses, and used as a substitute for sugar.

The produce was either used fresh or dried. Field peas, beans, peanuts, and corn were dried, while greens could be harvested nearly the entire year. Sweet potatoes were kept in "kilns" out in the garden. Hogs were butchered in the fall, salted, and smoked. Fruits were dried and canned. Archaeological sites produced few canning jars or crocks perhaps indicating little preservation in such vessels by the occupants of the domestic sites excavated.

While most fruits and vegetables were either canned or dried, meat generally was preserved by smoking. Although a few of the informants remembered having eaten beef occasionally while growing up, most stated their main staple was pork. November usually was set aside for butchering because they thought the clear, cool weather would reduce the chances of spoilage. After the hogs were butchered, the meat washed and rubbed with salt, the various cuts were hung in the smokehouse to cure. Most residents preferred hickory smoke-curing because of the flavor it imparted to the meat. After it had hung in the smokehouse for six weeks or longer, the meat would keep for long periods of time.

The farmers also supplemented their diets substantially with wild foods. Informants mention hunting raccoon, deer, rabbit, opposum, and turkey; fishing for perch, catfish, and sucker; and gathering berries and nuts. Fish were taken with hook and line, fish baskets, and net seines. Very few faunal remains were recovered archaeologically, and these were predominantly domestic pig. Pigs were turned loose in the woods to forage, and 100 pound shoats harvested by hunting. The archaeology reveals an assortment of guns including: shotguns (12, 16, and 20 gauge), rifles and pistols (.22, .32 caliber), one lead ball, and a portion of a bayonet blade.

Generally speaking, there were essentially three types of farmers in the Bay Springs area during the late 19th and early 20th century. The first was the self-owner. This individual owned and farmed his own land. He relied upon the members of his family to grow and harvest his crops and sometimes hired help. If the amount of land were quite large or if he owned several farms, he might lease part of his holdings to a tenant or to someone else who would farm the land for a share of the crops.

The tenant farmer lived on the property with his family and paid the owner cash rent for the use of his land. He was responsible for maintaining the house and outbuildings, supplying the equipment and animals necessary for raising the crops, and for providing the fertilizer and seed used in planting. Through such an agreement the tenant could realize quite a profit for his efforts, especially if it was a good year. Conversely, if the tenant had a bad year often the money received for crops at harvest time was insufficient to cover his expenses and in those instances the tenant was forced into debt.

More common in the Bay Springs area was the practice of sharecropping. Sharecropping worked on a somewhat different principle than did tenant farming although the difference was more a question of economics than of means of subsistence. Typically, there were two types of affiliations between sharecroppers and owners. In the first instance, if the sharecropper was dependent upon the owner to supply the requisite tools, implements, draft animals, and other necessities for farming, the owner was entitled to a half share of the crops at harvest time. In return the sharecropper received the other half for his efforts. On the other hand, if the sharecropper came with his own equipment and animals he was entitled to a greater share of the crop. In the area around Bay Springs the standard percentage received by the owner was referred to as "thirds and fourths." This meant that the owner received as payment one-third of the corn and one-fourth of the cotton at harvest time. Payment frequently could be made either in a percentage of the crop when it was harvested, or sometimes in a proportionate amount of cash after the corn was milled and the cotton ginned. Describing sharecropping in the first half of the 20th century, Noel Caveness noted:

> "Well, they would just, the cropper, the one that was raising, he would just go and carry it to the gin and have it ginned, then carry and sell it. He'd get a fourth out of it, I mean three-fourths, and a landowner get a fourth. And they just generally settled up when they sold the cotton."

If the sharecropper was fortunate enough to have a good year he often had some extra cash after paying his expenses and was able to purchase needed items which otherwise would be unaffordable. If it was a bad year the landowner was forced to absorb the loss and could only hope that the following year would be better. The sharecropper went deeper in debt.

Although tenants and sharecroppers were in large measure dependent upon their crops for subsistence, many went to work in the sawmills in the area as soon as their crops were laid by in order to supplement their income. Because of this their length of residence in any one place was dependent upon two variables: the availability of farm land and the

presence of sawmill operations for extra available work. Thus, they lived with much more flexibility than did the permanently based landowner, who was tied to his land. If the sawmill operation moved to a new location, the sawyer was forced to pack up his family and move also. Still a number of families were able to remain on one farmstead for a number of years. Around the Bay Springs area a basic distinguishing characteristic between the self owner and the sharecropper was the latter's need to move to where there was available work. Clara Caveness elucidates this point: "Wherever the mill and timber, that's where you had to go. Back then there wasn't cars every three steps like they are now. You just had to, kind of stay with your job. Just move to it and sit down."

In the late 19th and early 20th centuries, farming required a great deal of the farmer's time and energy and the yearly cycle began long before the first crop was planted. The winter months were spent in preparation for the spring planting, repairing equipment, clearing new ground, fixing fences, and cutting firewood. In northern Mississippi the earliest anyone usually plants is in March, as early as the 15th of March in some years. Several informants stated that usually the hills were planted before the bottoms because the soil became warm and dry enough for planting there long before it did in the bottoms. Hubert Davis explains:

> "Plant it [the corn] on the hills early because they dried earlier than the lowland did. . . . Sun'd shine and it warmed the land up on the hill, and it's be cold and it wouldn't do no good in the bottom early, you had to wait for warmer weather."

Late February and early March were devoted to preparing the fields for planting corn. W. Reed Akers describes the work this entails:

> "Take a straight plow . . . eighteen straight plow, but some called it a shovel plow. But what it was, it was eighteen inches wide . . . and put [it] on the plow stock, you've seen plow stocks, and drive down in the middle of the row between the corn the year before, you see, that's a row of corn and you just plow down there . . . and make it on a bed--we called 'em beds--and raked with a board behind, next to the last two and smooth to plant. . . . Now you'd plow that, and if you wanted to put fertilizer, we put fertilizer in cotton all the time, didn't for corn, but some people used [to], 'cause we planted our corn in what we call bottomland. We called 'em hollers, that's the narrowest, maybe here would be a big stream, and then there was small hollers, and then woodlands on that side, and that would be fertile enough for corn. And so then we'd just dig that up, we called it digging it up."

Hubert Davis, who was born in 1888, describes the next step in the process:

> "Laid it off, broke it with a plow, and then laid it off by furrows. Put your corn in that furrow, and plowed on the edge of that furrow, filled it up with a plow. . . . And then you put four furrows, what you call four furrows on that, and then you took a top harrow and before that corn got ready to come up, knocked that level

off on top. And later on you'd plow out the middle, you know. You have a straight plow, just a eight inch shovel or a seven inch shovel, something like that."

Although Akers did not generally use fertilizer on his corn, Davis did, and he describes how it was made:

"We saved all that fertilizer [manure], had a pen in the lot and we hauled lot of leaves and stuff and put in a lot of loam and make compost. Make a lot of fertilizer, you know; mix that fertilizer droppings from the cattle and leaves and top earth out of the woods in the pen and let it lay there all the winter, you know, and hauled [it] out in spring, put it on your corn, make a big crop of corn."

After the corn crop was laid by, many of the men went to work in the sawmills in the area or began cutting timber. The responsibility of tending the growing corn fell to the rest of the family until harvest time in September and October when the help of the entire family was needed to harvest the crop. Both Noel and Clara Caveness remember picking corn, although the technique each used was somewhat different. Clara describes the technique she employed:

"Well now, that's the way people like Noel's father lived out here on the farm, and he'd just go ahead and pick up his rent and take it. Go out here in the corn a little where you pitched it and throwed it in the middle. Well, the renter'd pick up two little heaps and then Mr. Caveness'd have one left, you know. Well now, Wright and Allen's farm up here, they didn't fool with it that way because they'd just sold their rent, you know. Well, way we would do on their place, we'd just go in there and just pull it and divide it by the load, you know. And they never did fool with that 'cause that took up a lot of time, dibbling thataway, and so we'd just pull it and throw it in the wagon, and did it like that. . . . It saved a lot of handlin' the corn to do it like that. . . . We never did go at it the easy way. We always went the hard way. We'd get out there morning, just pull all morning and all day, and then we'd do fodder that way. Pulling fodder off of the cornstalk, we just went on pulling."

Noel Caveness' family preferred to use a somewhat different technique: "We'd pull the evenin', it pulls so much better, and haul it the next morning. And you could haul it better in the morning than you could of the evening."

After the corn was picked and loaded onto the wagons, it was taken to the mills in the area to be ground. Prior to the burning of the factory in 1885 most of the farmers most likely took their crops to the Bay Springs grist mill nearby. After the factory burned the local residents took their corn to the small burr operation at Moore's Mill.

The farmer was fortunate to raise twenty bushels of corn per acre. Noel Caveness remembers that his father had to give one-eighth of the meal produced to the mill operator as payment for grinding it. Many of the families in the Bay Springs area kept their corn crop to use as feed for

livestock, or had a portion ground for personal consumption. However, Hubert Davis remembers his family usually produced enough corn to sell their surplus.

The raising of cotton required a somewhat different technique than did corn. According to a number of informants cotton generally was not planted before the 25th of April, nor much after the 1st of May. This period was rather critical for if cotton was planted too early, the farmer ran the risk of frost damage. If it was planted any later frost would kill the crop before it matured and was ready for harvest. The actual planting of the crop did not differ much from that of corn although it was necessary to use fertilizer if the farmer wished to produce a good crop of cotton. Like corn, cotton was planted by hand and Hubert Davis remembers a technique he employed whereby the small cotton seeds were rolled in ashes and water to separate them, thus making them easier to handle during the actual planting process.

Cotton was susceptible to several diseases as well as to the ravages of the boll weevil, although the latter did not become a problem of major proportions until relatively recently. According to Davis, as long as the woods around the cotton fields were "kept burnt" there never was much of a problem with insects; however, after the authorities began discouraging the practice for obvious reasons, the insect problem increased. A number of informants remembered the practice of burning the leaves and debris on the forest floor to control the insects and one related the following account of this procedure:

> "We didn't hear of 'em [insects] way back yonder, you kept the woods burnt and there wasn't much. The talk was that that kept the insects down. And there ain't no doubt in my mind about that, because I had a fellow that worked for me a few years ago. And he cleared off a ditch bank in the spring of the year 'fore planting time, and he was burning it off and he let fire catch out in the woods that's surrounded by fields and a road. And we was trying to keep that fire from going across, getting off of that territory, certain territory burnt over, and the bugs in that road on the north side, the wind was from the south. And I was on the north side a going up and down the road, watching fire, feared it'd skipped over the road that went around that side, and the bugs was just knocked. . . . I had to watch they'd hit me in the eye, you know. They'd hit your glasses. . . . And they'd hit you and peck you like hail coming on. And they's going ahead of that fire . . . that fire was moving them out. . . . And when we quit burning the woods you soon had to go to poisoning for cotton of the boll weevil got bad."

As Hubert Davis said, "When you'd burn it regular it didn't make a big fire, 'course you let it go for three or four years and fires gets out then, you got a pain then, it'll scatter with ya."

The summer months were spent "chopping cotton"--hoeing the weeds and it was not until September that the early cotton was ready to pick. The picking continued throughout September into October and November, when the last loads were hauled to the gins. Clara Caveness remembers picking cotton and carrying the sacks to waiting wagons which had scales that weighed each

sack in the early 1920s. The amount of cotton one could raise on an acre of ground was dependent upon several variables. Most important was the weather. If it was too dry or wet, the crop would be reduced accordingly. The type and amount of fertilizer used on the crop was a determining factor, and as chemical fertilizers replaced manure the amount of cotton produced increased significantly. Finally, the use of pesticides after the boll weevil became a problem helped to improve crop yield. Estimates of the amount of cotton which could be raised on an acre of ground in the early years of this century varied, although Hubert Davis' figure of one-quarter bale per acre seems to have been about average. As time progressed, however, the increased use of fertilizer, pesticides, and improved farming techniques raised this figure to approximately one bale per acre.

There were a number of varieties of cotton grown in the Bay Springs area, including "DPL," "Half and Half," and "King Cotton." The differences between these were due primarily to the length of the staple or cotton fiber. Generally speaking, cotton with a staple of one and one-quarter inches would bring more at market than would cotton with a three-quarter inch staple.

After the cotton had been picked and loaded onto wagons it was transported to the gins. In the early days almost every community had at least one gin. According to Noel Caveness who worked at a gin for several years, there were two gins in Belmont and one each in Dennis, Tishomingo, Red Bay, and Golden. With the decline of cotton production in the area during the 1970s, the nearest gins are located in Corinth, Mississippi, and Cherokee, Alabama.

Noel Caveness provides an excellent description of the ginning process as it was done at Dennis in the 1930s:

> "Well, the cotton . . . they drove it up on the scales, wagon and all. . . . And they weighed it, and then it was taken off by suction, and it went up in the gin. Went through the cleaners, and if it was damp, wet cotton, it'd go through the dryers, but they wouldn't have the heat turned up high enough, too high. Then it went around, this gin here had three heads, gin heads, and they would go up through all these cleaners and everything, and it'd come back and go through the gin heads and the seeds was took out. Then it went up, back in and through the condenser into the, in the press, press hung, bale-box, you might call it. Then when it, it was ginned, this double press, they'd turn the press, you know, and tie that cotton out with ties and . . . they [the ties] would be a, a steel I guess you'd call it. And roll it out from, from there, out of the press. The press would open up, you know . . . two big doors on the side, and they'd open down, on the backside they would, but the other side, they just had a door, it just swang back. And then a, oh I believe it's later when they, they both doors swung back and you'd tie that out, put the ties, it had five ties, I believe, on it, and then it'd push 'em through and then back through. And they's tied out, and then you lift the press up and then the bale would roll out, you know. And they'd put the bag in the back, hang it in there when you, 'fore he'd close the doors, then he'd close the doors up, and then he's ready for another bale. And you'd roll the bale of cotton out, weigh it, and then the

weight was carried to the office. And I'd give the man, you know, take his seed cotton from his lint, the weight of his bale, and then that's the amount of seed he had in that bale, you know, and they paid him so much a hundred for the seed."

Hubert Davis remembers a horse-drawn gin which operated ca. 1900 in Tishomingo County. It was the predecessor of the steam powered gin where Noel Caveness worked:

> "They just had gin heads that they ginned; it's pulled by--I told you about a horse gin. They had one of them in the country way back then. And there also was a steam gin. That was a great improvement over it. It was run by steam. And it had gin heads up in there that they poured it up with the baskets, then they had stalls, you unload a donkey wagon, put it up in the upstairs, where the gin heads is at, and they had a machinery down on the ground that pulled that, but they's belts, you know, that run up there to them machines up there. And they run up there, they took that lint off the seed. It separated the lint from the seed, and the lint went over here and they'd put it over on the press and the man tromped it in that press there, you know. They'd pack out the bale when they got enough in there. . . . And that gin head, you put your cotton in the stall first off the wagon, and took a basket and filled it up, poured it up there in the gin head. It went through them saws as it run. It'd cut itself, you know. Sometimes a man'd take his hand and leveled it off, feed it through the gin and then put in the press, packed the cotton and you'd take your bale home, and then take it to Iuka or Booneville, one, to sell it."

The toll, or "boot" as one informant referred to it for ginning the cotton could be taken out in cotton seed, usually one-eighth, or the farmer could pay cash. Many times there would be enough seeds left over after paying for the ginning that the farmer could save them for planting the following year. If not, one always could buy seeds from the gin operator, and Hubert Davis remembers when they were $.15 per bushel. Excess cotton seed was sometimes used as feed for livestock, or might be sold to be pressed into cottonseed oil.

Five men usually were employed at a cotton gin operating during the period 1900 to 1950. They included men who operated the gin heads, feeding the cotton and turning the press, and one man who unloaded the cotton off the wagon. According to Noel Caveness, the wages a worker received varied by his experience and the number of hours worked per week. Frequently the men were required to work overtime during peak periods, and the most Noel Caveness remembers receiving for a week's work, including overtime, was nine dollars.

As noted earlier, most of the cotton farming in the area around Bay Springs ceased approximately in the mid-1960s, due in large part to the expense involved in growing the crop, coupled with its decreased market value. Furthermore, the lack of available pickers and the problem with the boll weevil hastened the crop's demise in the region. Farmers turned to raising soybeans, which produced a higher yield per acre with less expense, while men who were peripherally involved with cotton, such as gin workers, were forced to turn to other means for economic support.

Logging and Sawmilling

According to L.P. Allen Jr. in the early 1900s there were two types of work in the Bay Spring area, "People worked either in the peckerwood sawmills or in the fields. There were no other jobs." Many informants stated that as far back as they could remember there always were men cutting timber in the area, even before the first sawmills appeared. Hubert Davis remembers when logs were floated downstream on Mackeys Creek to Aberdeen, where there was a large sawmill operation. The virgin forests which surrounded Bay Springs consisted primarily of hardwoods such as oak and softwoods, referred to by the residents as "old growth" pine. The latter was particularly sought after since it was a superior building material, available in large quantities, and was highly resistent to decay.

Before sawmilling became important economically around Bay Springs, large tracts of land were cleared of this old growth timber to provide tillable fields for cultivation. Vast quantities of the timber were piled and burned as an expeditious means of disposing of it. Later a ready market for lumber appeared and the area residents began logging. In the early days of the logging period, usually two men would go into the forests with a team of mules or oxen and a wagon, referred to as a "durgen." This wagon was an especially heavy vehicle designed to sustain the weight of the massive logs. Hubert Davis describes the vehicle and the function it served:

> "They was broad tired. They had four wheels on 'em. And they had broad tires, some of 'em four inch tires--that was a broad tire. It'd stay on top better--it wouldn't cut in. With a heavy load..you had the broad steel tires. . . . Had bolsters on 'em, and blocks on top of them bolsters. There was four blocks on the durgen that I was using, and you'd take off two of these blocks when you went to loading them in the woods. Roll the first log up to keep them blocks, it'd roll ain' that block over yonder, and when you got a bed load on, then you could put your skids up against it--bedload of logs, and you'd go to toppin' off, you know, you have a place between upper two . . . and you can just top it out there like that. And there'd be twelve, some sixteen foot logs. Mostly, twelve foot long was most common length we'd cut down."

The timber was felled by the men using a crosscut saw. After the tree was trimmed of branches and cut to length it was dragged to the durgen by the team of mules. At that point the bolsters were lowered on one side and the log was rolled up onto the durgen where it was secured. The process was repeated until the durgen was completely loaded. The amount of timber which could be carried in one load averaged about one thousand feet, and Davis stated that he could haul three loads to the mill in a day's time.

Before the first sawmill appeared in the vicinity of Bay Springs ca. 1910, the logs were floated downstream on Mackeys Creek to the sawmill at Aberdeen. This operation was done in the spring, as the rains raised the water level high enough to accomodate large numbers of logs. Davis, who was a longtime logger, remembers floating as much as one hundred thousand feet of timber at a time on the creek. The process involved much more than merely rolling the logs into the creek, as Davis' account illustrates:

"We'd roll'em in the creek there and pull 'em up side-by-side, and had a big auger. . . . And bore a hole through that pole, put a pole across each end of 'em--you'd have five or six of them big logs side-by-side here--and have a bunch, a place to jam 'em here to stop 'em, and put 'em endways agin' that, and you'd have to get the water, the current, put that in the right place so they'd stay together when you put 'em in there. And then you bore holes in them logs and through that pole and make a wooden pin, you had 'em stuck. . . . It was a slow way, but we done lots of it. . . . We called 'em batches, and run 'em down the creek. . . . You could manage them a heap better. You could float logs single, but sometimes some of 'em would be heavy and they'd sink. You'd lose some of them. Come a overflow and they'd float out in the bottom. But batches wouldn't do that . . . they'd stay in the creek run. They might jam up and pile up, but they'd stay in the main run.

After the logs were floated to Aberdeen they were diverted into a large pool next to the mill where they were then held until being sawn into lumber.

Among the first sawmills in the general area during the logging period were the large, stationary steam powered mills. The logs had to be brought to the mill from great distances after the nearby woodlands had been harvested. Because of their great size the stationary mills seldom were moved until most of the timber in the surrounding area had been cut out. Then, the mills were dismantled and moved to a new location. L. P. Allen, Jr. remembers a steam powered mill located near Bay Springs:

"Well, right across Mackeys Creek from, west of Mackeys Creek, in close to where Rock Creek enters there right on the place we own now. If you know where that road that goes from the Rock Creek bridge across Mackeys Creek back in the hills, just on that road, there's a big steam operation there. Now I don't remember, that was before my time, so that's bound to have been around 1900 or so, somewhere in there."

By 1910 portable sawmills, called "peckerwood mills" by the local inhabitants, began to appear around Bay Springs. These portable sawmills were powered by internal combustion engines similar to that used in a tractor. They were attached to skids--hence the name "skid motors." The peckerwood sawmill had a distinct advantage over the stationary mill in that the former could be moved to a new location with relative ease, as L. P. Allen, Jr. notes:

"And you cut the timber out an area you'd have a very difficult job moving these mills, had to move that big boiler, you know, and all the equipment . . . . John Deere had a two cylinder, they called 'em skid motors. Shoot, you could just move it overnight, but you couldn't move all the mill, that took two or three days 'fore you could move a mill."

Therefore, the introduction of peckerwood mills proved to be quite an asset to the logging industry. Loggers were no longer constrained by the distance they had to travel to get the logs to the mill. Whenever the timber in one area played out the entire operation could be moved. There were many peckerwood sawmills around Bay Springs in earlier years, as Hubert

Davis comments, "There was a mill in every holler at one time, you might say. They used to say that, you know, sawmill in every holler." The portable mills usually were located on the higher ground in the center of the cutting area because, as one informant stated, "getting in and out of the mill would be difficult in the bottom area, you know, be marshy and you had to haul the logs to the mill, see, and you'd get drainage of your roads in and out of the mill."

According to Hubert Davis the initial investment required to begin sawmilling operation was about $1,000 when he was sawmilling in the 1920s and 1930s. Few people in those days had that much money and often they would have to obtain a mortage on the equipment and hope that the venture would be successful:

> "It wouldn't take 'em a long time. They'd have to get, they'd have to do a lot of milling. Work a long time in order to get it back. Occasionally a fellow'd go broke sawmilling, you know. He'd get behind with his debts and somebody that was able would buy his stuff and pay the debts, you know, and take it over. . . . Some would turn it in . . . they couldn't make a go of it. And others would make some money with it, you see."

There were different methods of obtaining timber for the sawmills. In one instance a buyer would contract with an individual landowner to buy the timber off of his property for a set price. In a few instances logging companies would purchase timber deeds from landholders. Three such deeds dated 1904 and 1905 are recorded in the Tishomingo County Land Rolls to the firm of Webber and Coffin. This was referred to as "buying it in the book" according to Hubert Davis, for the buyer would merely estimate the amount of wood he could obtain on a piece of ground. Another method was to pay so much per thousand feet and pay for it as it was cut. Or they might scale the logs, take a lumber measure, and after it was sawed and sent to town, pay the landowner an agreed price for the footage obtained. The amount paid for the timber has increased steadily over the years, as Davis' comments:

> "I don't know what the customary price [is] now . . . I sawmilled a long time and timber got from ten dollars a thousand up to twenty dollars a thousand in the stump. It used to be right to ten dollars a thousand. And one time, way back yonder when the first sawmilling started, it was even cheaper than that. They just might near give it to you. . . . Lumber was cheap then, you couldn't get over twenty-five dollars a thousand for it when you sold it. And the feller that'd do all that cutting, hauling, and pay for the timber and sell the lumber cheap, he had to get it cheap, you know, to go with."

Generally, a total of seven men were needed to operate a sawmill during the first half of the 20th century. These included the sawyer, the blocksetter, two offbearmen, the hauler, and sometimes, an individual referred to as a "dustmonkey." In addition, some mills had a device called an edger, and one man was required to run this machine. The sawyer rode a carriage that housed the saw, and which moved back-and-forth cutting the lumber. Assisting him was the blocksetter, who set the blocks which determined the thickness of the lumber. These two men worked as a team in cutting the lumber, and the blocksetter relied upon the sawyer to give him

hand signals to indicate what setting the block should have for the correct thickness to be cut. After the board was sawn, the offbearmen removed it from the carriage and placed it on the ground for the hauler to load it on the truck. It was the dustmonkey's job to remove the sawdust from under the saw and to pile it in an area away from the sawing operation. As previously mentioned some mills had a machine called an edger used to finish the sides of the sawn lumber. In this instance, before the lumber was loaded it was taken to the edgerman who sawed the "flitches" to their proper width. Hubert Davis provides a description of how the entire process worked:

> "you roll them logs down them skids there and put 'em on a carriage here, and a man here with a lever and a circular saw here in front of him a running, and you put that log on that carriage on that man with the head-blocks, a-dogging. He'd fasten then down to hold it, and that man with a lever put 'em up by that circular saw, and he'd saw it off, a slab first. And then he'd go to cutting lumber off of it. And he gets that log into a square . . . and when you get through, get that log square, you going to making lumber then, square edged lumber . . . full log width. Whatever you want--inch lumber, saw it inch thick. You want two inches, you set it on the block two inches thick. And when you cut that up, then you took this edging here that you got off 'a squaring that log up, put it in the carriage and cut the rough edges off of it, and that makes square edge lumber out of it . . . And then meantime it goes out yonder off of the carriages, the offbearman takes it and files it somewhere for a truck to pick it up."

In the above description the log was sawn square before the individual boards were taken from it. In many cases the individual boards were sawn to the correct thickness and then taken to the edger where they were cut to the correct width. The rough sawn board was referred to as a "flitch" before it was finished in this manner.

According to Noel Caveness many of the mill operators seasoned the lumber before shipping it out. This was done by dry-kilning, whereby the lumber was stacked on posts which were then surrounded by slabs or scrap wood. Inside a fire was built and kept burning until the lumber was dried or seasoned.

The men who worked at the sawmills received wages hourly or some mills paid the men for the number of boardfeet cut per day, the amount of footage usually was measured by so many thousands of feet. Noel Caveness first began sawmilling as a boy while working for his father and remembers receiving fifty cents per eight hour day during the Depression. If he worked less than an eight hour day he was paid five cents per hour. Later when the minimum wage law took effect, he was making about fifteen cents per hour in the mill. The amount the men received depended upon their respective job in the sawmill. Skilled workers like the sawyer, blocksetter, and edgerman were paid more than common laborers.

Cottage and Other Industries

The residents of Bay Springs practiced a number of different crafts which may be included under the heading of home industries. These included spinning wool for weaving, making coverlets, quilts, counterpanes (locally

called counterpins), and tatting (a type of knotted lace). Several informants remembered their families raised sheep and the wool was spun into thread to make a type of cloth referred to as "linsey-woolsey" by the local inhabitants.

Clara Caveness who was born ca. 1910 remembers her grandmother's large wooden loom which she used to weave bedspreads, counterpanes, and blankets. Clara described the loom as she recalled it:

> "I know just how it looks. I can see it. It set in a side room, and my grandmother set up on a bench nearly this high, and the loom part would go plum on up. When we could get a chance and they didn't know it, it was a real monkey bar for us to climb on . . . they had these great, long, old things that split up . . . they called 'em warping bars. And I remember my grandmother would be weaving cloth, but we could hear that old loom going way out in the yard . . . all that was old wood, and it made a lot of noise."

The threads used in the weaving process were dyed with natural dyes. Walnut, red oak, alder, and cherry bark were boiled to produce hues ranging from deep brown to reddish orange, and certain types of berries would give shades of blue and purple.

Many of the women in the area used to get together to quilt, being as much a social occasion as it was a work activity. Although these crafts are not as prevalent today as they once were a number of women in the area still practice these home industries in much the same manner as did their parents and grandparents.

Some members of the community, particularly older and disabled individuals, worked at various crafts including woodcarving, chairmaking, and basketmaking. As noted by Hubert Davis:

> "There was a few fellers, cripple fellers, and some like that, that done such work as that. They could set down and work, you know. They'd get somebody to do their work that had to be done to getting the stuff ready. They'd have somebody that would bring that stuff; and some old fellow that had a little gift, you know, along that line--he could do something that ordinary folks couldn't do, that a lot of folk couldn't do. He'd bottom chairs and make things like that--made baskets, cotton baskets."

Several longtime residents stated there used to be quite a bit of fishing done in the streams near Bay Springs and that there were at one time several individuals who fished commercially. One of the most common devices used to obtain the various species of perch, sucker, and catfish was a rudely constructed fishtrap fashioned from sticks. The traps were designed so that during periods of high water the fish would be channeled into a series of ever-rising steps and ultimately into the trap itself. When the water receded the fish could not go back and were trapped. Most informants remembered seeing in their youth numerous examples of fishtraps which are now illegal.

Prior to the Civil War, Bay Springs was a fairly self-sufficient community. There were some items which could not be grown or made at home. These were obtained at the Bay Springs store and included coffee, tobacco, and sugar. One had to travel to one of the larger towns in the general area to procure ready-made clothes, shoes, crop seed, and farm implements. Many informants remembered making at least an annual trip to Booneville or Iuka where ginned cotton was traded for needed supplies. After the turn of the century, farmers and their families did much of their shopping in the nearby communities of Belmont, Dennis, and Moore's Mill. The coming of the railroad in the second decade of this century opened up new markets and sources for factory-made goods available through mailorder houses like Sears and Roebuck and Montgomery-Ward. By means of those factory-made goods we are able to trace some of the larger economic networks within which Bay Springs residents participated.

The Economic Networks

For purposes of analysis, we have divided the economic network into six levels of interaction. These serve as convenient vehicles for discussion but contain only some emic reality. We simply are not in a position to know the extent of this emic reality, that is, how the people of Bay Springs thought of themselves in terms of economics. They undoubtedly were concerned with the local economy, both in relation to their neighbors and to the factory owner and storekeeper. Certainly they were aware of the differences between Iuka stores and the commissary at Bay Springs. But perhaps no one but the storekeeper and the millowner were aware just how far the goods were travelling to reach Bay Springs unless they took time to read labels on their medicine bottles and a few other products which would have shown the place of origin. While we suspect at least their awareness of the different levels of interaction, we shall never know. Nevertheless, we can study the people of Bay Springs from the etic, outsider's viewpoint, by using the following typology:

1. the local network consists of the economic interaction between the individuals in Bay Springs, primarily involving the extraction and preliminary processing of agricultural and other goods for home consumption and for sale:

2. the local commercial network consists of the interaction between residents of Bay Springs and the commercial enterprises there, like the commissary store, grist and sawmill, cotton gin, tannery and factory:

3. the area commercial network includes the interaction between the people of Bay Springs and nearby villages and towns, such as Iuka, Booneville, and Belmont:

4. the regional network indicates the interaction between the middlemen such as the storekeeper and the regional producers of raw materials and finished goods;

5. the national network relates the production of the national economy to the consumers at Bay Springs, via the various middlemen: and

6. the international network indicates those goods and raw materials produced outside of the United States but consumed at Bay Springs.

The Local Network

The local network differed tremendously through time as a result of the broad economic changes in the South. The local network also contains social differences (examined in Chapter 6) and differences based on economic strategies. We would like to examine the local network in terms of extractive and processing activities for the large landholders and tenants. Where the processing activities are commercial in nature, like the cotton gin, they will be discussed under the local commerical network since they draw upon a larger "market area" than just the Bay Springs area.

The spatial arrangement of Upland South farmsteads and their integral parts have previously been stated as has a fair amount of the economy of these bodies. This will only be summarized here in order to place it in a more complete framework. The economic activities of the Upland South farmstead may be expressed in terms of extraction, processing, and shipping, along with certain commercial aspects.

The extractive activities relate to the exploitation of natural resources and the production of agricultural goods. For many of the farmers in Bay Springs these activities were on a subsistence level. For Bay Springs area landholders this includes cutting timber and raising cotton, corn, sheep, swine, and cattle. In 1860, on his Bay Springs landholdings, James Gresham produced no bales of cotton (the average per head of household in Table 7.3 was 3.68 bales), 500 bushels of corn, 150 bushels of sweet potatoes, raised 50 sheep, 40 pigs, 7 milk cows, and 11 cattle for beef. The work on his farm was accomplished by Gresham, his family, and farm laborers; no slaves were employed.

With several acres of timber to harvest and forest to clear much effort must have been expended in cutting trees and pulling stumps. While much of this timber probably was burned in place, by 1838 George Gresham had erected a sawmill on the bank at Mackeys Creek and the timber was hauled or floated to it. Lumbering probably kept each farmer occupied for several months of the year. Gresham's sawmill was active. The housing demand for lumber in the community would have necessitated a fair amount of logging. By 1850, his mill employed four men, but this included ginning and grist milling.

Once the forests were cleared agricultural production began. Even with horses, oxen, and mules, this required a considerable amount of labor. James Gresham had, in 1860, six horses and eight working oxen. The layout of the Gresham farm fit the Upland South pattern of scattered fields, forests, and pasture with a total of 160 of 1640 (10%) acres improved. Small, irregularly shaped fields were used. Prior to the Civil War, a great variety of subsistence crops were grown. During Reconstruction more emphasis was placed on raising cotton, the only cash crop. During Reconstruction and later, the average amount of land under cultivation per farmstead decreased. On most farmsteads, farmers performed all aspects of ground preparation, cultivation, and harvesting with the help of their sons, occasional laborers, and maybe a few neighbors. In Gresham's case, he probably devoted a large portion of his time to the management of the mill operations and agricultural activities were performed by hired help and family members.

Self-sufficiency could be achieved in large part at Bay Springs. At the village and in the general vicinity, lumber, flour, prepared hides, shoes, harness equipment, blacksmith services, produce, cotton yarn, and medical attention were available. In addition, residents could gather wild plant foods, trap small animals, fish, and hunt.

Local Commercial Network

The local commercial network includes those enterprises serving as processing and redistributing centers. These include the commissary store, post office, cotton gins, sawmills, grist mills, and cotton factory.

The Store

The first general store at Bay Springs listed in Tishomingo County Personal Property Polls is 1846, although one source (Martin 1978) indicates that George Gresham instituted a store along with his milling operation in 1838. A store was operated as part of the Bay Springs industrial complex until the factory burned in 1885. During the 1930s a small store operated at 22TS1105. Table 7.4 illustrates the size of Gresham's store through 1860 in comparison with other Tishomingo County establishments. Beginning as a small operation, his factory store grew quickly by 1848, yet it remained not much larger than the average county store in 1859. Unfortunately, records are not available for the retail outlet after 1859.

Table 7.4. Gresham's Store Compared with Other Retail Outlets in Tishomingo County, 1846-1859

	1846	1848	1857	1859
Retail Sales at Bay Springs($)	520	3,370	5,293	5,827
No. of Estab. in Tishomingo Co.	26	32	56	76
Ave. Size of County Estab.($)	4,009.85	5,429.63	7,440.25	5,781.59

Source: Tishomingo County Personal Property Rolls

Oral informants disagree as to the location of the factory store and commissary. Some indicate that a commissary was located 100 m east of the mill in a "holler." Others remarked that 22TS1105 was the only store in operation. Perhaps both locations served as outlets, each selling or trading different goods at different time periods.

The market area for the Bay Springs store may be partially reconstructed. In the general area, stores appear approximately every four miles. To the south of Bay Springs the closest outlet in the 19th century was Allen's Store three miles away. To the northeast Barnes Store was located nearly four miles distant (Figure 5.1). Outlets to the west and north during the 19th century are not known. Within the general boundaries previously delineated as Bay Springs in Chapter 5, Gresham and later Nelson apparently had a monopoly in sales of dry goods to local residents.

> "Store trading areas are phenomena that are fixed in space for recognizable periods of time. Their boundaries are zones, not lines; the boundaries are flexible, not rigid. . . . Store trading areas are the joint product of many simultaneously interacting factors, so numerous that they almost defy generalization" (Applebaum and Cohen 1970:364-365).

The storekeeper at Bay Springs provided dry goods and foodstuffs to local residents through cash, credit, and barter. Especially after the Civil War cash was a scarce commodity in the South. Few purchases were probably made with currency. Credit relationships with farmers, tenants, and mill workers were probably the predominant form of exchange. Occasionally, local residents would trade surplus produce, cured meat, or craft items at the store for other goods. The storeowner probably bought cotton and raw wool from local residents. Thus, the owner served an important role as middleman in a largely cashless society, providing laborers and tenants with supplies, buying their cotton and produce, redistributing produce within Bay Springs, and seeing that the rest was sold to outside markets. The role of storekeeper in the community was an important one (Carson 1965; Clark 1944).

The Bay Springs Factory

We postulate that three types of exchange relationships existed between farmers in the Bay Springs area (and local storeowners) when the Bay Springs Factory was operating. These exchange relationships involve cash, credit, and a combination of cash and credit. To illustrate our hypothesis, we have chosen a year, 1860, when wool and cotton processing was done at the factory and three local farmers who lived at varying distances from the factory.

Isaac Wright, Calaway Moore, and Joseph Hunt represent our sample of hard working local farmers each owning between 100 and 200 acres of land. Agricultural data for the three are derived from Census of Agriculture schedules. The exchange relationships proposed are suppositions.

Isaac Wright was a member of the Bay Springs community, living and farming in Sec. 36, T6S R9E, approximately one mile southeast of the factory. In 1860 on his 160 acre farm, he raised 30 sheep from which he sheared 45 pounds of wool. He also produced one 400 pound bale of lint cotton. When the wool was sheared in the spring he probably took it to the Bay Springs Factory. In the late fall, after the cotton picking season, he also took his cotton to the factory. At the company store he received credit for his 45 pounds of wool ($13.50 or $.30 per pound) and cotton bale ($44 or $.11 per pound). Living close to Bay Springs he could have traded exclusively with the factory commissary, buying almost everything he needed on credit and settling up in the spring and fall.

Calaway Moore was a more peripheral member of the Bay Springs community, living in Sec. 24, T6S R9E, approximately two miles northeast of Bay Springs Mill. In 1860 on his 200 acre farm he raised five sheep from which he sheared 15 pounds of wool. He also produced three 400 pound bales of lint cotton. He took his wool and cotton to the Bay Springs Factory in

the spring and fall. His wool was worth $4.50 and cotton $132. Unlike Wright, he could have traded at the Barnes Store, one mile northeast of his farm, or at Bay Springs. Therefore, he might take his wool and cotton earnings in cash and credit. The credit would be used at Bay Springs Store and the cash he could use to purchase goods at the Barnes store.

Joseph Hunt lived at the very northern boundary of the Bay Springs community in Sec. 14, T6S R9E. On his 130 acre farm, he raised 15 sheep which produced 20 pounds of wool at a value of $6. He also produced eight 400 pound bales of lint cotton at a value of $352. Hunt, living four miles from Bay Springs and two miles from Barnes Store, may have principally traded at the latter establishment. Twice a year he drove his wagon into Bay Springs bringing his raw materials for sale. With the cash he received he purchased a few goods at the Bay Springs Store, but kept a majority of his cash for purchases at the Barnes Store.

The preceding discussion indicates the variety of relationships which may have developed between the factory owner and local raw material suppliers.

Certainly any three of these relationships could have occurred, and it is likely that all of the above individuals traveled greater distances for goods not sold at the small general stores. However, the above scenarios represent the kinds of weekly economic exchanges that were probably in operation around Bay Springs. To acquire 91,000 pounds of lint cotton and 18,000 pounds of raw wool for production in 1860, James Gresham must have purchased from many farmers living distant from Bay Springs. The 40 farmers listed in the Bay Springs enumeration district produced only 147 bales (58,800 pounds) of cotton in 1860; the same farmers produced 300 pounds of wool. Gresham may have purchased wool and cotton from farmers throughout the entire county to acquire enough raw material. Undoubtedly Gresham would have preferred credit arrangements with local farmers. Thus, farmers would supply needed raw materials in exchange for dry goods and other necessities on credit and not disturb Gresham's cash flow by requiring extensive outlays of money for raw materials.

Area Commercial Network

The people of Bay Springs participated in a trade network involving stores and merchants in the surrounding area. This network was primarily directed to Iuka (25 miles to the north) and Booneville (20 miles to the northwest), the county seats of Tishomingo and Prentiss Counties after 1870; after 1907 this network was expanded to include Belmont. All three of these towns could be reached by wagon road from Bay Springs.

The upper levels of Bay Springs society like manufacturers and large landholders always had the opportunity to trade with merchants outside the community for products. The lower levels like mill workers, laborers, and tenants were probably more restricted to the Bay Springs store and commissary. Up until 1885, most of their purchases were made at the local store and commissary run by Robert M. McMechan and John M. Nelson, Sr. Informants mentioned that occasional trips were made to Booneville and Iuka by tenants to buy seed and tools.

After the closing of the factory store in 1885 this pattern changed, although a small store operated at Bay Springs in the 1930s. Without local retail outlets, the remaining farmers and laborers had to make trips to town and set up new credit arrangements. The coming of the automobile in the 1920s only accelerated this trend.

Regional Networks

The concept of a regional trade network is primarily based on distance and transportation networks. Goods traveled to Bay Springs along several well-defined routes. Beginning in the 1840s goods flowed along the Tennessee River to the town of Eastport and overland to Bay Springs. It is possible that some goods were shipped up the Tombigbee to Aberdeen and then carried inland, although the transportation costs would have been greater.

These two centers, Eastport and Aberdeen, channeled supplies into Bay Springs from such regional centers as Memphis and Chattanooga, Tennessee, Jackson, Mississippi and Mobile, Alabama. It is likely that the main orientation of Bay Springs was to the north because the river provided a much easier access to the area. The coming of the railroad by 1860 must have had a major affect on the Bay Springs economy. A main line ran directly from Mobile on the Gulf to Corinth and passed within 30 miles of Bay Springs. Centers like Tupelo, Baldwyn, and Booneville must have become more important in the trading network.

The regional network in which Bay Springs was a part, extended from the Gulf of Mexico to Tennessee and from Alabama to Western Mississippi. This region produced few manufactured goods but served as the middleman between the national market and the local consumer.

Only four artifacts were recovered which can be tied to this regional network. One was a Coke bottle that had been filled in Corinth, Mississippi but had been made in Terre Haute, Indiana. The other three artifacts were bottles used by a druggist in Memphis, Tennessee. Where the bottles were made is unknown.

An equally important function of the regional trading network was to absorb the products of the Bay Springs factory. In 1860, the mill produced 72,000 lbs of cotton yarn. Much of this production must have been carried away from Bay Springs and sold elsewhere in the region. It probably did not go much farther than Tupelo or Corinth but it represented an important contribution to the regional network.

National Networks

No American community is totally self-sufficient. Bay Springs was enmeshed in a web of economic ties that brought it, however indirectly, into contact with far away places like Rochester, New York, Patterson, New Jersey, and even Evansville, Indiana. The national market had a large impact on the people of Bay Springs. It not only set the price at which Bay Springs residents could buy things, but it also set the price of Bay Springs products. If the national price for cotton were depressed, Bay Springs people were less able to make purchases.

If we are to understand Bay Springs as a community, we must understand how that community fit into the web of national trade. One way to do this is to study the point of origin for products found at Bay Springs. Table 7.5 presents these data. This represents only 50 artifacts and of these, 18 date well after the destruction of the mill. We must emphasize that the people at Bay Springs were not ordering from all of these individual locations. They were buying, in a local store, goods which had been imported from far away. Figure 7.1 shows the location of all the identified manufacturers who produced goods before and after 1885. This date was chosen to see if there was a change in distribution between the mill period and the post mill period. The distribution is suggestive of a decreasing emphasis on regional centers and an increasingly integrated national economy. Unfortunately the sample size is too small to be conclusive; it is only suggestive.

As archaeologists we usually look at the people who created a site or artifact. As historical archaeologists, we became comfortable with studying the technology used to produce an artifact even though that technology was a thousand miles distant from the people at Bay Springs. The study of national trade networks and marketing carries this process one step further. It carries us away from individuals and groups of people into the realms of economics, geography, and transportation. In order to study national trade networks, it is necessary to know where the goods originated and in what quantities they were purchased. Some archaeologists, aware of the limitations, have ventured to say something about national trade patterns. Perhaps the first study of this kind in historical archaeology was presented by Klein (1973:68-77).

Table 7.5. Manufacturing Location for Bay Springs Artifacts Recovered.

Distance	Location	Company	Product	Number	Date
30	Corinth MS	Coca Cola Bottling	Coke	1	1916-1932
125	Memphis TN	S. Mansfield, Druggist	bottle	3	--
280	Evansville IN	Crown Pottery Co.	ceramic	1	1891-1927
330	Louisville KY	Kentucky Glass Works	bottle	1	1849-1855
		Louisville Glass Works	bottle	1	1855-1873
340	East St. Louis IL	Ober-Nester Glass Co	bottle	1	1960-
390	Terre Haute IN	Root Glass Co	Coke	1	1916-1932
430	Montecello IN	W. C. Caldwell	medicine	1	--
500	Muncie IN	Ball Corp.	jar	2	1888-
			jar lids	2	1888-
600	Clarksburg WV	Owens-Illinois	bottle	1	1954-74
625	Toledo OH	Owens Bottle Co	bottle	1	1911-1929
		Owens-Illinois	bottle	1	1931
690	Pittsburgh PA	Hostetters	bitters	1	--
770	Brockway PA	Brockway Glass Co	bottle	1	1925-
860	Buffalo NY	Dr. R. V. Pierce	Cattarrah	1	1869-1906
920	Rochester NY	H. H. Warner Co.	Kidney...		ca. 1880
970	Patterson NJ	Charles Danforth & Co.	Machinery	3	1848-1852

TABLE 7.5 continued

1060	Bridgeport CN	Union Metallic/Rem.	cartridge	8	1910-
		Union Metallic	cartridge	1	-1910
6250	England	John W. Wood	ceramic	1	1841-1860
		Mellor, Venables	ceramic	1	1834-1851
		.....Meakin	ceramic	1	1851-
		J & G Meakin	ceramic	1	1851-1890
		Baker & Co	ceramic	3	1839-1893
		Livesly, Powell & Co	ceramic	2	1851-1866
		E. P. Troutbeck	ceramic	1	--
		J. Heath	ceramic	1	1845-1853
		E. Challinor	ceramic	2	1842-1867
		Barker & Son	ceramic	2	1850-1871
		E. Challinor	ceramic	1	1853-1862
9000	Japan	?	ceramic	1	--

Another attempt to study national trade networks was made by Adams (1977a) at Silcott, Washington. With a sample of 1,043 artifacts identified as to manufacturers' locations, he plotted these locations. He was able to show that 87.8% of the recovered products came from locations over 1,000 miles distant from Silcott. In addition, he noted this area, the Northeastern United States, was the major industrial center for the United States. This corresponds well with geographical concepts of the American Manufacturing Belt, basically encompassing the northeast quarter of the United States, containing 65% of the manufacturing capacity of the United States (Pred 1970:274). The significance of this agreement between archaeologist and geographers is not that it exists but rather that it was approached from different directions. The geographer defined the concept by observing production flowing out of the factories, the archaeologist defined the concept by tracing artifacts back to their source. This indicated that even 1,500 miles from the Manufacturing Belt it was possible to study changes in economic patterns.

The rest of this chapter focuses on two questions about national trade networks:

1) Are there some kinds of artifacts that travel further than others?

2) Is there a regional supply difference?

Before we can begin to answer these questions we must delve into the realm of economic geography. Geographers have long been interested in the national economy and how goods are moved to gauge the direction and quantity of goods leaving the factory. These are called "commodity flows." To clarify this process, Pred (1970) proposed a typology of commodity flows, based on market accessibility and on industry type. Figure 7.2 shows the three areas of accessibility to the national market based on population and transportation. Naturally those areas within the manufacturing belt possess the greatest access to the market because they have the largest population and the best transport network.

Industry was separated by Pred (1970) into three groups: Raw Material and Power Oriented Industries, Market Oriented Industries, and

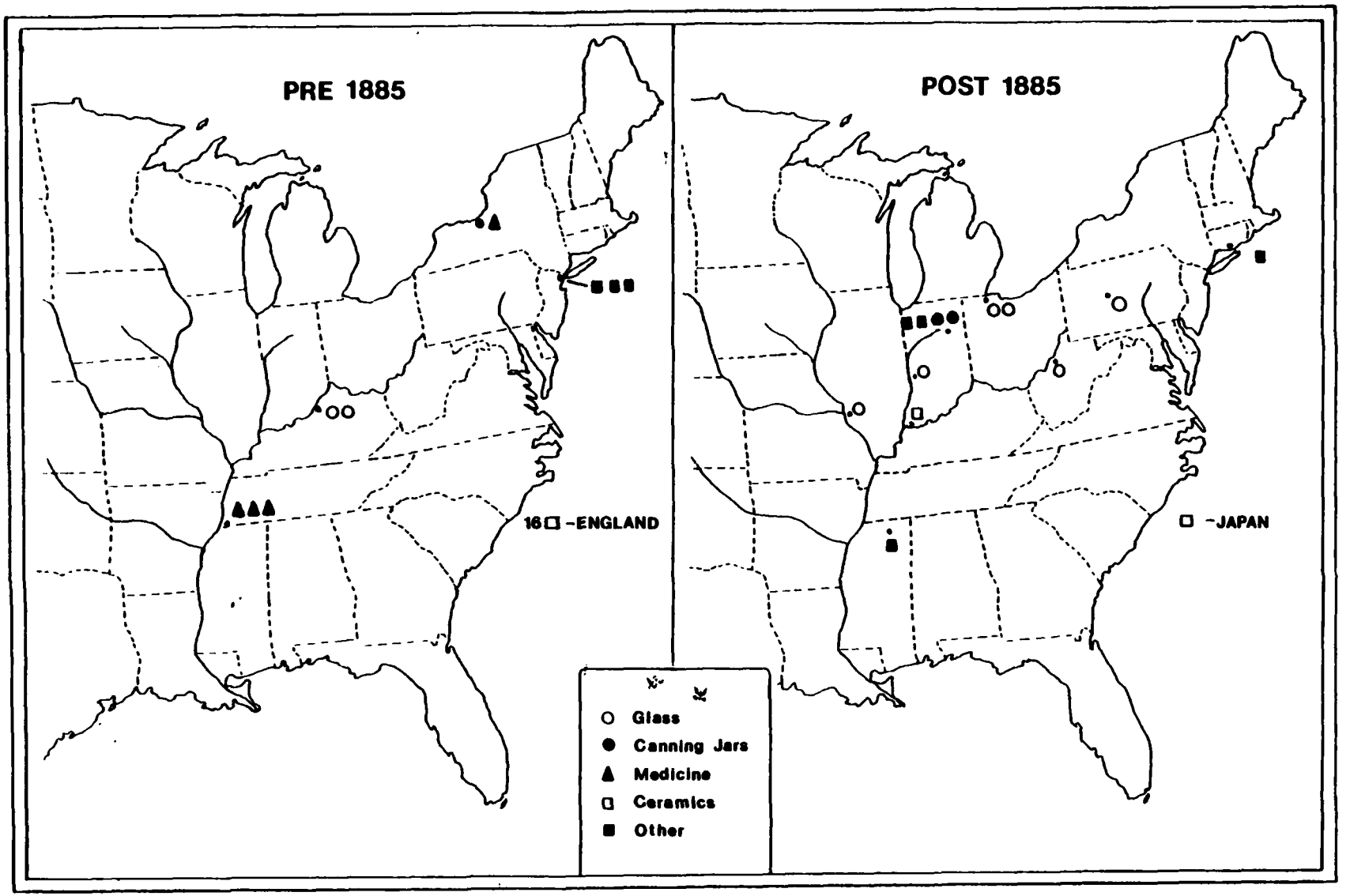


Figure 7.1.--Pre 1885 and Post 1885 Artifact Manufacturer Locations.

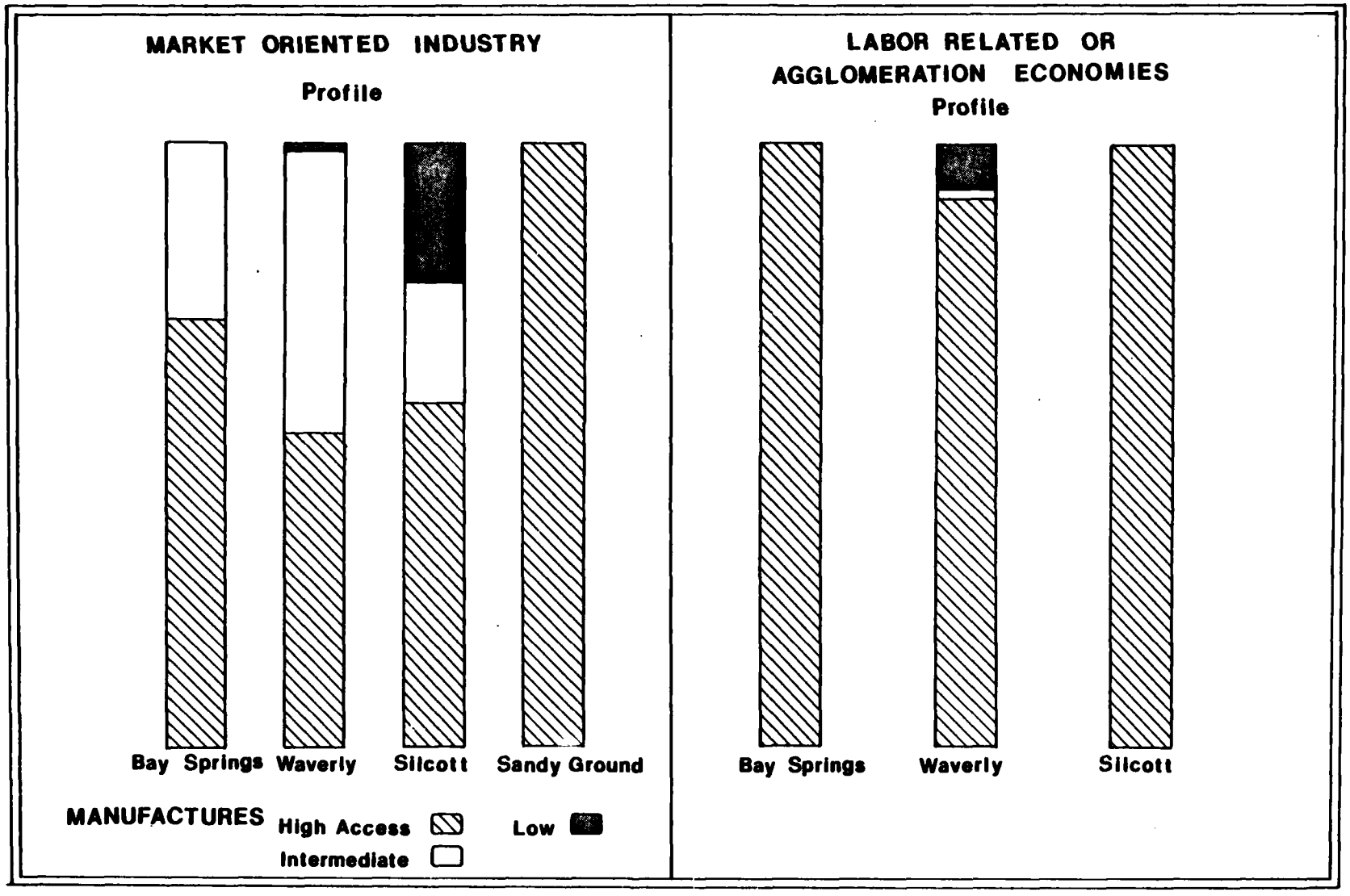


Figure 7.2.--Market Oriented and Labor Related Profiles.

Industries Localized by Labor or Agglomeration Economies. The first type of industry is one extracting raw materials and refining them for other uses. These industries, like bauxite mining are located where the raw material is and take little notice of population. Market Oriented Industries are the backbone of American manufacturing. They serve regional or national markets and a location with good market accessibility is a necessity. The third type of industry, Labor Related or Agglomeration Economies, are those industries adding enough value to a product that transportation costs are not a factor. Or, they are industries having cheap per unit production costs

The typology created by Pred is shown in Tables 7.6 and 7.7. A total of 33 Bay Springs artifacts have been placed in this typology. No raw material or power oriented artifacts were recovered. Any material of this sort that may have come to Bay Springs were used and would not survive archaeologically. Even if it did somehow survive, we would not be able to identify its point of origin.

Market oriented artifacts include the ceramics, bottles, medicines, foods, and a host of other items. This is the bulk of the material flowing into Bay Springs with 21 artifacts assigned to this group.

The labor related industries contributed 12 artifacts to the Bay Springs sample. This total included ammunition and cotton mill machinery.

Before we begin the analysis of these artifacts, we must strongly emphasize that the way we are using the typology is directly opposite to the way it was set up. Pred was viewing commodity flows from one area to another. We are observing commodity flows from many areas to one specific area. This does not affect the outcome of the analysis, however, only the application of the results. Whereas Pred could apply the typology nationwide, the Bay Springs results will be valid only for archaeological sites in the Intermediate Market Accessibility Area.

In order to expand the analysis and give it firmer foundation, we have compared Bay Springs with three other sites, Waverly, Mississippi, Silcott, Washington and Sandy Ground, New York. Waverly Plantation is comparable to Bay Springs because it is in an area of Intermediate Accessibility. Silcott and Sandy Ground represent Low and High Accessibility areas.

Table 7.6. Market Oriented Artifacts.

	Bay Springs		Waverly		Silcott		Sandy Ground	
Access Area	N	%	N	%	N	%	N	%
Low	0	0	3	1.5	222	22.7	2	.6
Intermediate	6	28.6	67	32.5	198	20.3	0	0
High	15	71.4	136	66.0	546	57.0	328	99.4
Total	21	100.0	206	100.0	976	100.0	330	100.0

Table 7.7. Labor Related Artifacts.

Access Area	Bay Springs N	Bay Springs %	Waverly N	Waverly %	Silcott N	Silcott %	Sandy Ground N	Sandy Ground %
Low	0	0	10	10.9	0	0	0	0
Intermediate	0	0	1	1.1	0	0	0	0
High	12	100.0	81	88.0	114	100.0	0	0
Total	12	100.0	92	100.0	114	100.0	0	0

Sandy Ground presents a problem since it is based on the glass vessels from two features (Schuyler 1974, 1980:58). The total sample size of 330 compares well with the Waverly sample, but only market industries are included.

In his analysis of commodity flows Pred (1970:280-282) determined that manufacturers in areas of high market accessibility who produce market oriented goods will have the highest number of flows, most of which will go to destinations within the high accessibility area. They will however, be able to ship a reasonably large amount of freight to intermediate and low accessibility areas. Manufacturers in Intermediate Access Areas will have less flows overall and be mostly confined to short flows. They cannot be competitive with the High Access Areas and they will face stiff competition in the Low Access Areas.

Figure 7.2 shows the market oriented and labor related percentages from the four sites by location of manufacture. Bay Springs and Waverly show the profile for sites in the Intermediate Access Area. Manufacturers in the Intermediate Access Area account for 28-32% of the market oriented sample while 66-71% of the sample comes from the High Access Area. Imports from the Low Access Area are almost non-existent. The reasons for this profile are simple. Because of economics of scale, factories in High Access Areas are able to produce cheaper than any others. This allows them to make a trade off between production costs and transportation costs. The differences between Bay Springs and Waverly may be explained by the orientation of the two sites. Bay Springs was oriented toward the Tennessee River flowing north while Waverly was oriented toward the Tombigbee River flowing south.

Silcott, in a Low Market Access Area shows a different profile. The producers in the Low Access Areas are benefitting from short transport and lower costs so the number of their sales increases. The producers in High Assess Areas, being able to absorb higher transport costs (because they are more efficient) have increased their sales. Intermediate area producers cannot compete as well in this area because they are not as close as one group or as efficient as the other.

Sandy Ground shows the profile we would expect from a site in the High Access Area, for 99.4% of all the artifacts were manufactured nearby. Two bottles (.6%) were produced in San Francisco, but since we do not know the

kind of bottle, we cannot explain its presence. It is possible those two were in the Labor Related or value added category and were able to absorb the large transport costs.

The primary determinants for market oriented goods are location and transport costs.

> "The flow phenomena of market-oriented industries show relative order and cohesion both for their volume and for their length attributes. This is a natural consequence of the previously discussed relationships between manufacturing activity and proximity to population, of the fact that by definition market-oriented industries serve regional or national markets, and of the role played by relative location in determining the spatial part of the market in which any given producer may compete. In addition, the flows of the market-oriented industries are somewhat restricted areally because their ability to absorb transportation costs is generally less than that of higher-value-added industries localized by labor or agglomeration economics" (Pred 1970:280).

Labor related industries show different characteristics than market oriented ones. Producers in High Access Areas will produce far more than any others because of their closeness to a large, cheap labor pool. A large part of this production will go to areas of Intermediate and Low Market Access. Producers in Intermediate Access Areas will produce less and will ship to areas close by. They will not be able to compete in other markets. Low Access Area manufactures will produce only for their region for the same reasons. In fact, few industries of this type will be found in Low Access Areas (Pred 1970:283).

The profiles for labor related industries are also shown on Figure 7.2. Again these conform well to expectations. Because transport costs are not important, producers in High Access Areas dominate the market. Silcott and Bay Springs both show only High Access Area goods. Waverly is somewhat abnormal, as 10.9% of the labor related artifacts come from a Low Access Area in contradiction to expectations. The problem is not as great as it seems however. All of these artifacts are from a single manufacturer in Denver and represent a specialized commodity, tax tokens. The manufacturer's location is highly significant: "By definition, industries of this type [i.e. Labor Related] are infrequently in areas of low market proximity, though they may be found in subareal high population concentrations or in those rare instances where, as in Colorado, the degree of unionization acts as a locational force" (Pred 1970:283).

Labor related industries, then, are primarily situated near areas of high population. For them, transport costs are of minor importance.

From this study, we can see that artifacts found on archaeological sites do show a pattern of distribution imposed by the national market and following well-regulated economic rules. While the people at Bay Springs might have considered themselves self-sufficient and perhaps isolated from the rest of the economic world, their artifacts demonstrate active participation in the national economic network. Products from the north and east flowed into the Bay Springs area to be consumed there, and prices set in the north and east influenced prices at Bay Springs.

International Networks

Bay Springs was also tied into a larger world economy. Trade between countries brought goods to Bay Springs. Many of these goods were processed elsewhere and resold to people at Bay Springs. There is no way to trace these links or even to estimate their number. The evidence we do have consists solely of ceramics. Sixteen ceramic pieces came from England and one from Japan.

Summary

Throughout the history of the Bay Springs area, the economy reflects subsistence farming supplemented by cash crops such as cotton, corn, and wool. However, it would be fair to say that the original Euroamerican occupation of this area was immensely influenced by the building of Gresham's mills. These mills and later factory provided a node for farmers to sell their cash crops and purchase the necessities which they could not produce themselves. The mills, factory and store also provided labor. Their influence is measured by the effects of their destruction. The village of Bay Springs simply disappeared, and many people in the area were forced to move. In the early 20th century the logging industry provided a brief economic revival in the area. Yet, when the timber was gone the transient sawmill workers went also. The Bay Springs area was once again left primarily to the farmer, who despite the constraints placed on him by the environment, survived all the changes that had occurred at Bay Springs.

Finally, we have seen that the farmers, sharecroppers, manufacturers, and laborers at Bay Springs were participants in a national economic network. This network is visible in the material remains of their daily lives.

CHAPTER 8. THE TEXTILE INDUSTRY IN THE SOUTH TO 1880

This chapter discusses the Southern Cotton Manufacturing industry from its beginnings until 1880, with special emphasis on Mississippi. That this discussion ends during the traditionally accepted beginning of the rise of the southern textile industry (Mitchell 1921:9) might seem inappropriate to a historian. "Speaking broadly, the cotton manufacturing industry did not exist in the south before the Civil War; and it existed only on the most restricted scale before 1880" (U. S. Census of Manufactures, 1902:28). Admittedly, the Southern cotton mills prior to 1880 were for the most part small concerns, manufacturing primarily coarse goods for local markets (Govan 1955:449: Mitchell 1921:18-19). However, it is not our intent to discuss the southern cotton manufacturing boom of the late 19th and early 20th centuries when it surpassed the North. Rather, it is the purpose of the chapter to provide the reader with a perspective in which to place the Bay Springs Community and factory during its existence, from the 1850s to the mid 1880s. This perspective will be of a small frontier village, far from the centers of the 19th century cotton and woolen industries of the North and South.

To understand Bay Spring's position on the frontier of the manufacturing world it will be necessary to first contrast the southern cotton manufacturing industry with the 19th century industrial centers in the Northeast, and its dominance over the South throughout the early and mid 19th century. Table 8.1 clearly illustrates this northern dominance from 1840 to 1890. In this table the Northeast is represented by the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut: and the Southern States by Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Alabama, Mississippi, and Arkansas.

Until 1890 the Northeast always had at least a 2.5:1 advantage over the South in the number of mills operating. Usually this ratio was a 3:1 advantage. The number of spindles operated is even more enlightening because throughout the 19th century, 70% to 77% of the spindles were located in the Northeast. Only after the 1880s did the South rise above 10% of the total spindles.

The dominance of the Northeast was established probably by the 1840s since mills did not increase in number after 1840, though the number of spindles continued to climb. By 1860, "the industry was largely centered in New England, having 570 out of 1,091 mills, Massachusetts and Rhode Island having respectively 30% and 18% of the total number of spindles in the country. Fall River, Lowell and Providence also came in for their share" (Merrill, Macormac, and Mauersberger 1941:16).

Exactly how and why this Northeastern dominance came about was the result of several factors, combining under the influence of king cotton culture and producing a momentum impossible to stop. Yet one is reminded that perhaps this dominance was not inevitable, since "as late as 1810, the manufactured products of Carolina and Virginia exceded in value those of all New England" (Crawford 1948:163). Furthermore, Mitchell notes that during what he calls the revolutionary period, the "South was well started toward a

Table 8.1--Cotton Manufacturing in the 19th Century South vs. New England

Period	1840	1850	1860	1870	1880	1890
Establishments						
South	248	166	165	151	161	239
N. England	574	564	570	508	439	402
Spindles						
South	180,927	-	298,551	327,871	542,048	1,554,000
N. England	1,597,394	-	3,858,962	5,498,308	8,632,087	10,836,155
Capital						
South	4,331,078	7,256,056	9,840,221	11,088,315	17,375,897	53,821,303
N. England	34,931,399	53,832,430	69,260,279	100,103,770	156,754,590	243,153,245
Operatives (Manufacturers) Average Number						
South	6,642	10,043	10,152	10,177	16,741	36,415
N. England	46,834	61,893	81,403	94,775	125,779	147,359

Source: U. S. Census of Manufactures 1902:56-57.

balanced economic development, with manufacturers as well as agriculture" (Mitchell 1921:11). Thus, the South had the potential for becoming an industrial region, though not realized until the late 19th century.

The North enjoyed several early advantages over the South leading to its eventual industrial dominance during the 19th century. Geographic and demographic conditions in the two regions played important roles during the early stages. In the North the Fall Line was located nearer population centers, providing immediate market access to nearby waterpower sources. In contrast, the South, and in particular the Gulf South, had a broader coastal plain separating the major settlements from the better sources of energy. All kinds of milling industry developed quickly in the North due to the early access to swiftly flowing water. The hilly and rocky conditions were advantagous to industry but were poor for agricultural pursuits. Labor was close and available in the North, land was in short supply. The South, of course, was rich in agricultural land owned by the aristocracy (Brooks 1911:124). The South also had the proper climate for growing the raw material and the available cheap labor.

The differences in Northern and Southern economic bases also helped to insure which area would become a manufacturing region. Southern revenue was tied to land and slaves, while the North quickly established itself as a merchantile and trade economic region (Cohn 1956:200).

With this setting, the invention of the cotton gin (Crawford 1948:103) and numerous other mechanical advancements in carding, spinning, and looms (Cohn 1956:200), created a demand for raw cotton which the South was ready to supply from its developing plantation agricultural system. The cotton gin

greatly reduced the time needed to clean cotton and with the earlier invention of a spinning frame by Richard Arkwright, American industry was ready to move to mass production of cotton goods. Once the Northeastern entrepreneurs realized the profits from cotton manufacturing and Southern planters the profits from cotton growing, the momentum of each assured regionalization. Additionally, the Revolution and the War of 1812 stimulated the need for American cotton products when the British markets were closed to the United States (Cohn 1956:20).

Once regionalism set in, the Southern mind may have taken agrarian life too much to heart. "The South had not only an economic but a social disinclination towards manufacturing and steam power was actually forbidden in Charlestown, South Carolina" (Crawford 1948:166). During times of economic stress, such as the Panic of 1837, many mills both North and South were forced to close which "gave an illusion to the southern mind of economic virility as to the strength of the South's agricultural sector" (Miller 1978:176). Furthermore, political activists, while defending the institution of slavery from Northern abolitionists, tended to expand the virtues of agrarianism over that of industrial pursuits (Crawford 1948:166).

Those who did try to bring cotton industry to the South found still other problems which hindered them. Competition from Northern mills were perhaps foremost (Miller 1978:173). The Southern public preferred Northern goods over Southern goods. Another problem was that available capital in the South was in short supply. The planter aristocracy who controlled capital were not enthusiastic in their support of industrial ventures (Cohn 1956:224). Also economic hardship, such as the rise of cotton prices in 1850s, cut deeply into the manufacturer's profit, and combined with "the overproduction of osnaburg, the mainstay of Southern cotton manufacturers, drove down prices below the cost of producing cloth" (Miller 1978:174). Miller comments that interstate competition was a problem for Alabama cotton manufacturers. The Alabama producer of coarse goods had to compete with his fellow Southern manufacturer from Georgia and South Carolina (Miller 1978:174). This may have been a problem throughout the South, compounded by competition from finer quality products made in the North.

Regardless of the prevailing Southern attitudes against industrialization and the problems of Southern industrialists the region was not without its industrial advocates. Such men as William Gregg, of Graniteville, South Carolina, Joseph Comkin of the Supreme Court of Georgia, James D. B. DeBow a New Orleans publisher and economist, and Daniel Pratt an industrialist in Alabama were among the most important. Others include Henry Donaldson of North Carolina, Jabez Smith in Virginia, Samuel Morgan in Tennessee, and James Wesson in Mississippi (Collins 1946:387-388: Griffin 1969:571-572; Moore 1956:201).

Gregg who built Graniteville and its factory wrote "Essays on Domestic Industry" which expounded on the need for Southern industry (Collins 1946:387). Debow had at his disposal his own Journal Debow's Review in which he constantly encouraged industry and provided space for industrialists to aquaint the public with their mills. In 1849 he invited Charles James, a New England textile engineer to write a serial entitled "Cotton and Cotton Manufacturer at the South" which also appeared in Hunt's Merchant Magazine (Collins 1946:389).

These entrepreneurs tried to convince the planter that he could save money by delivering his cotton to a Southern mill. The possibility of destruction and injury to his cotton could be lessened and handling costs reduced. Overproduction and white unemployment could be eased by spreading the Southern labor pool into manufacturing work, "A better price could then be obtained for that part of the crop that might be sent out of the South" (Collins 1946:894). The advocates of industry also appealed to the Southern heart. They noted that mills could, following a pattern in the North, become community centers which would employ poor whites and provide for their moral upbringing through churches, schools, and social activities. As Collins (1946:402) notes such arguments expressed prior to the Civil War, would resurface in the 1880s when the South turned to textile manufacturing with more fervor.

Despite Southern inclinations against industrialization, Northern competition, lack of capital, lack of proper rail services and other problems, Southern industrial advocates may have had some effect. Cotton mills producing course goods for local markets were built and were mildly successful in the South prior to 1880.

As stated previously, prior to the 19th century the South was approaching a balanced economy with both agricultural and industrial activities. South Carolina, especially, was taking important steps toward industrialization. In 1770 a committee was formed to promote manufacturing in that state. North Carolina formed a similar committee in 1775 (Mitchell 1921:12). Early cotton mills were erected on James Island, South Carolina in 1787 and Statesboro, South Carolina in 1790 (Brooks 1911:118).

The development of cotton manufacturing in the South from its beginnings until 1833 has been divided into three periods (Crawford 1948:165). The initial period may be called the Colonial or Revolutionary period characterized primarily by small plantation mills. These initial mills were one or two man affairs producing only for domestic consumption. They must have been very small or have failed by the turn of the 19th century because the 1810 census lists only Kentucky and Tennessee as Southern states with cotton mills (15 and 4 respectively), with an additional 22 cotton mills in the Mississippi Territory (Merrill, McCormac, and Mauersberger 1941:11; Miller 1978:9). This period lasted until the British embargo and later War of 1812 when some Northern industrialists were encouraged to move South to obtain cotton and sell their yarn (Crawford 1948:165 Mitchell 1921:17). From 1820 until 1833 "the tariff differences with the North encouraged a little mill building in an attempt to meet the argument of a protective tariff by actual physical competition from the South" (Crawford 1948:165). Some historians even talk of a Southern "cotton mill boom" in the 1820s (Griffin 1969:571; Miller 1978:2).

This period from 1812 to 1840 was probably a time when small cotton mills developed around ginning, saw and grist mills, all powered from a single source. Perhaps nearby was a blacksmith shop, necessary for making and repairing machinery (Mitchell 1921:17-18). The mills of this time remained domestic in nature, selling coarse goods to local markets. However, the small family run mill was giving way to "larger more complex spinning and weaving concerns" (Miller 1978:17).

The exact number of mills in operation in the South during this period is difficult to estimate. Census information is inaccurate, listing for example no cotton establishments in Alabama in 1831 (Census of Manufacturers 1880:10). However, Miller (1978:17) discusses several small mills in operation in Alabama by 1830. Similar unrecorded mills probably were in operation throughout the South. Only seven mills are noted in the census for the entire South in 1830, all in Virginia. The 1840 census lists a total of 248 cotton mills in the South, of which 81 (32%) were in the states of North and South Carolina, Georgia, and Virginia (Mitchell 1921:21).

The 1840s began a new phase in the Southern cotton manufacturing industry which lasted until the Civil War. It is during this phase that Southern mills and mill communities began to resemble Northern establishments. A foremost example of this is William Gregg's Community at Graniteville, South Carolina. The Graniteville Manufacturing Company was organized in 1845, and the town founded in 1847. Gregg's Mill had close to 9,000 spindles and 300 looms. His product was mostly sheeting and coarse clothing. He erected a boarding house for single workers, a school, a church, cottages, and assembly hall. No liquor was allowed to be sold in the village (Cohn 1956:206).

Miller observes that Alabama mills of this period were usually built of brick and bore a close resemblance to early 19th century mill architecture of New England. Furthermore, their machinery came from the North as well as their supervisors (Miller 1978:106).

Daniel Pratt is another example of a Southern industrial entrepeneur who built his own community. Pratt outlined in a series of articles and published letters his plans for the building of cotton mill villages, opening his own factory in 1847 in Prattville, Alabama (Miller 1978:43). Men like Pratt and William Gregg inspired other entrepreneurs to build communities where:

> "Control of the land surrounding a mill site and the platting of a private factory village enabled the antebellum entrepreneur, much like his brother in the latter part of the century, to create a company town. In the sale of town lots the industrialist town builder controlled the pace and environment of his industrial urbanism. He was provider--of jobs, food, shelter, education. He meted out the punishment to those who violated the rules, rewarded those who obeyed. In short, he controlled every aspect of life within the confines of the factory town. Deeds to town lots in the factory towns frequenty contained clauses proscribing the sale of alcohol or the practice of any vice on company property. . . . Large doses of religion and moral instruction infused the operatives with the virtues of temperance, thrift, and obedience. Like Pratt, the industrialist town builders believed that there was some correlation between good morals and industrial efficiency" (Miller 1978:79).

Throughout the South, little mill communities as well as large industrial cities were developing in all states. "At Richmond and Petersburg in Virginia, Augusta and Columbus in Georgia, at Huntsville, Florence, and mill villages near Montgomery in Alabama, arose the first Southern factory centers to feed the larger commerce of the country" (Cohn 1956:203).

The factory workers were not always white. There were advocates as well as opponents to the issue of slave labor in factories. Advocates included William Gregg of Graniteville. He pointed out the advantages of slave labor over white labor; they did not have to be educated, were not free to move, and were not paid (Mitchell 1921:270; Miller 1978:114). Opponents worried that the slave's mental faculties were not equal to the task. Also there was the problem of poor whites working side by side with slaves and the white's fear that slaves "drove down wages" (Miller 1978:117).

Factories in the South continued to grow regardless of the slave issue. The 1850 Census notes 166 cotton establishments in the South. Again, Virginia, North Carolina, South Carolina, and Georgia led the other states with 108, 65% of the total. Tennessee had improved its industry tremendously and had a total of 33 factories (U. S. Census of Manufacturers 1880:10). On the eve of the Civil War, the number of cotton mills in the South had dropped slighty to 159, but there were 298,551 spindles in operation (U. S. Census of Manufacturers 1880:10).

In comparison to the earlier periods, the Southern textile industry had grown substantially from 1840 to 1860. This was especially true in Virginia and Georgia. In Virginia capitalization had increased from $60,000 to $80,000, in Georgia its capitialization had doubled (Davidson 1928:415). In 1860 Virginia led the South in cotton goods produced with an output of $1,500,000, while Georgia was second with around $1,300,000 (Davidson 1928:416).

The mills along the southeastern seaboard had also changed their appearance.

> "The new mills [1860s] of Virginia, South Carolina and Georgia were large corporations manufacturing cloth upon a more extensive scale. They were equipped with power looms and there was a change in location. Many were now built upon the railroads and used steam instead of water power" (Davidson 1928:415).

The Southern cotton manufacturing industry was growing, but the problems of king cotton kept the mills from becoming anything but minor concerns in comparison to the North. Eugene Genovese has suggested that the Southern manufacturer remained tied to the planter and his interests. Not only were a "considerable" number of industrial concerns owned by shareholders but the planter all too often patronized outsiders (Genovese 1967:185,187). Or as one contemporary Alabama manufacturer, James M. Gunn summed up:

> "We never had any manufactories for this reason: Southern capitalists all jammed their money into niggers and land. As their capital increased, it was a few more niggers, a little more land. The few factories we had were consequently one-horse concerns, that couldn't compete with those at the North. They were patronized by men who wanted to buy on credit. If a man had cash, he went to the North to buy goods: if he was short, he bought here. Consequently, to carry on a business of a hundred thousand dollars, a capital of three thousand dollars was necessary. Two thirds of it was sunk; below the water, like the guards of this boat" (Miller 1978:201).

During the Civil War, cotton manufacturers suffered from both Northern and Southern interference. Southern mills were converted to war time production. Graniteville for example, made Army clothing, tents and sailcloth (Cohn 1956:209). As the South began to realize the true importance of industry, mills became more valuable, but cotton mills were sometimes stripped of their machinery or converted to other types of production (Miller 1978:240). Cohn (1956:209) states it has been estimated that the South only consumed 200,000 bales of cotton annually during the war. This compares starkly with figures of 4,000 bales a week brought North in 1863 (Cohn 1956:207).

Destruction of Southern mills by Northern military campaigns was extensive. All of the mills in Florence and central Alabama were destroyed (Miller 1978:240). Practically all Mississippi cotton manufacturers were torched (Moore 1954:97). Sherman's march left many mills burning throughout the South.

Despite this destruction by 1870, 151 Southern cotton manufacturing mills were back in production and had increased their number of spindles 10% from 298,551 in 1860 to 327,871 in 1870 (Census of Manufacturers 1880:10). The Southern manufacturers in the 1870s faced many problems associated with post war recovery. Machinery destroyed by the war was difficult to get and prices rose for cotton staples. The Panic of 1873 and its subsequent depression was also a hinderance to recovery (Mitchell 1921:168). Still by 1880 the number of factories of the South had increased to 161, and they had increased the number of spindles to 542,048, 65% more than 1870 and 81% more than 1860.

The 1880s began the true industrialization of the South. During this period Southern entrepreneurs began to reassess their regions potential, saw the value of industry, and turned to cotton textile wholeheartedly (Cohn 1956:271,213; Mitchell 1921:Chapter 2; Merrill, Macormac, and Mauersberger 1941:21:23). Unfortunately it is during this period that Bay Springs Union Mill burned to the ground and the mill community began to disintegrate, the mill workers turning to other occupations. It is here that we will turn to an overview of the development of Mississippi's textile industry.

Mississippi's Textile Industry

Certainly a case can be made that Mississippi was on the frontier of the cotton manufacturing industry prior to 1880. Table 8.2 denotes the number of mills and spindles in operation in Mississippi during this period. Throughout this time Mississippi's total number of operating spindles never exceeded 4% of the total number of spindles in the South. In 1860 it ranked eighth among the Southern states, and jumped to fifth to tie Virginia in 1880 (Tables 8.1, 8.2).

The textile industry began in Mississippi in the early 1840s, partly as a result of an economic depression. The falling cotton prices caused the ruling planter aristocracy to consider the value of local cotton manufacturing, thereby keeping their money in the state (Moore 1954:83).

Table 8.2 Textile Mills 1840-1890

	Establishments	Capital	Spindles
1840	3#	6,420	318
1850	2	38,000	-
*1860	4	230,000	6,344
*1870	5	751,500	3,526
*1880	8	1,122,140	18,568
1890	9	2,053,743	57,004

Census Lists 53 Establishments; this is most likely a misprint.
* Years Bay Springs was in operation

The first mill was built in 1842 by John Robinson at Torrey's Store near Natchez (Moore 1954:83). Like the later Bay Springs Union Factory, it produced goods only for the local market which were yarns and fabric for home manufacturing. Unlike Bay Springs, the factory's power was derived from a coal heated steam engine. The history of this mill is one of financial disaster for its original operator and three later firms who tried to salvage the business by importing Northern textile exports and equipment, and expanding the market to Vicksburg and New Orleans. However, "like Robinson and McAlistor [former owners] before them, they [Henry Wood and Alexander Clarkson, the factory's last owners] discovered that it was easier to produce manufactured goods in Natchez than to dispose of the wares at a profit" (Moore 1954:85).

Other attempts to manufacture cotton goods in Mississippi were much more successful. One of these was the Mississippi Manufacturing Company located in Choctaw County, Mississippi. The company was run by James Wesson, the leading advocate of industry in Mississippi in the early to mid 19th century. Wesson published an article in 1850 in Debow's Review describing his mill. It is interesting to notice the similarity of his mill with that of James Gresham.

> "Our building is made of wood, 108 feet long, 48 wide, and three stories high. We are now running about 800 spindles, 10 cards, 12 looms and all the accompanying necessary machinery for spinning and weaving. Owing to the high price of cotton we have stopped our looms. We have 500 spindles and five cards more, not finished; we shall probably get them in operation for the next crop. We carry on a machine shop in which we make every variety of machinery for carding and spinning" (Debow's Review 1850:433).

In 1858 Wesson wrote a letter to his friend John Clairborne providing some interesting insights into Mississippi's textile industry. Wesson's problems in getting his factory started echoed those of the rest of the South:

> "The Citizens generally, of Mississippi did not appreciate Manufacturing until very recently. It is true that politicians resolved many verry [sic] pretty things upon the subject, but, like the scribes and pharisees they would not so much as to move a finger for its support. We, therefore, had to battle against all the prejudices against Broken Banks, Rail Roads & Manufacturing Co." (Moore 1956:202).

Wesson was the William Gregg and Daniel Pratt of Mississippi. He built a mill community, called Bankston, and provided his white mill workers with life's necessities. Morality was not forgotten:

> "178 souls are fed by labor for us in and about the mills. All of whom have the benefit of weekly preaching, as well as sabbath school instruction, so that while the children are brought up to industrious sobriety, and taught the doctrine of economy of time as well as money. They are instructed in letter and elevated in morals" (Moore 1956:203).

The Mississippi Manufacturing Company prospered until, like other mills in the South, it was destroyed by the Union Army in 1864. At that time it had 1,000 spindles, 50 woolen spindles, no looms, a wool carding machine, grist mill, and a very profitable flour mill, all of which employed 85 workers (Moore 1954:89-90).

Another successful mill was the Mississippi State Penitentary built in 1849. It grew from a "home manufacturing" pursuit for prison clothing to a sizable mill producing 1,000 yards of cloth per day. From 1853 to 1863 the mill constantly showed a profit. Fire destroyed the mill in 1857 but it was quickly rebuilt into a two story brick building which included 2,304 spindles, 24 cotton carding machines, and 76 looms for making osnaburg, twill, linsey-woolsey, and cotton batting (Moore 1954:93). The mill was destroyed by Sherman's army.

The late 1840s and 1850s proved to be a period of noticeable industrial growth in Mississippi, though in comparison with the coastal states of North Carolina, South Carolina, and Georgia, it always remained far behind.

Besides the two mills already mentioned, other factories started during this period include the Wilkinson Manufacturing Company built in 1851 in Woodville, the Green Factory at Jackson built in 1856 and the mill at Bay Springs built around 1852.

The Wilkinson Manufacturing Company, under the direction of a Judge Edmund McGehee was a four story brick building with warehouse, office, and three apartment houses for mill workers. It contained 4,000 spindles and 80 looms, all driven by a steam engine (Moore 1954:55). Typical of other Mississippi Factories, its equipment came from the North, in this case Cincinnati, and it too was destroyed in the war.

The Green Factory was probably the largest of the antebellum factories in Mississippi, producing 450,000 yards of cloth per year by 1859 (Moore 1954:97). A much smaller factory, the Columbus Manufacturing Company in Columbus, Mississippi, made "woolen hats for Negroes" (Moore 1854:66). This mill was apparently built after 1850 but the exact date is not known.

There may have been another mill in Chickasaw County. The only evidence of this mill is a legislative report in 1882: "Chickasaw County Manufacturing Company incorporated in 1852 for the manufacture of woolen and cotton goods and fabrics, and for the erection of all buildings, and the making of purchasing of all machinery necessary therefor" (Laws of Mississippi 1852). Since there is no further mention of this mill it may have never been built.

On the fringe of the Mississippi textile industry was the Bay Springs Union Factory. Moore's entire reference to this mill is "a small cotton mill with a capitilization of only $15,000 located in Tishomingo County" (Moore 1954:97). Bay Springs was indeed a small concern. In 1860 its 744 spindles were only 11% of the total number of spindles in operation in Mississippi At its peak in 1880, its 800 spindles were only 4% of the total spindles in Mississippi, and .1% of the United States total. Its value in 1880 was 40,000, only 3.5% of the total capital of the state (Table 9.2). Bay Springs also remained a wood building powered by water long after most Southern mills had become brick structures using steam power. Even the potential waterpower at Bay Springs was never realized. As far as is known, the factory never contained looms or more than 800 spindles despite an estimate that as much as 500 horsepower was available (U. S. Census of Manufactures 1887:148).

Like Bay Springs, Mississippi's textile industry never realized its full potential. It suffered a major set back during the Civil War when, for all practical purposes the entire industry was destroyed. Moore implies that the post-war recovery of the textile industry was slow, and that only J. M. Wesson, of the pre-war manufacturers, returned to textile manufacturing. However, Bay Springs may have not followed this pattern, in that it may have been back in business before the war's end. Other Mississippi mills may also have made similar quick recoveries. The 1870 census demonstrates that there were five mills in operation by that time, a small increase from 1860. The number of spindles however, dropped to approximately half the 1860 total (Table 8.2). By 1880 the state textile industry was still small in comparison to the rest of the South, but had increased its number of operating spindles by six times its 1870 total.

Summary

The Southern textile industry prior to 1880 was never a serious threat to the North. The agrarianism of the South along with its economic and psychological make up would not allow industry to grow to its full potential. Southern antebellum textile manufacturing's real influence on the Southern economy would be difficult to estimate, but it is obvious it would not have been considerable. Still, regardless of the prevailing

trends there were those who saw a profit in manufacturing coarse goods, like osnaburg, for local markets. The centers of the early Southern textile manufacturers were primarily along the eastern seaboard states of Virginia, North and South Carolina, and Georgia, a region which after 1880, would become the centers of textile manufacturing in the United States. On the frontiers of this area were the small factories of Mississippi. Of these pioneer factories, on cliff above a stream in Northern Mississippi sat the Bay Springs Union factory and its surrounding community, a microcosm of those large textile communities to the East and North.

CHAPTER 9. THE EVOLUTION OF TEXTILE MACHINERY

This chapter briefly summarizes the development of cotton textile machinery to provide the reader with a perspective for understanding the processes taking place at the Bay Springs Union Factory.

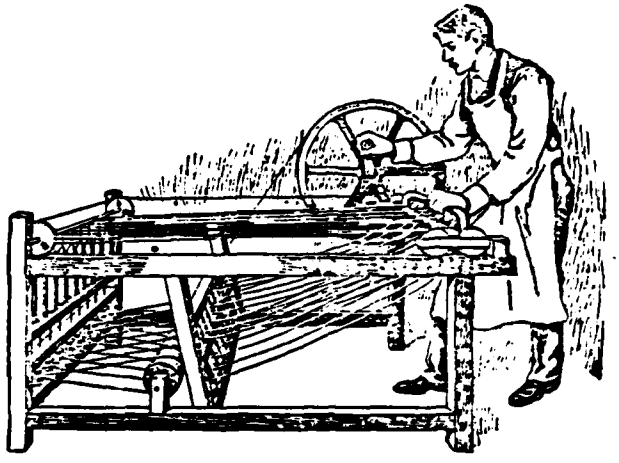
The major initial inventions which resulted in mechanizing the textile industry originated in the 18th and early 19th centuries. An especially exciting period was from 1810 to around 1840 when engineer machinists, spurred on by competition and supported by entrepreneurs, developed and improved their inventions which were the prototypes of today's textile machinery (Wallace 1978:188-189).

Before cotton can be spun into yarn it must pass through a series of stages which clean and draw it into a usable form for spinning. For ease of discussion, the mechanization of the cleaning process will be discussed first, followed by the development of drawing and spinning frames.

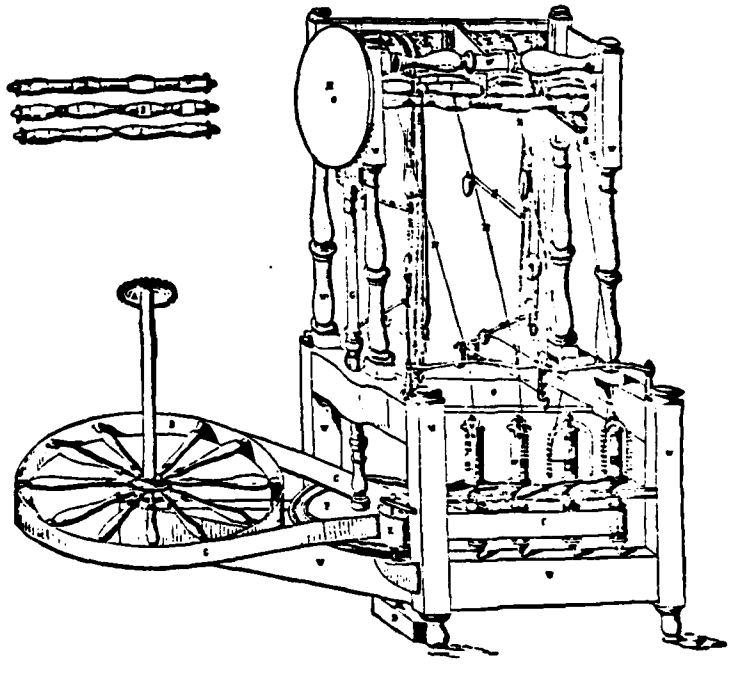
Probably the most well-known invention precipitating the industrial revolution was Eli Whitney's cotton gin patented in 1794. Ginning is the first step in cleaning cotton, removing the seed from the boll. The Whitney gin was simply a cylinder with wire teeth mounted in a frame. The teeth caught the cotton and dragged it through a grating, separating it from the seed (Brooks 1911:96). Circular saws soon replaced this early model, performing the same function with greater durability.

Cleaning was continued at the mill by carding machines. These machines not only cleaned but also began the process of drawing out the cotton into sliver, a "loosely twisted rope about as thick as one's own thumb" (Wallace 1978:138). Prior to the invention of a machine to clean and align the cotton, this process was done by hand with a set of wire brushes set in leather or wood. The concept of cleaning with wire teeth did not change through the 18th century and it is therefore easy to understand why carding was one of the first processes to be mechanized. By 1762 Robert Peel had invented a carding machine using a cylinder rather than wood stocks (Marsden 1909:111). Full mechanization of this machine came in 1775 (Zimiles and Zimiles 1973:103). Advancements continued into the 19th century including David Cheethans' device called a coiler, which drew the sliver into a roving can (Merrill, Macormac, and Mauersberger 1941:16). While the machine was adapted to new power sources and minor advancements made throughout the 19th century, still "no significant changes occurred until 1885 when the revolving flat card came into general use in American Mills" (Merrill, Macormac, and Mauersberger 1941:16).

The cotton, now called sliver, was ready to begin a series of processes which would draw out, twist, and compress the cotton fibers into a usable form for final spinning. These processes of drawing, slubbing, and roving were accomplished on a series of drawing frames. All of these machines, including those which would develop into machines used primarily for final spinning, had two common ancestors: the spinning jenny and the water frame (Figure 9.1).

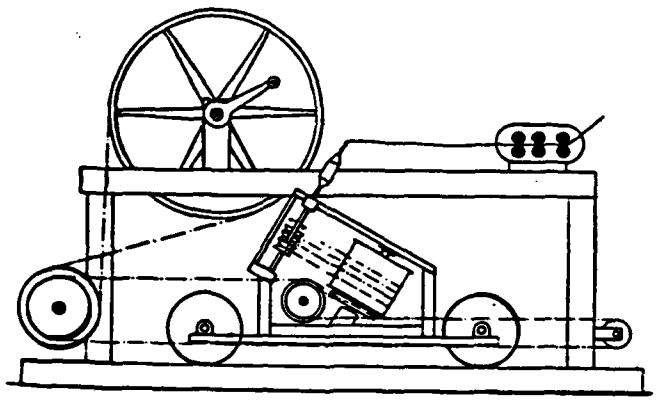


Hargreaves' Improved Jenny 1767

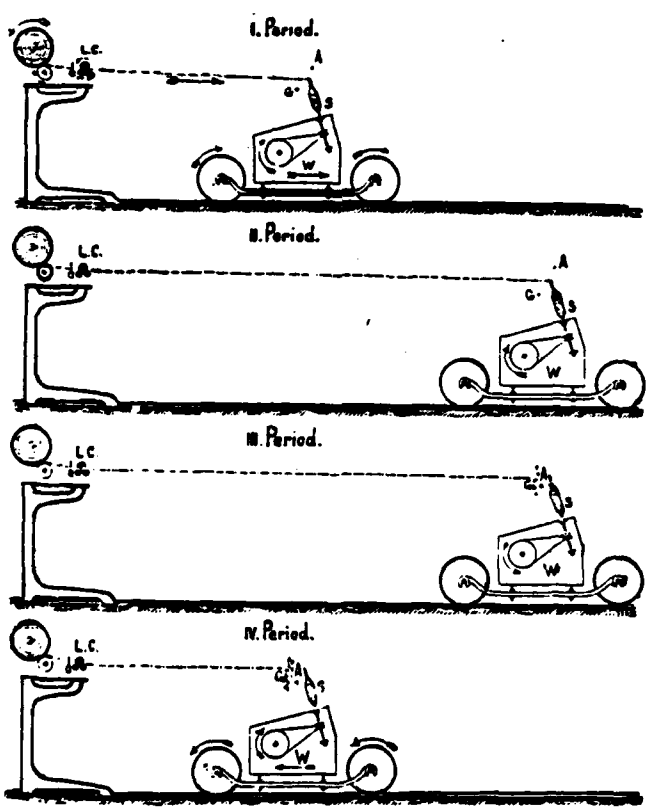


Arkwright's Improved Water Frame

Figure 9.1.--Early Cotton Spinning Machinery.(From Kissel 1918).



Cross Section of Hand Mule



Four Stages of Self Acting Mule Spinning

Figure 9.1.--Continued.

"The jenny is no more than a mechanical contrivance by which one operator is able to carry out the operations of distaff and spindle spinning on a number of spindles at once" (Catling 1970:29). This machine, invented by James Hargreaves in 1764, was simply a rectangular frame which on one side sat a series of spindles turned by a wheel. Inside this frame was another frame with more spindles. The inner frame moved back and forth drawing out the sliver and twisting it. Hargreaves' original machine had eight spindles, improvements increased the number to 80 (Zimiles and Zimiles 1973:108).

The water frame, originally called a spinning frame, was patented by Richard Arkwright in 1769. It was soon adapted to waterpower from which it derived its more popular name. Arkwright's frame employed rollers to draw out the sliver, and a flyer to impart a twist to the thread and wind it on a bobbin. The frame consisted of a series of these double rollers (one roller on top of another), which were spaced at uneven intervals and which revolved at different speeds. As the sliver passed between the rollers it was drawn, compressed, and slighty twisted by the action of the rollers. The sliver continued to the flyer, which revolved around the bobbin. As the flyer turned it twisted the sliver and wound it onto the bobbin. Arkwright's invention had several advantages, not the least of which was:

> "its adaptability, with slight modifications, to use in several stages in the preparation of cotton for spinning. We find it first in the drawing frame, and afterwards in the whole series of the bobbin and fly frames: the slubbing, intermediate, and roving frame; and again, but without its distinctive feature, the drawing rollers, in the throstle doubling frame. To Arkwright must be awarded the credit of these adaptations, though he left much to do in perfecting the details of each machine to suceeding inventors" (Marsden 1909:216).

These intermediate steps in the process of making threads and yarns were refined during the development of the factory system in the late 18th and early 19th centuries. After Arkwright's invention a lantern frame was used for roving. It operated with rollers "which the roving was fed from drafting rollers into a rotating can with an attached tube at the top. Friction imparted a slight twist to the roving as it passed through this rotating tube" (Lozier 1978:154). Various modifications improved this system, one of which was George Danforth's Taunton Speeder invented in 1824. The speeder's success was in its simplicity, speed, and elimination of the need for constant attention due to breakage of the roving.

> "The Taunton speeder drafted the roving between rollers in the ordinary manner of the fly frame and other roving frames. From the rollers, the roving passed lengthwise through a hollow, hand-driven, rotating tube, which temporarily tightly twisted the roving for the duration of its passage from the rollers to the bobbin, thereby preventing breakage of the delicate roving" (Lozier 1978:162).

Probably the most radical and important invention in the spinning of fine yarns was that of Samuel Crompton's mule spinner, completed in 1779 (Figure 9.1). Prior to its invention, fine spinning was a slow process done on the jenny. The water frame was not suitable for fine spinning because its flyer dragged the yarn. The goal was to produce fine yarns at a higher rate of speed (Wallace 1978:190). The mule combined the speed and twist needed to spin finer threads. Its mechanisms combined the roller action of a water frame with the spinning action of Hargreave's Jenny (Catling 1970:32). This action was complex, drawing out the roving through a series of rollers which was picked up by spindles mounted on a movable carriage. The carriage retreated slightly faster than the roving came out of the rollers, thus stretching and twisting the roving. When the carriage came to the end of its track, rollers clamped the roving, holding it while the spindles doubled their spinning speed, and twisting the roving further. For finer yarns the carriage then retreated a second time as the spindles doubled their speed. Afterwards, the carriage would return to its starting position, taking up the slack in the yarn and winding it to begin a new cycle (Wallace 1978:191). A skilled operator was necessary to operate this machine properly until in 1830 Richard Roberts fully mechanized the machine with his self-acting mule (Figure 9.1). While improvements were being made in this machine and England's textile industry became enthralled by it, other advancements were being made in the water frame.

By the turn of the 19th century the throstle frame, as the water frame had become known with modifications, had been mechanized to the point that unskilled labor was quite adequate for its operation (Wallace 1978:196). Its greatest deficiency was in the flyer and bobbin, which had changed very little from the water frame. Even to the 1820s the flyer was no more than a stiff wire, fixed to the top of the spindle, which together rotated around a bobbin (Wallace 1978:197). The flyer was shaped like an inverted "U", "a loop at the bottom of one of the flyer's legs guided the thread onto the bobbin" (Lozier 1978:204). While the frame was popular in the United States, machinists were looking for something better for finer yarns. Finer yarns meant higher speeds not obtainable with the present flyer. Beyond 5,000 rpm the flyer would wobble, and the legs spread or break (Lozier 1978:205).

The answer to this problem came in the form of two inventions; Charles Danforth's cap frame and John Thorp's ring frame both invented around 1828 (Lozier 1978:210). Charles Danforth was the brother of George Danforth. His cap frame consisted of supporting a metal cap on a dead spindle (Figure 9.2). The bobbin was driven by a whorl placed over the spindle and spun freely about it. "The thread coming from the rollers above the cup was fed outside the cap, thence against the underside of the cap or ring before being wound on the spindle" (Lozier 1978:213). When the bobbin was rotated at high speeds, the yarn created a balloon around the cap. Air resistance produced a drag which, in conjunction with friction of the yarn on the bottom of the cap, wound the yarn on the bobbin and twisted it. The Danforth cap could run up to 8,000 rpms (Catling 1978:183).

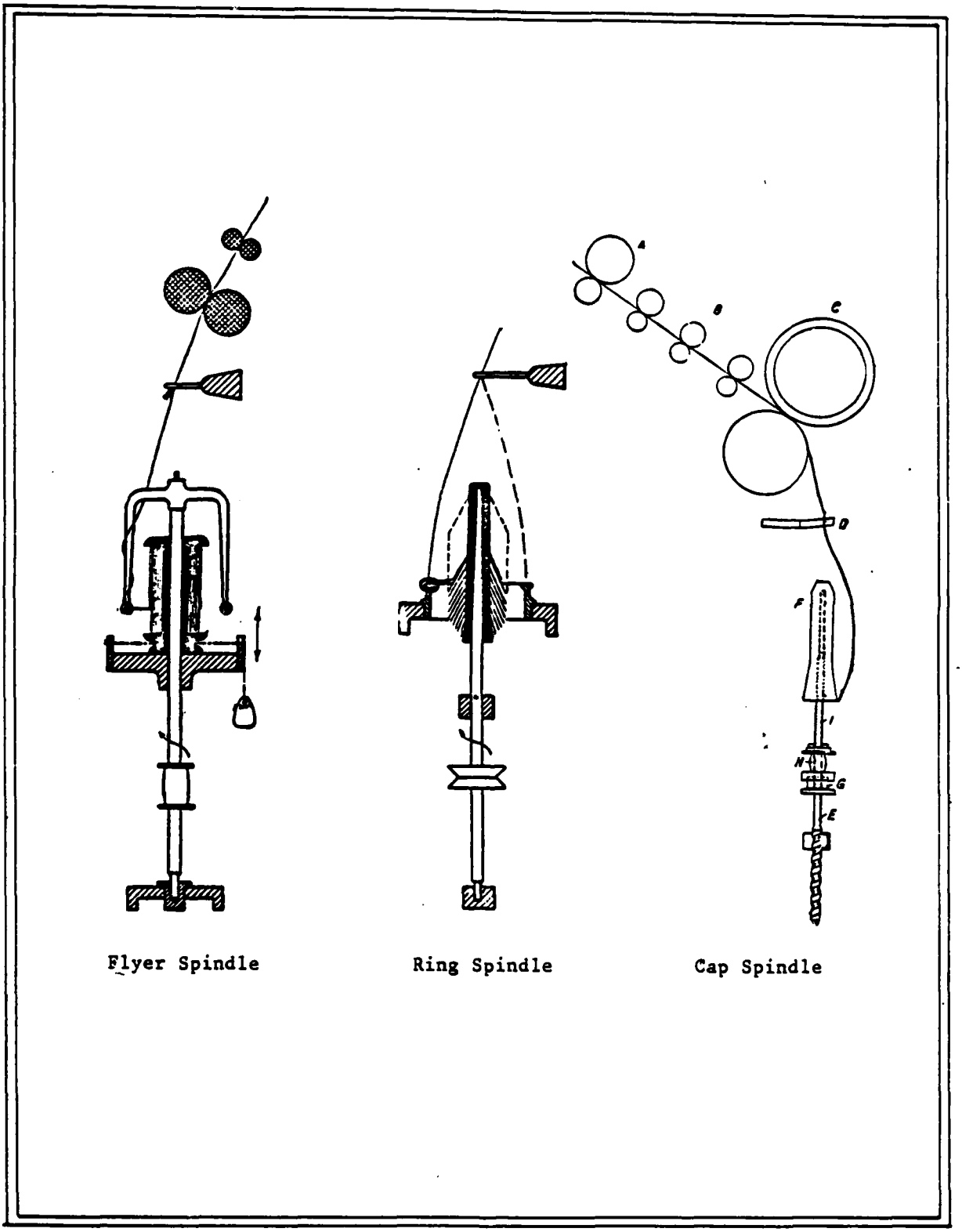


Figure 9.2.--Flyer Spindle, Ring Spindle, and Cap Spindle. (From Kissel 1918).

The Danforth cap frame became immediately popular, but its popularity diminished because of its two major deficiencies and the success of the ring frame. Its deficiencies were that the twist it imparted to the cotton was too light, making a weak yarn for warp. It could not be used interchangably with yarns that were spun on ring or throstle frames (Lozier 1978:214). Also, the doffing of the bobbins took considerable time (50% more than throstle frames) since the caps had to be removed. This cut into the time it was supposed to be saving the manufacturer.

Eventually it was the ring frame, producing a stronger yarn, that surpassed both the throstle and cap frames and even the mule frame in the United States. The invention of this device has been attributed to more than one man, but presently it is believed to be primarily the work of John Thorp in 1828. His ring frame had:

> "two concentric rings which described the path of the flyer legs around the bobbin. The inner ring was firmly attached to a rail and was flanged to retain the loose outer ring. Thorp fed the thread between the two rings and thence to a live spindle bobbin. The friction of the tread against the two rings imparted a twist to the thread" (Lozier 1978:218-219).

Thorp's ring frame needed only one modification to make it the successful and popular machine to outmode the others. In 1829 Addison and Stevens patented a small wire attachment to the ring frame. This "Traveller" was a thin wire "clipped onto the flange of a metal ring so formed as to permit the traveller to be drawn around freely by the yarn" (Catling 1970:164). The traveller was no more than a guide which constrained the yarn path and imparted a further twist to the yarn.

Speed was the one great advantage that the ring frame and its traveller had over other frames. By 1840 minor modifications of this machine had increased its speed to an average of 25% over the throstle frame (Lozier 1978:243). Besides producing a stronger yarn, the lack of a flyer or a cap eliminated the time needed to remove these accessories when doffing the bobbins. The ring frame also consumed less power (Lozier 1978:244).

Summary

These then, with subsequent refinements, were the major spinning machines in existence during the period Bay Springs Union Factory was in operation: the throstle frame, self-acting mule, the ring frame, and the Danforth cap frame. As will be noted in Chapter 10, the Danforth frame was probably the type of frame present at the Bay Springs Factory. By 1852, when the factory was built, this frame was probably obsolete in the Northeast. The cap frame is still used today, however, for worsted spinning in Britain (Catling 1970:183).

The ring frame gained a quick following in the United States, though it always had competition from the mule in Britain. By the 1850s it had essentially replaced the throstle frame and cap frame in the large industrial centers of the United States (Wallace 1978:197). "Long before the end of the century it was accepted as the universal machine capable of spinning yarns for all end uses in all fiber groups" (Catling 1970:187).

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CHAPTER 10. BAY SPRINGS UNION FACTORY

Introduction

The major emphasis of the archaeological research for the Bay Springs Mill Project centered upon the industrial archaeology of the Bay Springs Union Factory. Industrial archaeology has two main approaches. The first, via historical preservation, concerns itself primarily with standing structures and architectural reconstruction. As Kenneth Hudson (1979:3-12) has discussed, industrial archaeology grew out of a need to record the rapidly disappearing structures related to the growth of various industries. While extremely particularistic, at least something was saved that would not have been otherwise. Many of the industrial archaeologists using this approach were non-professionals, that is, they recorded in their spare time. Hence, they cannot be faulted for the slow development of any theoretical base for the field. The other approach developed out of historical archaeology. Both largely owe their existence to the need for historic preservation and the federal laws and regulations geared toward historic preservation. The historical archaeologist can generally be found on industrial sites having little or no above ground architectural remains, while the preservationist appears to be concerned much more with standing architecture and its historical background. Both are necessary for this youthful field to reach its potential.

Relatively few industrial sites have been studied by historical archaeologists. Because of their large size, such sites require considerable investment for the time spent. Yet it appears that considerable success is being met. The Harmony Borax Works in Death Valley, California has been studied in conjunction with ruins stabilization (Teague and Shenk 1977). Albert F. Bartovics studied a grist mill, a cotton mill and associated houses at Daniels Village in Connecticut (Bartovics n.d.) and cotton and grist mills in the Wallace Reservoir, Georgia. Robert L. Schuyler and Christopher Mills (1976) excavated parts of a grist mill in Massachusetts. The power system of a grist mill was excavated at the Moose Hill Reservoir, Massachusetts by Edward Rutsch (Rutsch et al 1980). At Waverly Plantation, near Columbus, Mississippi, we excavated part of a steam powered grist mill and sawmill, and also a brick kiln (Adams 1980). Downriver at Nance's Ferry, Alabama, several brick kilns and a lime kiln were excavated (Atkinson and Elliott 1978). In eastern Alabama, Gregory Jeane (1979) investigated McCosh's Mill. These studies vary considerably in their focus, from social history to technological developments, but each is industrial archaeology. Because of the rapid growth in the field there is not a large and available literature to discuss; probably the bulk of the research undertaken to date has not been published yet. As far as we know, Bartovics' work in Georgia represents the only other contemporary cotton mill excavated in the South: however, the Georgia mill was considerably larger, wove cloth, and employed slave labor. In many respects it is difficult to evaluate the results of our efforts, for few analogous situations have been examined previously.

In order to simplify the technical description of the mill excavations, and to delineate our reconstructive interpretations, we have

chosen to separate these two objectives. Therefore, the first part of this chapter discusses how we excavated the mill site and provides the results of excavations. The second part discusses a possible reconstruction of the mill based on our excavations, oral history, and historical documentation. Measurements are metric. Where we felt it appropriate, we have also given English equivalents, rounded to the nearest whole number. A third section of this chapter discusses excavations at Area B, where artifacts indicate a probable outbuilding of the industrial complex.

The mill at Bay Springs was located on the east side of Mackeys Creek gorge from 30 to 110 m south of the iron truss bridge of old Highway 4 (Figure 5.13). It is bounded on the east by Areas A, B, and C and the county road. To the north and west was Mackeys Creek. The south side of the site (during excavation) was bounded by a spoil pile and haul road constructed for the Bay Springs Lock and Dam.

The site had been subjected to considerable disturbance since it burned to the ground about 1885. The site had been scavenged for iron, stone, and brick. No large mill machinery was left. From the oral history we know the site suffered from two world war scrap drives, and perhaps from being a playground for youngsters during reunion picnics. A dirt road had been constructed through the area sometime prior to 1950. This road began at the county road south of the old bridge, passed immediately south of Area A, and proceeded southwest through the mill. Two branches of this road were also evident on the 1950 base map, showing one returning to the county road and another heading south, parallel to the county road. These roads were evident in our excavations, as Features 2D and 4D at the mill and Feature 2B between the mill buildings and Area B. Additionally, the site had been impacted by an errant bulldozer which cut two deep trenches through the site (Figure 10.1). This pushed many artifacts and foundation stones over the cliff or into a small mound near the cliff. Finally, the site had been cleared of trees in 1978 by the Corps and afterwards a layer of fill had been placed on the south side. Figure 10.2A presents a view of the area from the southern side of the mill location showing area A and the Monroe Gilley house (22TS1111) location on the hilltop. Figure 10.2B is a view north across the area of the structures D and E. The stake in the lower left is at N90/W120 and marks the eastern edge of the bulldozer trench. In the background is its spoil pile and the mill chimney mound. Both of these photos were taken after Corps of Engineers' clearing.

Recommendations from the testing phase called for extensive hand excavations after clearing and removal of overburden by heavy equipment. A total of 19 2x2 m units to a depth of 20 cm and 20 2x2 m units to 60 cm were recommended, or a total of 156 m^2 and 63.2 m^3. Because of two hurricanes cutting into a restricted time schedule our level of effort was reduced. Twenty 2x2 m units, 31 1x2 m units, and two 1x1 m units were excavated. Also, in following out the wall line of the structure, an additional 21.5 m^2 were exposed. A total of 48.76 m^3 was excavated at the mill, less volume than we had planned, but the increased areal exposure (163.5 m^2) provided the needed data. Additionally, we were able to use bulldozers for deeper stripping than we had originally planned.

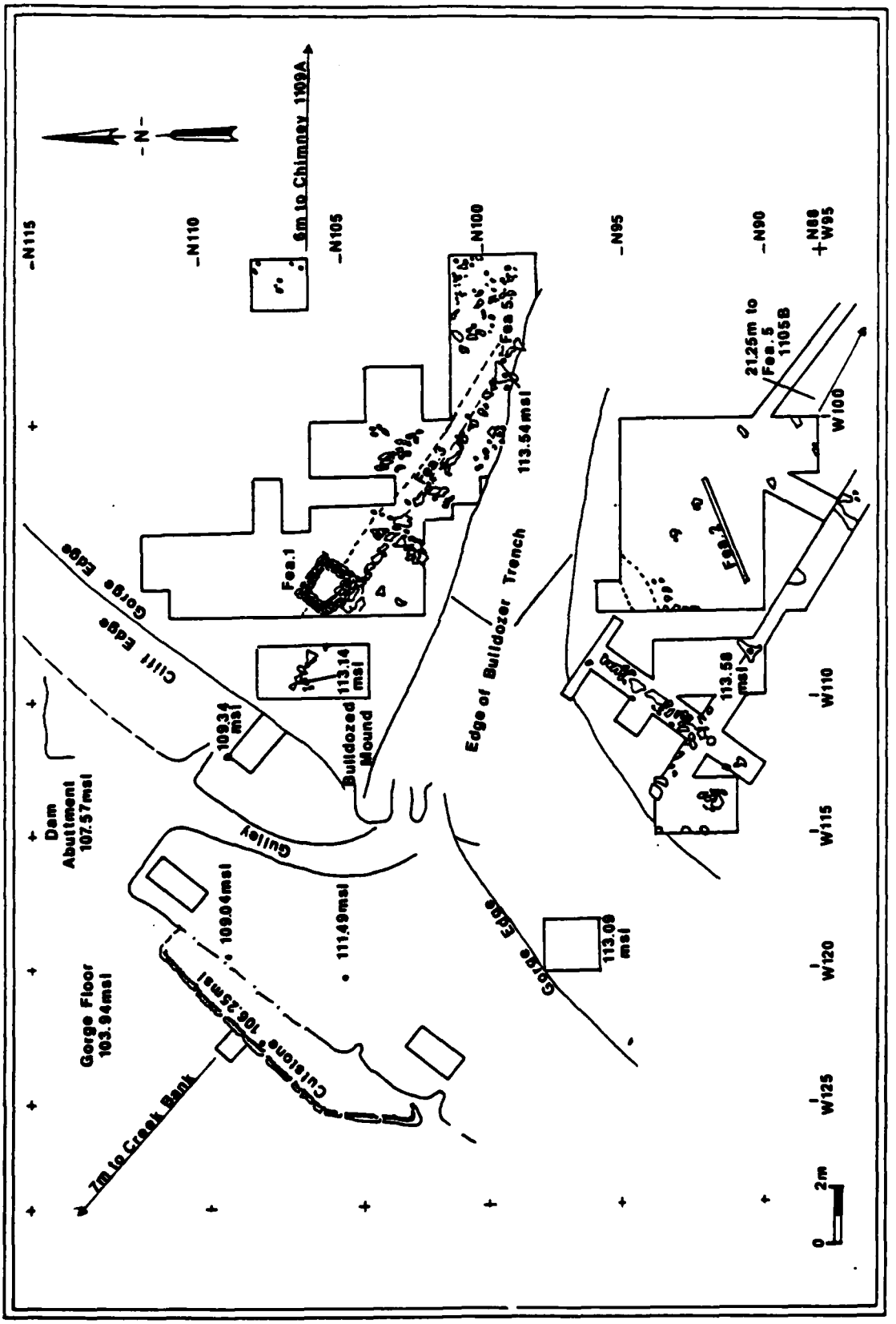

Figure 10.1.--Excavation at Structures D and E, The Mill.

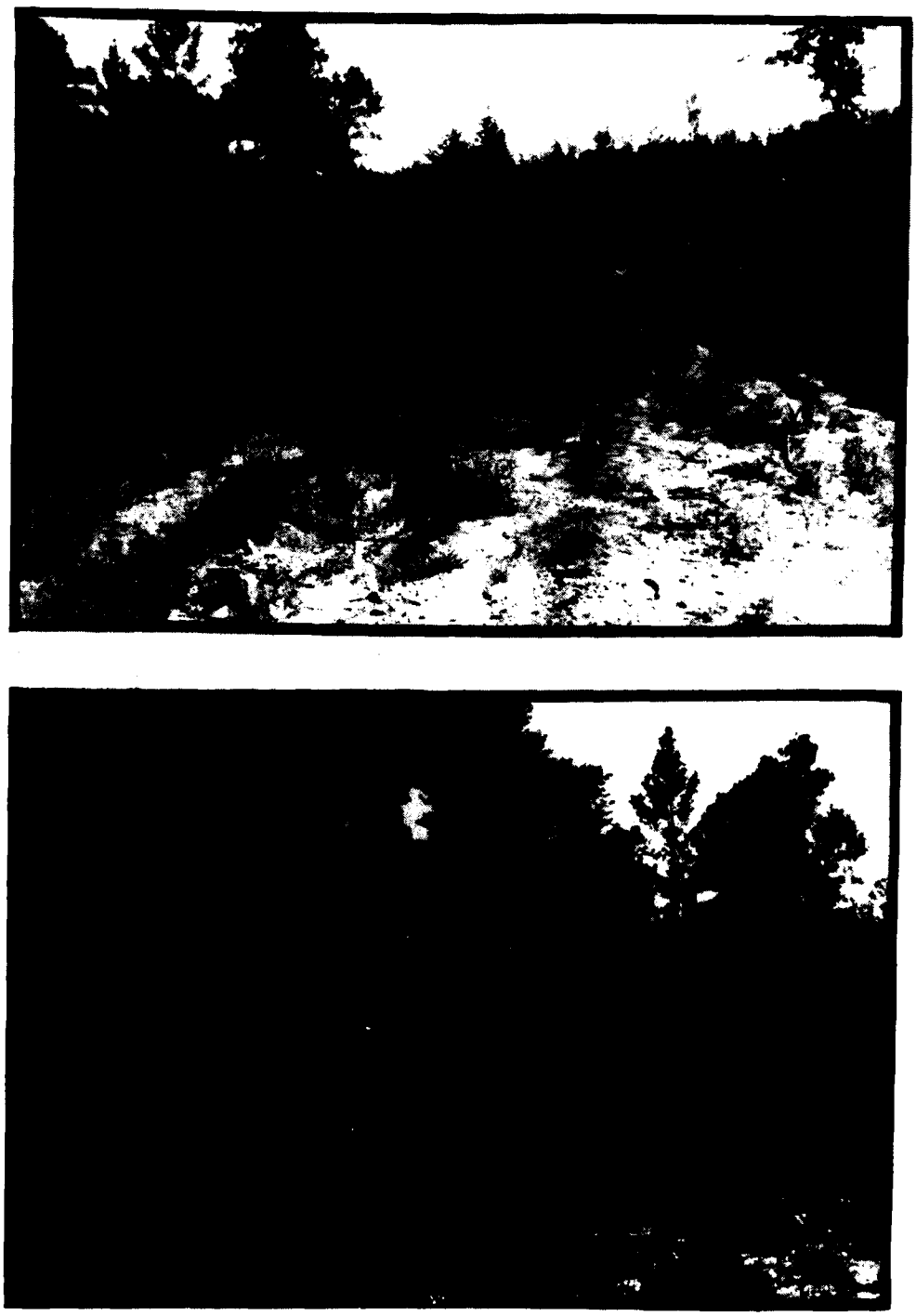

Figure 10.2.--View from Southern Part of Mill Toward Northeast (A), Toward North (B).

Stratigraphy

Stratigraphy at this site was complex, as a result of the burning of the mill, scavenging, earlier bulldozing, fill activities, and runoff from the spoil pile south of the site. For purposes of discussion we divided the mill area into two sections separated by the vandal east/west bulldozer trench. The southern portion of the mill was characterized by up to .5 m of overburden, half of which we removed by careful backblading with a rubber-tired bulldozer before hand excavation. The northern section included the north stone wall and chimney and was much more complex. Near the cliff in excavation Units 26, 38, 13, 10, 32 and 33 (Figure 10.3), a considerable amount of this overburden had been piled up by the north/south bulldozer run. Underneath this was much brick chimney rubble and charcoal. To the north of this area, the bedrock was only 15 cm below the surface. The northeastern part of the mill contained much less disturbed soils than the southern part.

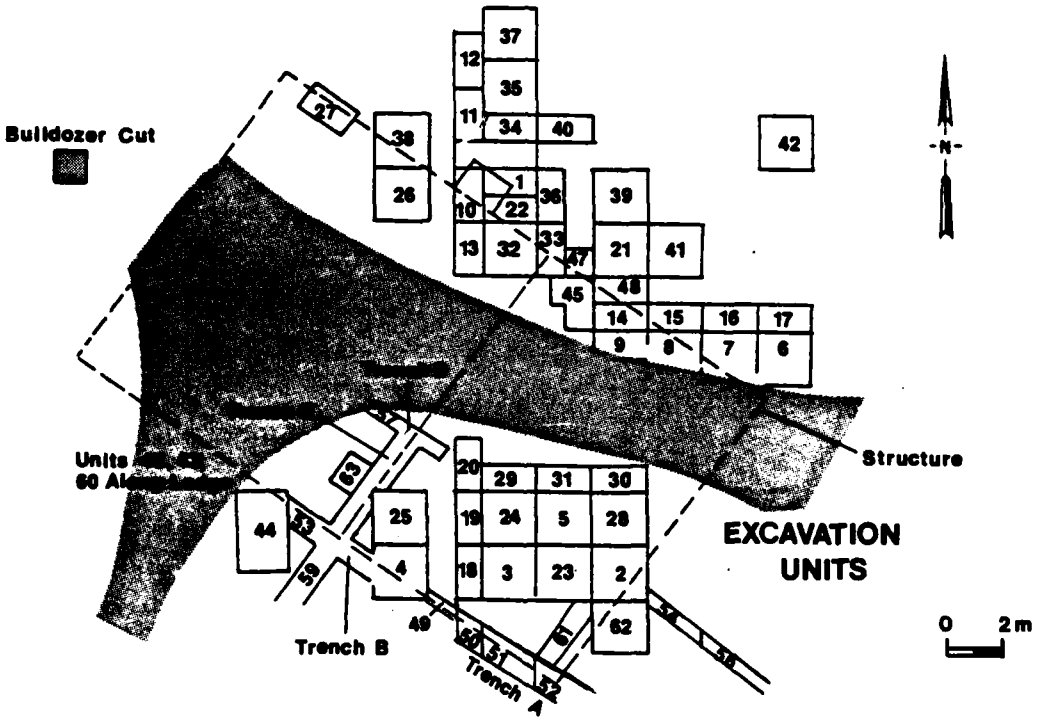

Figure 10.3.—Excavation Units at the Mill.

Figure 10.4 details the stratigraphy seen along the W107 line from N90 to N111. The southern section of the mill was characterized by a brown sandy loam (10YR5/3) which continued to the burn stratum, a charcoal layer up to 6 cm thick. Below this the soil revealed evidence of the intensity of the fire. The soils had been fired to a brick red. Toward the bulldozer cut soils changed to a mottled gray and brown silty clay (10YR5/1) and (7.5YR5/6). This area is the result of wheeled vehicle action and is noted as Feature 4D.

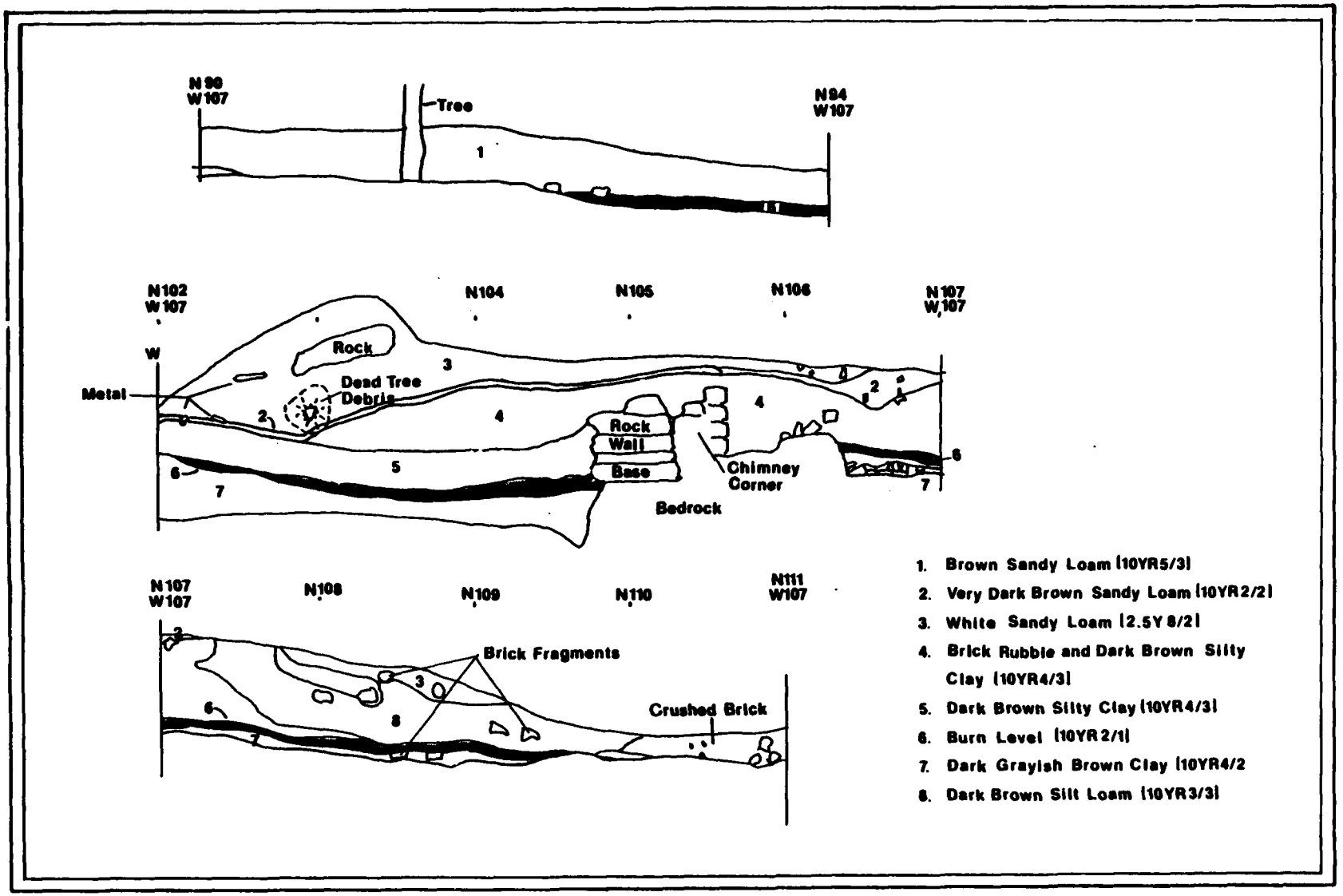

Figure 10.4.--Stratigraphy, 22TS1103, The Mill.

North of the bulldozer cut, inside the structure, the overburden piled high, up to 1.4 m above bedrock and contained heavy foundation stones and many metal artifacts. This overburden was a white sandy loam (2.5Y8/2). Below this was a stratum of brick rubble, in a dark brown silty clay matrix (10YR4/3) varying in depth throughout the units near the chimney (Units 13, 10, 22, 32, 36, 55, 34, 40, and 11). Along the mill wall it averaged 30 cm thick. Between the two layers a thin stratum of sand rubble with a slightly different matrix color (very dark brown silty clay, 10YR2/2) appears to be the original surface before the bulldozer piled overburden taken from south of this area. Below the brick rubble was a 24 cm thick stratum of the same dark brown silty clay seen above but containing less brick rubble. This ran from the bulldozer cut to the north mill and wall stopping there. Beneath this stratum was the burn level (10YR2/1) and a dark grayish brown (10YR4/2) stratum containing many industrial artifacts. This continued only about 6 cm before hitting bedrock.

This stratigraphy changed slighty, north of the mill wall. The soils consisted of the continuing mound of overburden, accumulations of brick rubble and below all this the burn level. The overburden was mixed with a dark brown silt loam (10YR3/3) and was 44 cm thick near the wall but tapered to 10 cm. The burn level was only 2 cm thick and contained a mixture of charcoal and humus. Below this was a 4 cm layer of dark grayish brown clay (10YR4/2) which lay above the bedrock.

Toward the northeastern portion of the site, in excavation Units 14 through 17, soils differed from the above description (Figure 10.4). Below a 2 cm layer of overburden was a very dark grayish brown loam (10YR3/2) averaging 10 cm depth. Below this was a 10 cm layer of brown loam (10YR4/3) which became a brown clay (7.5YR4.5/6). The red clay, so prevalent in Area A and across the road, was not seen here.

Excavations

The archaeological remains indicate the presence of two main buildings, one adjacent to the other, but constructed at different times. We assume that efforts were made to maintain some architectural continuity between the structures, although this may not be the case, since the construction techniques for the stone foundations differ between the two structures. Also, there may have been a third addition to the structure farthest to the east. For purposes of discussion the two main buildings have been labeled Structures D and E, following our designation of the excavation areas at the mill site.

Structure D

Structure D was defined by an area inscribed by the cliff to the west, the stone wall from N107.0/W109.5 to N102.5/W103.5 to the north, Trench E to the east, and a line from N92.5/W111.50 to the cliff edge to the south (Figure 10.1). This defines a building 54 feet long (E-W) and 42 feet wide which conforms closely to the averages for the mid 19th century Rockdale, Pennsylvannia textile mills of 55 by 40 feet (Wallace 1978:130).

Structure D was interpreted as the original foundation of the old grist mill built by James Gresham in 1838, later converted into the cotton factory with the addition of Structure E. Historical evidence indicates this is the most likely location for the old grist mill (Martin 1978:32). Unfortunately, no artifacts associated with either grist or sawmilling were recovered to confirm this. The machinery parts found were associated with a textile mill. Of course, some artifacts used for power transmisson could have been used in both saw and textile mills.

We know that when the cotton factory was built in 1852, Gresham "dismantled" the grist and saw mills and moved them nearby, after sawing enough lumber to build the cotton factory and rebuild the other structures. Dismantling activities could range from completely razing the old mill to simply removing saw and grist milling machinery. Gresham's labor would have been greatly simplified by the latter activity and then building an addition for more space. By leaving the old mill he would have also left the power transmission system intact. While attributes of different kinds of mills did cause mill construction to vary for functional reasons, early to mid 19th century mills probably shared more attributes than differed in them (Zimiles and Zimiles 1973:112). The requirements of a small cotton factory were not so specialized that a grist mill could not be converted into one. Furthermore variations in the two structures discussed below strongly imply different construction dates. If Gresham would have razed the old grist mill, evidence of this destruction and rebuilding activity should have been present, and only one architectural style would likely be seen as a result of a single construction activity. Of course, the possibility exists that the first structure (D) was built in 1852 and Structure E was built at a later time.

Assuming the simplest scenario for Gresham's dismantling, our interpretation is that this structure was very likely Gresham's original grist mill, "dismantled" in terms of machinery but not torn down. The old grist mill was built mostly upon bedrock, using large foundation stones in two or three tiers on the east end. In order to minimize power loss, Gresham built it in part on the wide ledge of bedrock lying just above the dam abutments. The 1890s photograph shows a stone wall on the south end of the ledge continuing to the east over the cliff edge above (Figure 10.5). Except for a 2.5 m section in Trench B, this wall did not survive the various destructive elements which had previously impacted the structure. Excavation Units 60 and 43 were placed to intercept this wall but no foundation stones were seen in situ.

The historical photograph also shows the northern stone wall, with the attached brick chimney abutment. Much more of this wall and chimney (Feature 1) survived. This wall runs from the cliff to a corner stone at N102.5/W103.5. It is approximately 7.4 m long (24 ft) with the chimney abutting against it from N105/W107 to N104/W105.50. The chimney is centered on the portion of the north wall that is above the cliff edge. At that location the cut stone is five tiers high and shows considerable care in dressing and alignment (Figure 10.6).

At N102.5/W103.5 is a particularly large stone (50x50 cm) and the remains of the east wall of this structure. Using a transit a right angle was projected south across the bulldozer trench to find the continuance of the origianl east wall from this point. Excavation of Trench E

Figure 10.5.--Ruins of Bay Springs Mill and Dam. Note Chimney Base, Rock Wall, Stone Abutment, Crib, and Wooden Dam. Photo Courtesy of Paul Allen.

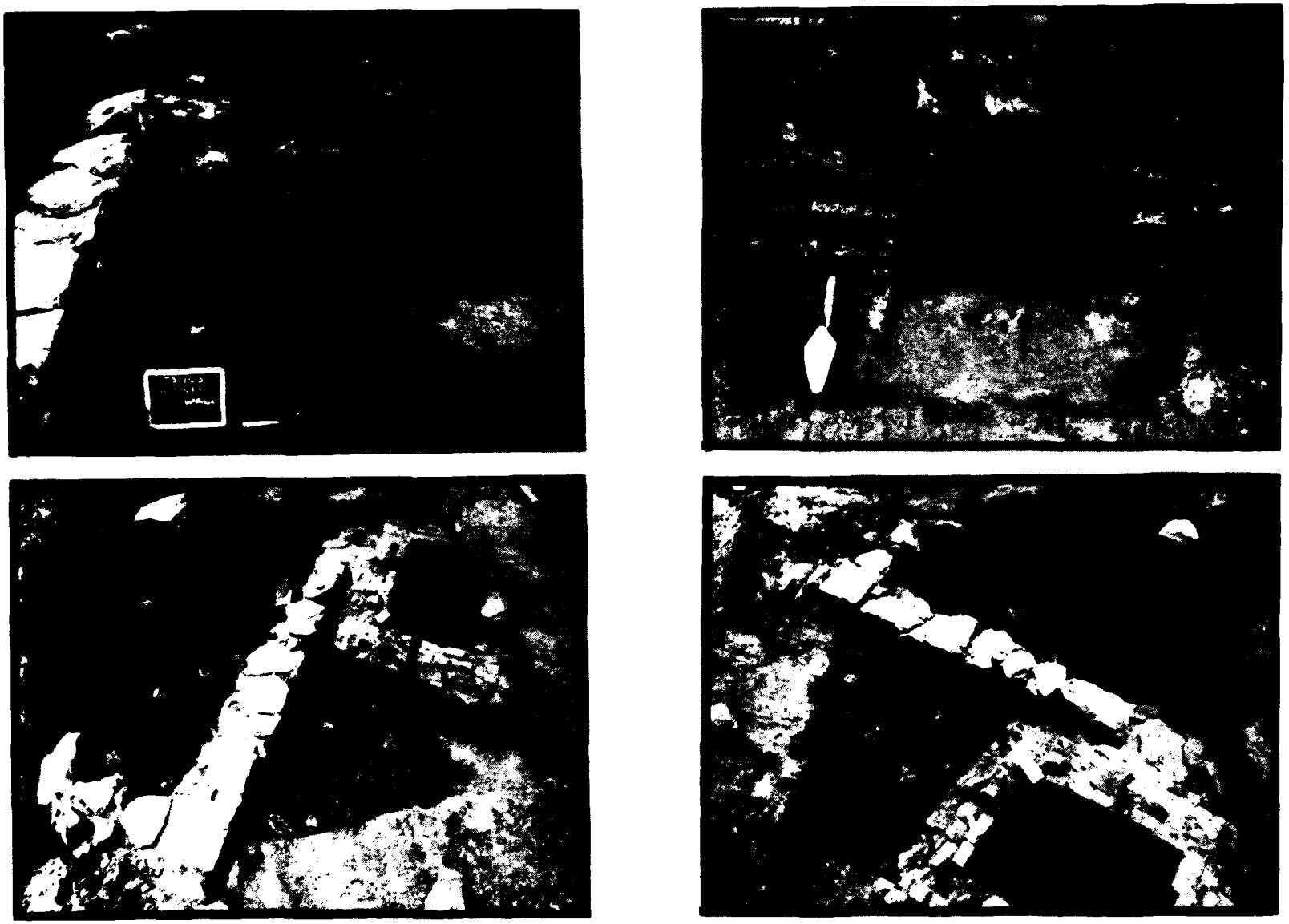

Figure 10.6.--Structure D and Chimney at Site 22TS1103D.

uncovered the remains of the east wall of the old grist mill. Stones here were set on clay rather than bedrock. Again, the quality of construction was similar to the north wall. This east wall ended at N92.5/W111.5. It had been demolished by the bulldozer from N101/W105 to N97/W108. The opposite west wall, probably built along the ledge of the cliff, was not evident.

Gresham built the mill as close to the dam as possible to avoid power loss, but also probably to take advantage of the natural terrain. This is evidenced not only in using the ledge itself for a basement story, but also in the alignment of the rest of the structure with the north edge of that ledge. That edge reflects a fault line in the bedrock, a fault continuing to the east. The mill's north wall was built just to the south of the fault. In addition, he likely used a crevice on the ledge as a means of getting down to the dam and wheel for routine maintenance chores. We found that route the easiest and about the only safe place to enter that part of the gorge. A narrow staircase could easily have been built for such purpose there. The ledge is sufficiently large to accomodate a 6 by 13 m (20 by 42 ft) floor. The bedrock lies at an elevation of 110.1 m MSL, while the top of the stone wall to the east is at about 113.4 m MSL. Thus, a basement area with a ceiling 3.3m (11 ft) would have been available, and likely used for gearing power. Informants' stated that their grandfathers mentioned eating lunch in the mill's basement. The basement area has had all foundation stones removed since the 1890s photograph was taken. Perhaps the stones were robbed for use at some nearby farmhouse, but just as likely they provided youths the joy of crashing them into the gorge below.

Although no internal stone support piers were found inside this structure because of the bulldozer damage to the site (removing 61% of the structure lying above the ledge), we assume such supports would have been built at 6 or 12 ft intervals to support the sills and heavy columns. Because of machinery vibrations, mill structures tended to be overbuilt with heavy framing and good foundations to support the machinery weight (Zimiles and Zimiles 1973:40). Large wooden sills would have rested on the stone walls. Using mortise and tenon joints, the wall uprights would have been pegged into the sills and upper framing, and a thick floor laid on either joists or large beams. We cannot know if the slow burning construction techniques (instituted by Zachariah Allen in New England in 1822 and standard in mill construction by the 1850s) would have been used here (Zimiles and Zimiles 1973:113-130). These techniques included the use of iron columns, exterior fire escapes, heavy transverse beams, and a water tank. No iron columns were recovered and the fire was so devastating that no wooden framing remained.

Structure D had two additional features (a summary of mill and Area B features is presented in Table 10.1). One previously mentioned, the chimney, was somewhat unusual in a mill due to fire hazards. "The fear of burning down the mill was greater than the need for comfort" (Zimiles and Zimiles 1973:40).

Table 10.1.--Feature Summary, 22TS1103D and B.

Area D:

Feature	Location	Measurements	Comments
1 Chimney	N105/W106	1.62x1.76x.70	Inside dimensions .8 x 1.0 m
2 Trench	N91.85/W101.3	4.5x.24x.16	modern road cut
3 Dripline	along north wall	16.5x.20x.3	not apparent at chimney
4 Trench	N94/W110-N94/W104	6 (?)x.50cm	modern road cut not completed
5 Door Stoop	N98.8/W97.6	.68 m length	bricks in row and sandstone beneath, mortared
6 Burn line	Intermittent across site	3 cm depth	most artifacts found here

Area B:

1 Post hole	N63.2/W90.3	30x30x40 cm	brick packing;gray mottled matrix: no post, elev. 114.60-115.02
2 Road	N67/N68,W97/W98	.50x.80x.20 cm	modern road cut; rut filled with colluvial tan and brown sand
3 Brick platform	N68.3/W87.1	1 mx1.6x.10 m W89.75/W90.3	single tier of brick dry layed on sides; layed on charcoal Stratum 4
4 Brick	N68/69.5 W87.2/W88.8	1.5x2x.20 cm	two tiers of brick, dry layed on narrow sides, bottom tier aligned; layed on Stratum 4
5 Post hole	N71.2/W86.6	64x38x65 cm	post 7 cm dia x 46 cm long; brick packed;gray and brown mottled matrix; elev. 114.50 -115.15
6 Stain rut		-	small stain, probably natural
7 Post hole	N71.54/86.73	10 dia x .02 cm	tapers to point, gray clay matrix, very shallow
8 Post hole	N67.35/W92.58	8 dia x 5 cm	no post, dark gray brown clay matrix, elev. 115.03-115.08
9 Post hole	N65.44/W90.64	77x62x.33 cm	brick packed; gray mottled matrix: elev. 114.70-115.03
10 Post hole	N67.2/W87.9	70x25x28 cm	post present 10x11x28 cm brick packing; gray mottled matrix; elev. 114.74-115.02
11 Post hole	N68.6/W87.7	11 dia x 22 cm	no post; dark gray brown matrix
12 Post hole	N69.1/87.2	27x35x46 cm	post 10x14x46 cm, brick packing; gray matrix: elev. 114.72-115.18
13 Post hole	N68.75/W87.4	50x70x60 cm	brick packing: gray matrix: elev. 114.63-115.23
14 Trench	N65.8/N69.0	3.2x1.5x.10 m	trench filled with crushed brick, bottom covered by Stratum 4 charcoal

On the other hand, cotton spinning required an even temperature (Marsden 1909:160). Wallace also noted that cotton requires a degree of warmth, and quotes from a contemporary physician who states that the temperature in the mills were generally high, at 60 to 70o F in winter and 90o F in the summer (Wallace 1978:181). Wallace states that the mill temperatures were kept high using stoves. We may speculate that perhaps the mill's chimney was added to keep the cotton at Bay Springs at a warm temperature or perhaps the chimmney was built during the initial construction of the grist and sawmill, and abandoned when the textile factory was built.

Set into the outside of the north wall of this structure, the chimney (Feature 1) measured 1.62 by 1.76 m (5.3 by 5.8 ft) on the exterior, and .8 by 1.0 m (2.6 by 3.3 ft) inside (Figure 10.6, 10.7). The chimney was built on bedrock using a stepped base on the north side's first three tiers. A total of 13 tiers remained. Despite an abundance of broken brick, the lack of complete brick and the general quantity of the rubble suggests the chimney was robbed after the fire. The lower four tiers were well laid, but above that the chimney rotates a few degree in alignment. This indicates the chimney was rebuilt at some point. The chimney walls were two bricks thick. No headers were used, and the core was filled with brick rubble instead of laid brick. On the south wall, at the elevation of the stone wall's top, a four-inch diameter iron pipe was mortared in place, opening into the chimney. Brick dimensions averaged 19.32x9.66x6.16 cm, with a range of 18.0-21.0 cm in length, 9.0-10.0 cm in width, and 5.5-7.0 cm in depth, based upon a sample of 25 whole bricks.

In the north chimney wall was an opening 20 cm wide and 33 cm high for ash removal, located at bedrock. Inside the chimney were six separate strata of brick rubble and mortar (Figure 10.7). Stratum 1 was 20 cm in thickness and contained mostly brick rubble. Below this was a 15 to 25 cm stratum of mortar, brick rubble, and charcoal. Then there was another uneven stratum of gray sandy mortar and charcoal from 30 to 10 cm thick. The bottom three strata consisted of various concentrations of carbonized material and brick rubble. Although no fire grates or supports were found inside the chimney we assume they existed during its operation. Figure 10.8 presents different views of the chimney and one can also note the large concentration of small machinery parts inside the building.

On the south side of the building, in Unit 44, was evidence of another small building addition. This is interpreted as a porch or shed addition. This addition may have been added when structure E was built since the large flat stones used to construct this small platform are like those found in structure E used as piers. The addition consists of an additional three large flat stones running 2 m (6 ft) parallel to the south wall. The burn line follows these stones (Figures 10.1, 10.9).

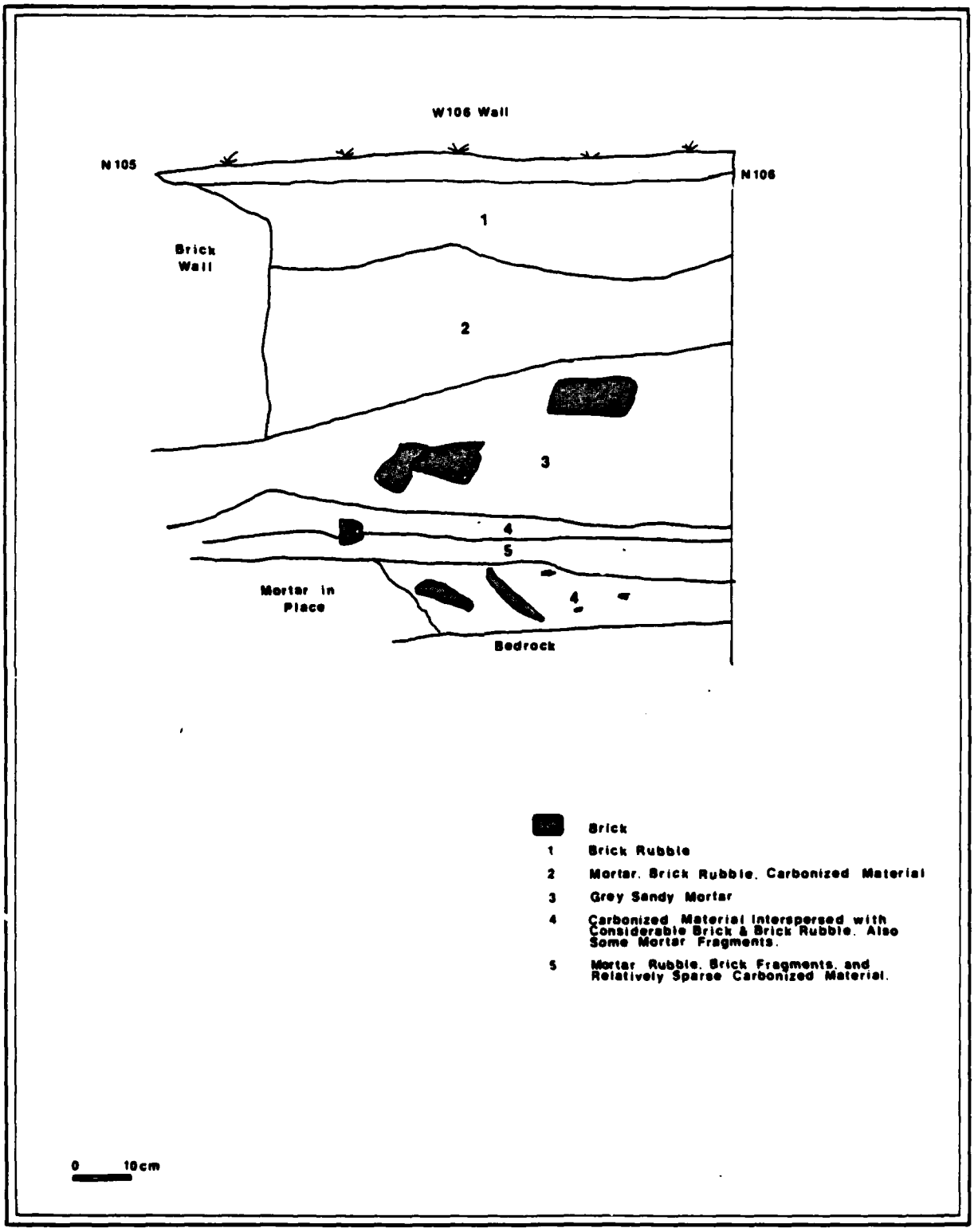

Figure 10.7.--Mill Chimney Profile.

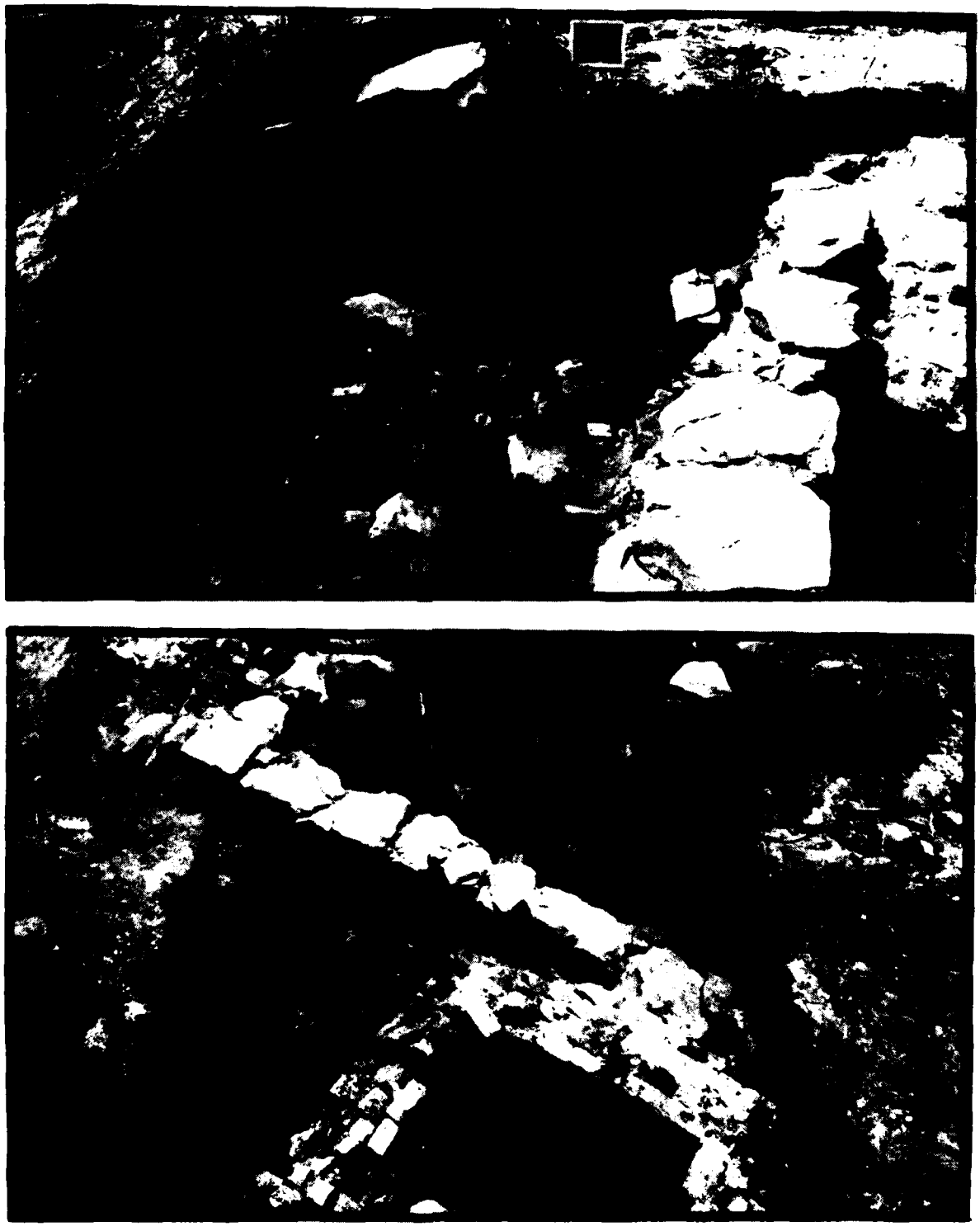

Figure 10.8.--Northeast Corner of Structure D, Showing Machinery Parts Along North Stone Wall. A--View to East, B--View to South.

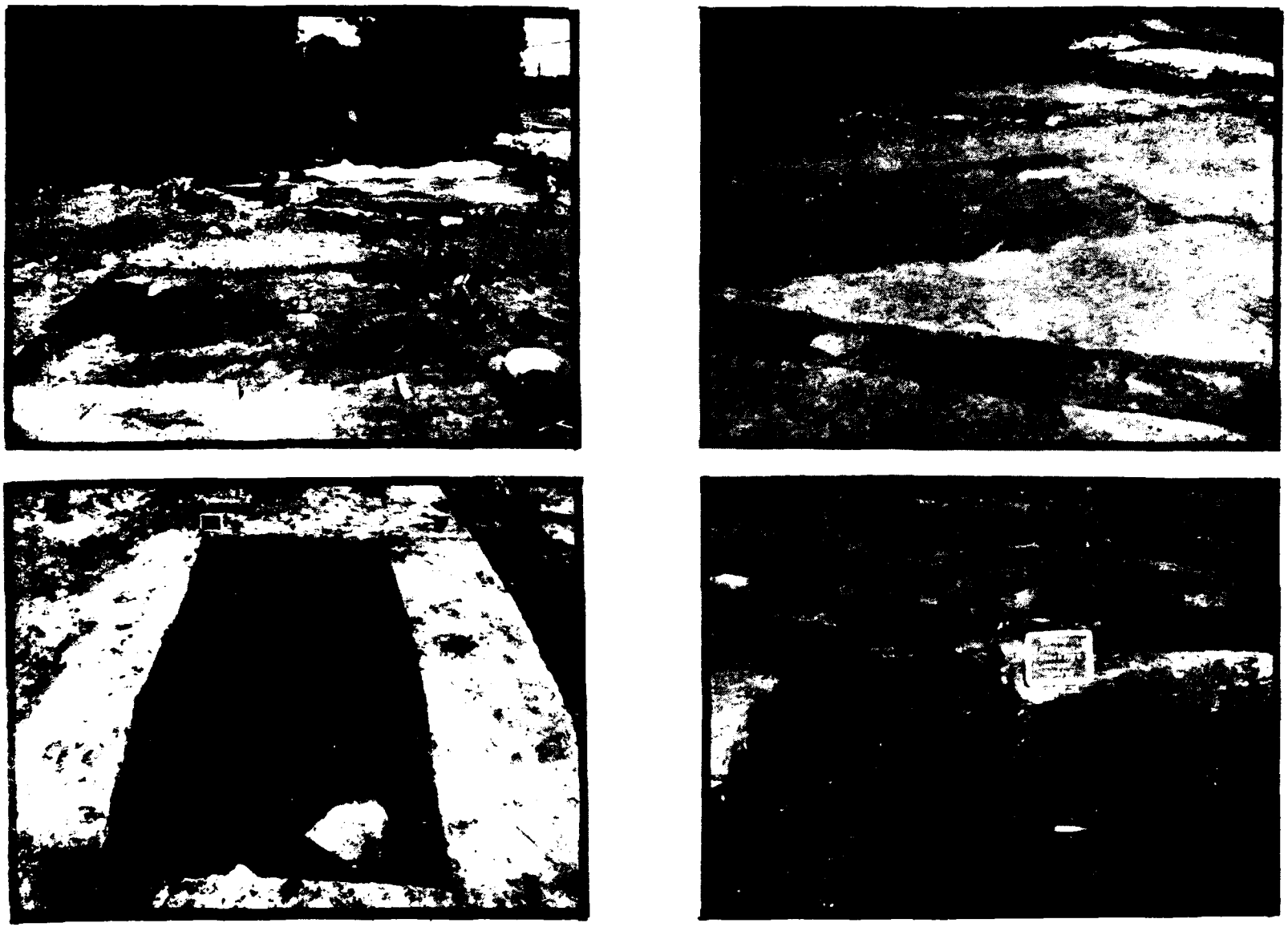

Figure 10.9.--Structure E, Showing Stone Piers and Burn Level.

Structure E: The Cotton Factory Addition

This structure is defined by a series of pillars and the projected lines which they defined (Figures 10.1, 10.9, 10.10). The north wall extends from N102.5/W103.5 to a point at N97.5/W95. A dry laid sandstone wall runs this length until it meets the bulldozer cut at N98.5/W97. The east wall of this structure is projected from just east of this point (the northeast corner of the building) and from there, running south along a line that bisects a sandstone foundation pier at N90.75/W100.5 and continues to another stone at N87/W103 (the southeast corner of the building). From this corner the south wall returns to the southeast corner of Structure D, bisecting two foundation stones at N88.75/W105.75 and N90.5/W108.5 in Trench A. This southern mill wall is further defined by the southern extension of burned clay from the fire.

The construction of this building must post-date that of Structure D because its northern wall is aligned with the north wall of Structure D and that alignment is tied into the ledge alignment. This construction is believed to have been after 1852 when there would have been a need for additional storage space, for cotton.

The foundation construction of the two buildings differ considerably. The north wall alignment is the same, but the masonry is much poorer. While the masonry for Structure D (the old grist mill) had a dry laid (and not particularly well-dressed exterior) this stone wall shows even less care in selection of stones, given their irregular size and shape, and much more haphazard placement. It had only one tier of stones. While this might have sufficed for a mill, our impression is that mill buildings have sturdier foundations. The foundation is much more in keeping with a large structure like a barn. The artifact distributions indicates this building was used primarily for cotton storage.

The structure was 13 m N-S by 10 m E-W (42x32 ft), based on the stone supports and the appearance of the burn line. The three south wall stone supports were set apart at 3.5 m (11 ft) and 4.2 m (14 ft). To the north of each was a similar sandstone support which showed considerable fracturing from the fire. Between the westernmost stone in this row and the middle stone was yet another. This single stone was located at N93.2/W104.2 and was midway between the two main stones. From the inner supports to the north wall was a distance of 8.5 m or just enough for another set of stone supports. Unfortunately, this area was part of the bulldozer trench and we have no evidence for these supports. All of the above stones in this stucture were flat, irregular in shape, and averaged 50 cm in diameter. This building had three bays, with four internal columns. Internal evidence suggests the easternmost bay was constructed at a later date or perhaps just stepped up to adjust for the rise in surface elevation there. The large rock in the north wall 6.7 m (22 feet) east of the northwest corner shows the burn layer about 10 cm higher on the east side than on the west, indicating a difference in the existing elevation of the ground surface.

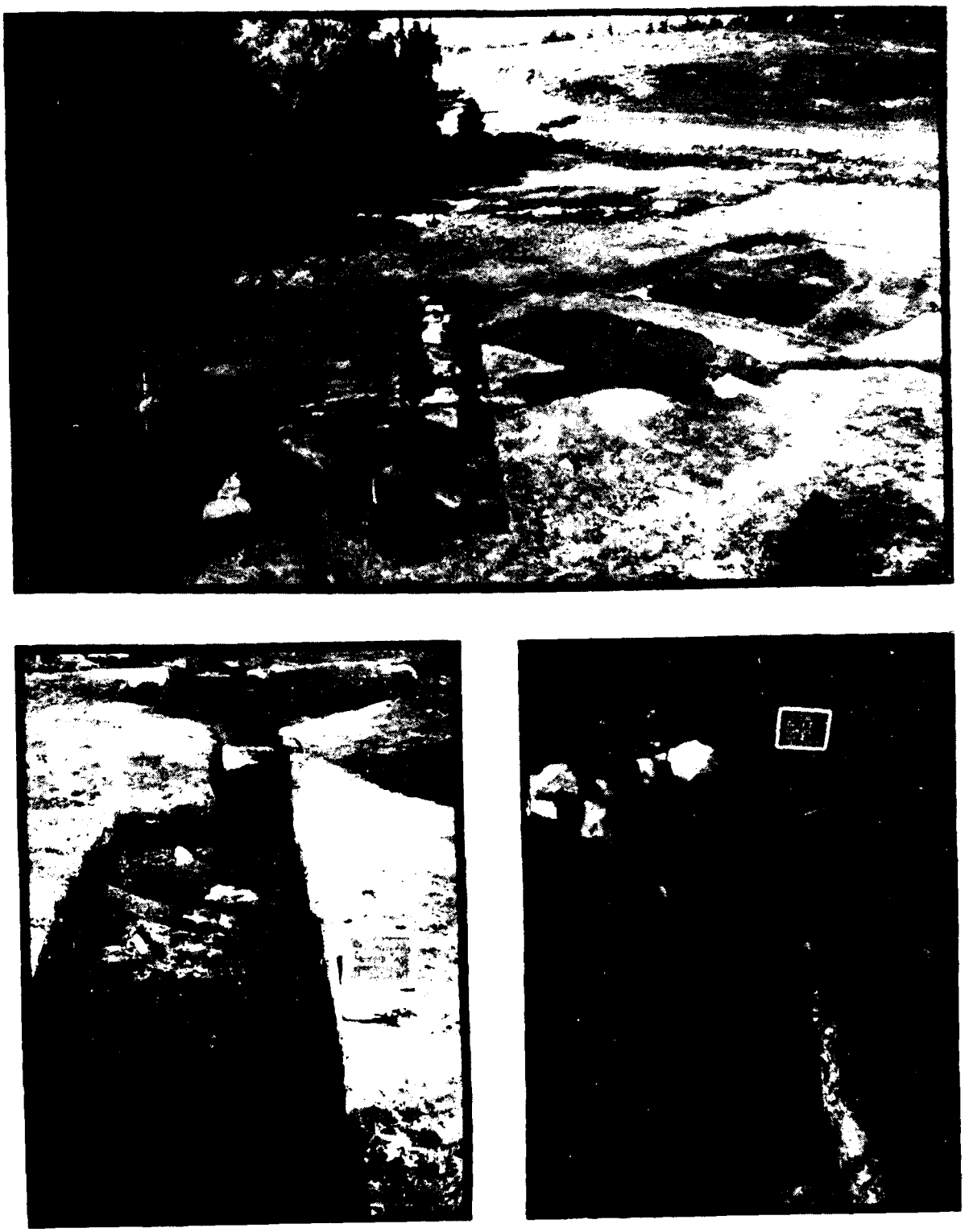

Figure 10.10.--Structures D and E, Showing Stone Piers and Burn Level. A--East Stone Wall of Structure D, B--South Wall of Structure E, C--East Stone Wall of Structure D.

In exploratory Trench C one rock concentration was found along the same line as the rock pillars; however, since the burn edge is so distinct and parallels the building 2.5 m west of this rock, we suspect the alignment is coincidental or may represent some other outbuilding foundation stone, perhaps from an unknown structure torn down before the 1885 fire.

In and around this building were indications of architectural features. Immediately to the north of the stone wall and paralleling it along its entire length to the cliff edge was a shallow trench filled with accumulations of artifacts, pebbles, and dark brown fill (Feature 3, Figures 10.11, 10.12). Hundreds of window glass fragments were found in each excavation unit along this feature. At its base was a yellow sand. This has been intrepreted as a drip line which indicates that the eaves of the building ran east-west and the gables were on the east and west ends. The feature ranged from 60 to 80 cm in width and was only 3 cm in depth. The point of origin of this feature was located 20 cm below the surface. No similar feature was seen on the southern side of the building.

Another architectural feature (Feature 5) was a line of four bricks mortared together to form a door stoop, at N98.8/W97.6. It was 68 cm in length or only 2 1/4 ft, a little smaller than a door width today. However, it had been disturbed and likely it was as wide as the cut sandstone block beneath it, or about 40 in.

Besides architectural features were two features resulted from recent vehicle activity. These two features appeared as two long trenches. Feature 2 was located in Units 18, 3, 23, 2, 28 and Trench A. It ran along a line defined between N91.85/W101.30 and N90.85/W105.80 (4.5 m long). It was 14 to 24 cm wide and averaged 16 cm in depth. The feature cut through the burn level, and it was obviously part of the old road seen on an 1950 map of the area. At the base of this feature was found a Coca-Cola bottle cap. The other road rut (Feature 4) was located in Units 20, 29, and 25. It was defined by a line from N94/W110 to N94/W104. Someone managed to get their car or truck stuck in the middle of the former factory.

The Fire

The final feature to be discussed is the burn level (Feature 6). Within this thin stratum, containing 2 to 3 cm layer of dark or very dark grayish brown (10YR 4/2, 10YR3/2) carbonized material were found the majority of the industrial artifacts. The burn line was a very distinct along the southern wall of Structure E, however, it spilled past the north stone wall. This may indicate the building slumped a little to the north as it burned. Further evidence of this slumping is noted in the location of door hardware to the north of the wall, as if this side fell northward.

This burn stratum was not contiguous across the site but was concentrated in distinct areas, perhaps hot spots (Figure 10.1). To the east, the burn level rises in elevation and disappears along a northeast to southwest line from N88.50/W99.5 to N86/W102.5 (see Trench C and A, Figure 10.1) indicating the eastern edge of the building.

Figure 10.11.--Structure D and E, Both Showing the Dripline.

Figure 10.12.--Areal Extent of Burn Level, and Dripline.

The fire destroying the mill must have been awesome to watch. Our informants remember being told the fire was visible for miles. The intensity of the fire caused melting of iron machinery, brass fittings, and glass. Some iron legs to machinery were bent, others melted and puddled, perhaps where they rested on the floorboards. Droplets of glass were common artifacts recovered.

Temperatures must have exceeded 1535o C (2795o F), based on the melting point of iron. Enough heat built up inside that an explosion of the windows probably occurred shattering glass into the yard. This can be seen from the types of window glass recovered inside and outside the building--melted glass and shattered glass in the form of "jigsaw puzzle" shapes. We suggest that this form is the result of the super heating of glass and the explosion of windows (Spillman 1980). Despite this kind of devastation going on inside the mill we also recovered perfectly preserved mud-dauber wasp nests of fired clay. The clay beneath the burn level had also been fired to a red (2.5YR5/8) and dark gray (2.5YRN5/), and looked orange or purple in some areas. This firing provided a hard base to our excavations.

The Waterpower System

Our testing activities on both sides of the gorge area failed to reveal any evidence of the power system except the dam posts. Later historic research implied that extensive excavations might have revealed the remains of the turbine. But the cost of damming Mackeys Creek in order to excavate something that previous testing had not indicated seemed a high risk undertaking. In retrospect such excavations may have added to our understanding of the mill, yet we are left with the horrible vision of what might have been in view of the two hurricanes. The rapid rise and swift current of Mackeys Creek during this time was a startling sight.

Our efforts in the gorge during the excavation phase of the Bay Springs Project consisted of mapping. Prior to the hurricanes we were able to map the remnant posts of the dam. Oddly, we have a great deal more historical data on the power system than we had for the mill itself. Thus, we are able to discuss the system using historical evidence.

The waterpower system employed at Bay Springs was fairly atypical. Most hydraulic systems take water from a dam upstream from the mill, and channel it along a mill race in order to provide sufficient head power. Thus, the wheels or turbines are away from the stream and somewhat protected from floods. At Bay Springs, the power system was placed on the dam, making it susceptible to flood damage. The reason for this lay in the selection of the mill site. Mackeys Creek has cut a 10 m (30 ft) deep gorge, 54 m (175 ft) wide at this point (Figure 10.13). Besides being about the narrowest point between cliff tops, the location was even more favorable due to a jutting ledge on the east bank. The location shows careful selection by James F. Gresham. Such a location would make constructing a sturdy dam rather simple.

As the first task, Gresham built two stone abutments. These abutments were dry laid blocks of stone, well-dressed, and tightly fitted (Figure

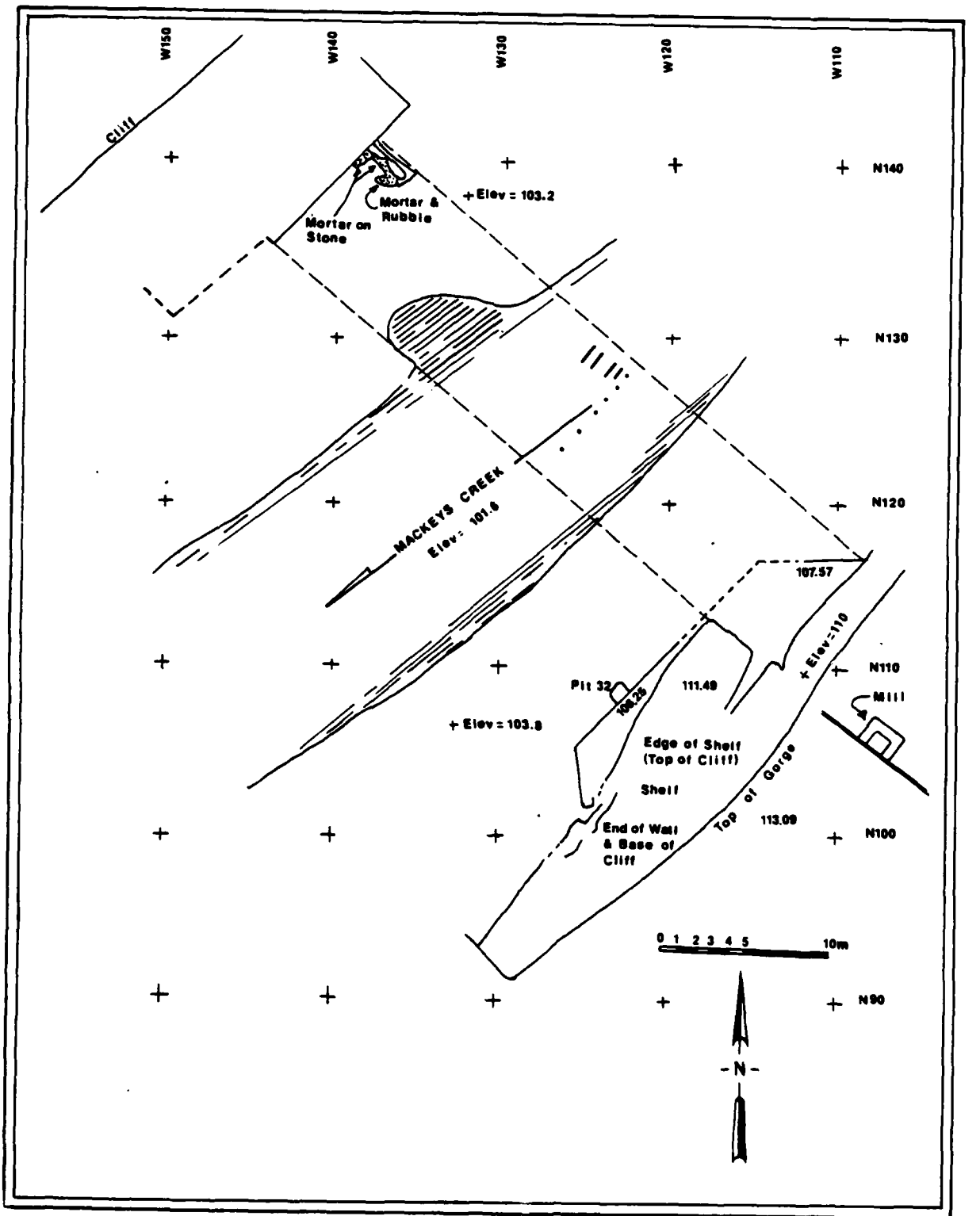

Figure 10.13.--Probable Alignment of the Bay Springs Mill Dam.

10.14). Each abutment was set in about 10 m from the edge of the gorge, hence they face each other 34 m (111.5 ft) apart. The west wall was slightly upstream from the east wall. Mackeys Creek, at its low water level is approximately 13 m (43 ft) wide here and cuts 2 m into the sandy gorge floor.

The west bank abutment was 19 m (64 ft) long. The north section, 12 m long (40 ft) and 1.4 m (4.5 ft) high, was in good condition. Perpendicular to this portion of the abutment, extending from the face 3 m (10 ft) toward the creek, was a wall 1 m wide and 80 cm high. Just south of this was a stone 35 by 110 cm, set lengthwise against the abutment. Over this stone and on the south side of the short perpendicular wall were the remnants of a mortar and rubble mass which apparently filled the downstream corner between the abutment and short wall. This may have been the spillway, or simply an anchor for the wooden dam. The face of the south portion, about 60 cm high, was offset behind that of the north part by 60 to 120 cm. The stones in the upper part of the wall have been pushed forward by pressure from behind. The top edge of the dam probably was aligned with the north edge of the abutment (Figure 10.13).

The east wall was a straight face 15.5 m (51 ft) long, with sections at each end angled back to meet the gorge wall. Where the north end joins the natural cliff, the wall was 3.1 m (10 ft) high. Most of the north half of the abutment was fallen and covered with soil and vegetation. Since this area corresponds to that of the wooden framed dam, it is possible that a wooden crib was used instead of a complete stone abutment. The south half was intact, rising 2.2 m above the ground. A test pit, placed next to this section of wall, was excavated to 85 cm before water halted excavation. Two pieces of iron were found and the wall seemed to continue down beyond reach of our iron probe. Mackeys Creek flows at 101.6 m MSL today, the top of the abutment is at 107.6, hence the stone abutments exceed 4 m (13 ft), sufficient for the 11 ft dam head reported. Rubble or dirt was packed behind the abutments. Gresham's next task was the dam itself.

Leffel's Construction of Mill Dams describes the construction (1881:139-141) of a dam in Missouri, built in 1869, which provides an excellent historical analogy for the mill at Bay Springs:

> "The dam is 110 feet long, 10 feet high from level of tail water, and 18 feet wide, and is built of sawn white-oak timber. The down-stream mud-sill is 10 by 12 inches; the cap-sill 8 by 10 inches; the upright posts 8 by 8 inches, and put 6 feet apart, mortised into the cap and mud-sills with short tenons and not pinned. There are also two up-stream mud-sills, the first put as low as possible, in a level position; and at intervals of 6 feet, timbers 6 by 8 inches, 18 feet long, are placed on the up-stream and down-stream mud-sills serving as cross-ties, and bolted to the down-stream mud-sill with 3/4 inch bolt and nut. The top up-stream mud-sill was next put down, and bolted down through the cross-tie to the lower sill, a nut being used wherever access could be had to it on the under side with a wrench. The face or down-stream side of the dam inclines upstream about one foot from the perpendicular, and the cap-sill is bolted to the solid bluff.

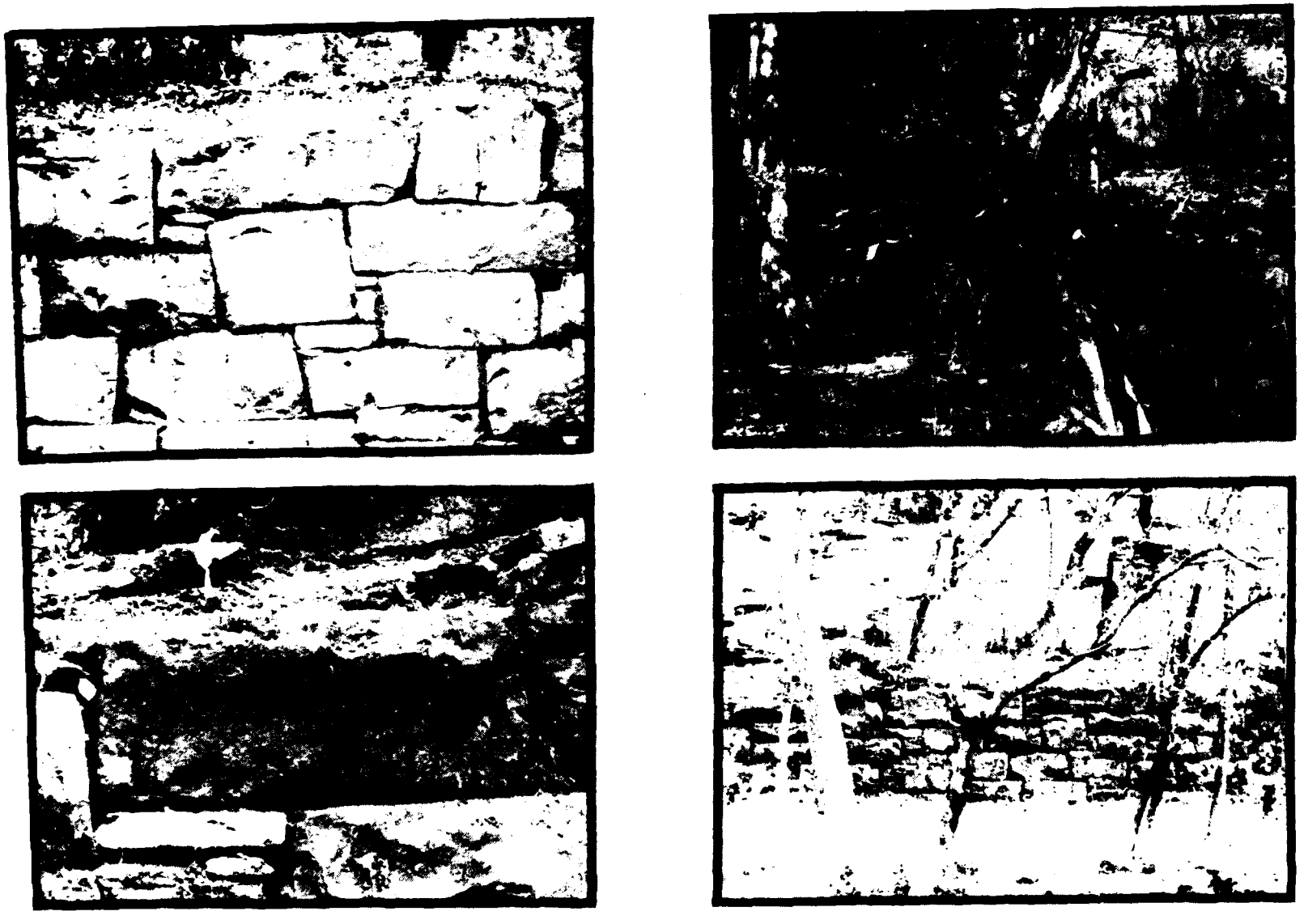

Figure 10.14.--Mill Dam Abutments on East Side.

AD-A127 149 BAY SPRINGS MILL: HISTORICAL ARCHAEOLOGY OF A RURAL MISSISSIPPI COTTON MI.. (U) RESOURCE ANALYSTS INC BLOOMINGTON IN W H ADAMS ET AL. 30 JUN 81 RAI-1427 3/5

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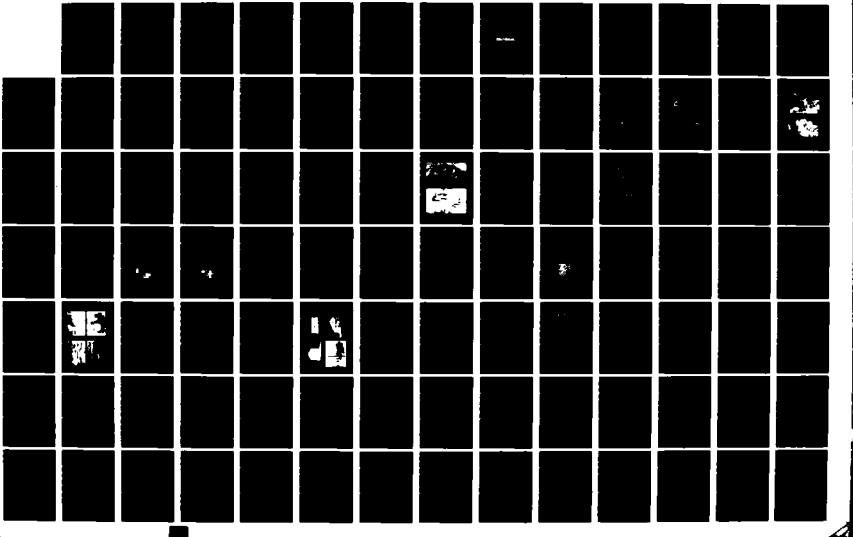
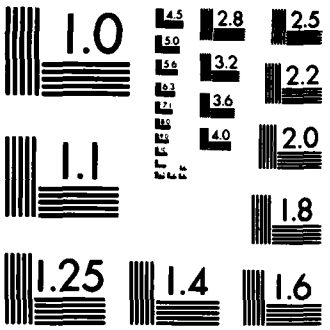




MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

The rafters, which are 3 by 8 inches and 2 feet apart, were put on in the following manner: a gain was cut in the upper corner of the top up-stream mud-sill, in which to place the foot of the rafter in such a manner that in order to slip down-stream it must slide up an inclined plane. The cap sill was also gained so that the rafter might have a bearing the full width of the sill. The rafter was gained at this end so as to give it a shoulder about 1/2 inch deep on the down-stream side of the cap-sill, and extended about 10 inches beyond the cap-sill, so that the water might fall clear of the mud-sill. Spikes 12 inches long were made out of 1/2 inch rod iron and driven with a sledge-hammer through the ends of the rafters (which were bored for the purpose) into the cap and lower sills. Under each rafter were put two braces, 4 by 6 inches, half the upper end of each brace being cut out to form a shoulder for the rafter, to which it was bolted with a 5/8 inchs bolt and nut. The lower end of each brace stands on the solid bed-rock, the brace leaning up-stream.

"The first plank was then put on the lower ends of the rafters, its edge being beveled so as to make a true face with the top mud-sill. The spiling was then put in at the up-stream foot of the dam, in the following manner: oak planks 10 inches wide and 1 inch thick were sharpened at one end, wedge-shaped, from one side only, driven down and drawn up again, and the battered places re-sharpened until the whole edge was of uniform shape. The plank or spile was then set and nailed to both sills and the covering plank, the beveled side of the spile being down-stream, or next the dam. The row of spiling was then doubled, the second row being of the same lumber, breaking joints with the first row, but having its beveled side up instead of down stream. A filling of sand and gravel was put in, up to the top of the spiling on its upper side; and under the dam, against the two up-stream mud-sills, loose boulders were put in, extending up to and among the rafters for about one-third their length. The dam was then double-planked with inch boards, the first layer being of oak, the upper one of pine. The preference was given to pine as being less liable to warp in the sun. At the top of the dam, to finish it, a 2-inch oak plank was laid and well spiked on. . . .

"The dam contains, in the aggregate, 12,000 feet of lumber, costing, at $15 per thousand, $180. The labor of two workmen, who built the dam in thirty days, is put down at $60, and the cost of nails, bolts, etc., is estimated at $25. The total cost of the dam, therefore, by the builder's figures, was $265."

The dam at Bay Springs was quite similar, based upon a 1890s photograph of its remains, (Figure 10.5) and parts of the wooden structure surviving today. Figure 10.15 shows a wooden frame dam redrawn from Leffel's study, and the wooden remains we found in Mackeys Creek. Seven upright posts were located, besides a line of sloping posts and one heavy timber. The dam was 34 m (112 ft) long, 3 m (11 ft) high, and about 9 m (30 ft) wide at the base.

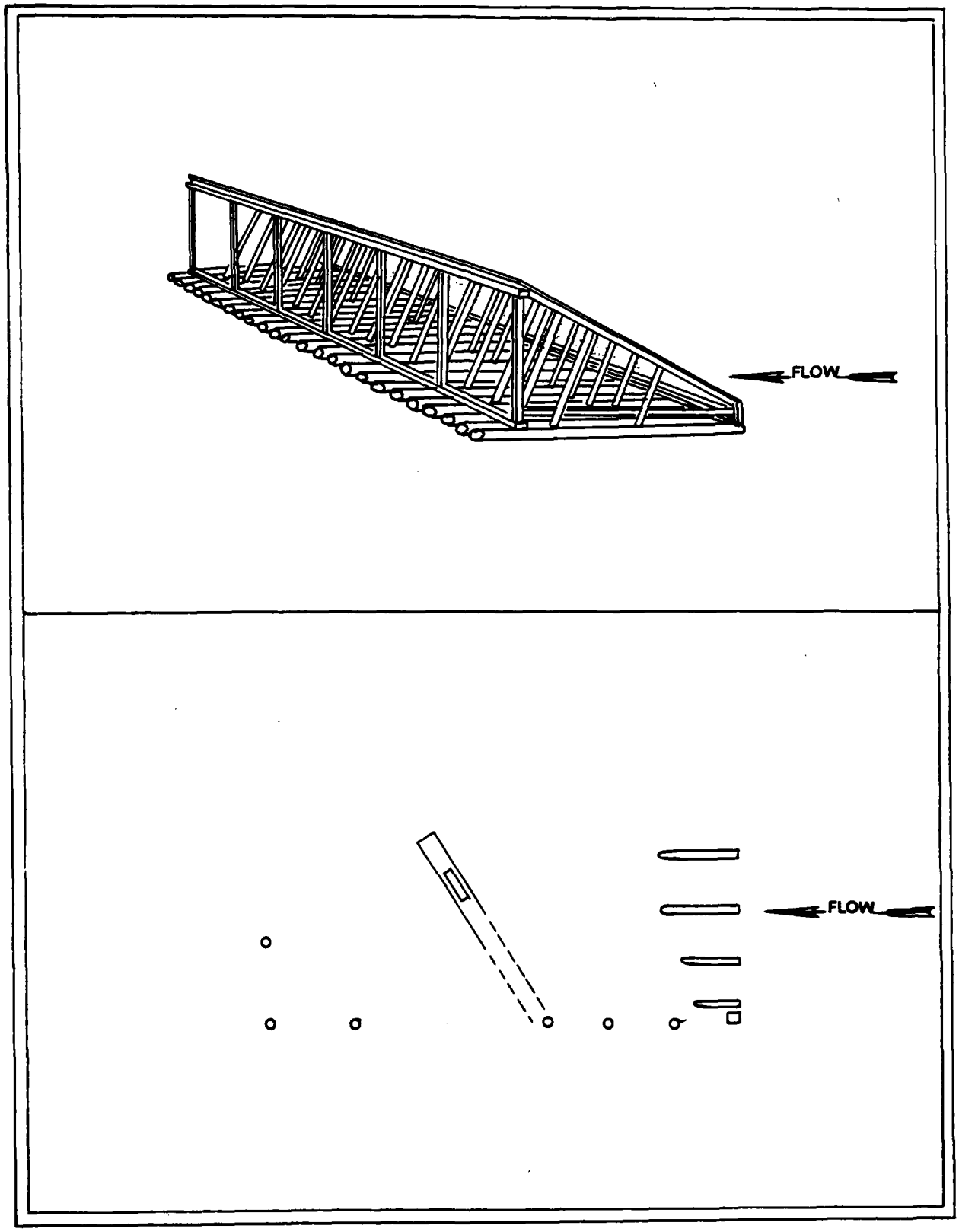


Figure 10.15.--Typical Wooden Frame Dam and Remains of the Bay Springs Dam.

The photograph taken in the last years of the 19th century (before the dam and mill sites were overgrown with the small trees by then growing in the mill pond) shows the east abutment (its north portion already tumbled), the shelf in the gorge wall, and ruins of the dam. The dam appears to be a hollow frame of timber with horizontal plankings on the sloping upstream face. Where the dam crosses the east bank of the creek, it is interrupted by a tall rectangular structure, its long axis parallel to the flow of the creek. The structure consists of timber piling, with plank siding along its length. It may be a box flume or housing for a wheel, or a crib support for the wheel. The crib was constructed using probably 8 x 8 inch uprights, joined at the top and bottom sills with mortise and tenon joints. The remaining crib measures about 8.5 x 1.5 m (28 x 4 ft), but other uprights are visible downstream. Planks appear to be 2 x 12 ft. To the east of that crib can be seen a single upright, likely the corner to a twin of the crib shown. The distance between them appears to be about 16 ft. We feel these cribs supported the breast wheel.

After the mill burned, the dam was dynamited to allow log drives on Mackeys Creek.

The power system itself presents a problem, for like most mills, it was changed to meet new needs and changes in technology. The original mill had a 12 ft diameter breast wheel. A breast wheel is a vertical wheel with buckets, turned by the force and weight of the water striking the wheel at just above or just below the level of the wheel's axle. The efficiency was about 65%, compared with overshot wheels (the most efficient) at 75% (Zimiles and Zimiles 1973:11). In the 1870 Census of Manufactures, the wheel was rated at 50 h.p., probably a replacement, for it is unlikely the 12 ft breast wheel could generate that much power. Sometime between 1870 and 1880 a turbine probably replaced the breast wheel. The 1880 Census of Manufactures does not include Bay Springs on the original schedules, however, the following lengthy quotation based upon the 1880 Census provides some puzzling data:

> "Sources of the Tombigbee. The sources of the Tombigbee are, strictly speaking, Brown's and Mackys [sic] creeks. These drain together 312 square miles, of which Brown's creek has rather more than half. Brown's creek divides into Big and Little Brown's creeks and Hurricane creek. Brown's creek near its mouth is 25 or 30 feet wide in the shallow places, with a depth at such points of from 1 to 1 1/2 foot, and a rapid current. Mackys creek at Bay Springs, where about half its drainage area is tributary to it, is from 25 to 40 feet wide, from 3 to 5 feet deep, and with a moderate current.
>
> "These and the neighboring streams usually have a freshet in the fall, and along through the winter and spring are subject to more or less high water: but they do not have such immense rises as occur on the large rivers, probably on account of the sand ridges, and the swamps, in which a greater proportion of the flood-water is held back than along the main streams.

"On these streams are many available powers, and numerous small mills which do local grinding, chiefly of corn, and a few have a saw-mill addition. The census returns show four flouring-and grist-mills on Brown's creek, using 45 horse-power, all under a head of 5 feet, and 57 horse-power used by three flouring- and grist-mills and two saw-mills on a stream entitled Spring creek, which is probably Mackys creek.

"Bay Springs, on Mackys creek. At Bay Springs, on Mackys creek, is probably the finest power in that section, if not in the state. It is the most extensively developed power of the entire region, but is by no means fully improved. The little village of Bay Springs consists of the manufactories, store, and house of Mr. Nelson, the proprietor and operator, and the few dwellings of the workmen.

"On the left bank is a cotton factory, and on the east bank is a grist- and saw-mill, with a cotton-gin and one or two other small attachments. A peculiar feature of the place is the appearance of rock, and the buildings are set on solid sandstone. The creek runs through a gorge, with rocky cliffs about 150 feet apart and 30 feet high. These and the solid rock bed make the situation admirable for the dam, which is a framed structure, giving a head of 11 feet to the mills set directly at its stone abutments. The head could be increased to 30 feet, and it is claimed that this would not flood land of any considerable value above. Probably the land could be readily bought for two dollars per acre.

"The cotton factory has a 55-inch turbine, and on the other side is a 50-inch wheel, besides three others of from 16 to 27 inches, used at times to drive the small machines mentioned. The wheels are not run at full capacity, and there is abundance of water for all the work now done with the present head. Mr Nelson claims that with a head of 30 feet there would be 500 horse-power available most of the year, but probably during the dry season it would not be over 150 or 200 horse-power. There is no trouble from back-water, as the flow passes rapidly down the gorge. If the water is ever carried any distance down-stream from the dam it will have to be taken in flumes, or else in races blasted out of the rock. The head of 30 feet would raise the level about to the crest of the gorge. Unless extensive improvements are undertaken it seems preferable to set the wheels at the dam, and to transmit the power by wire-rope or shafting.

"One great advantage which makes this power almost unique among those of Mississippi is the extensive exposure of solid rock in the bed and banks, and the excellent building-stone afforded for dam and buildings. The rock is a light grayish sandstone of rather fine grain, which works easily and is considered to be excellent stone. Where exposed to the weather the angles are sharp, and the cliffs show that it breaks in true bedding planes and in large straight blocks. Iron stain shows in places, but the abutments of the mill dams, built of this stone, have weathered with a rather pleasing tint. Judging from appearances, the stone could be quarried over a

large tract, and if near a market would undoubtedly be valuable. The distance from the Mobile and Ohio, and also from the Memphis and Charleston railroad, is about 20 miles, over which branch roads could be easily constructed.

"There was once a mill on Mackys creek, several miles below Bay Springs, with 11 feet head of water. One bank there is high, but the other is low and expensive to maintain." (U. S. Census of Manufacturers 1887:148-149).

This quotation presents some interesting, yet contradictory information. It states that on the "left bank is a cotton factory, and on the east bank is a grist and saw mill, with cotton gin . . . ." The statement implies that on one bank (left) is the factory and on the other bank (east) is the grist mill/saw mill. The problem is that, facing downstream, the east bank is the left bank, which we know was the location of the cotton factory. Thus, one or the other part of this statement is incorrect. The best explanation from our excavations is that if the two operations, cotton factory and grist/sawmill, were on opposite sides of the stream, then the grist/sawmill must have been on the west bank. And if they were on the same side then this would be the east side at 22TS1103. Again, no grist/sawmill associated artifacts were noted on the eastern side of Mackeys Creek, though we recognize that some artifacts might be found in both a cotton factory and a grist/sawmill building. No surface indications of a building were noted during testing of the west bank. The simplest scenario based on all the data we have is that the east bank is the location of the original grist mill and sawmill which was converted into a cotton factory. After 1852 the grist mill and sawmill were built somewhere else, most likely on the other side of the creek. Adding to the controversy, Martin indicates that the grist mill and cotton gin were rebuilt "a short distance downstream" (Martin 1978:32).

Assuming that the other information provided by the census is correct we may return to our discussion of the power system.

Intially, there was a 12 foot diameter breast wheel, which may have been replaced by 1870 wth a larger wheel, and apparently, a 55 inch turbine.

"Turbines of all sizes were used to power everything from a single set of stones in a gristmill to the vast complexes of machinery in textile cities. They replaced the picturesque waterwheel because they were less susceptible to freezing and eliminated the costly reconstruction and endless repairs of the wooden wheel. They also used less space and simpler gearing (such as a rope and belt drive) to create more power with greater efficiency from the same head of water" (Zimiles and Zimiles 1973:22).

We assumed the liklihood of a turbine at the mill during testing, and placed a test pit alongside the eastern abutment to determine depth and soil conditions. That unit discussed previously did not encounter any features. Furthermore, the historical photograph indicates considerable damage to this area, even the large stoneblocks of a portion of the abutment were tumbled down. The area lay exposed to years of flooding. The excavation of

turbines has been accomplished at a number of sites in the South at Wallace Reservoir in Georgia, and Richard B. Russell Reservior in South Carolina/Georgia. But in these, field situations were different. In all but one mill the turbines were located along races, not next to the stream (Albert Bartovics, personal communication; Jeanne Ward, personal communication).

Power would have been generated horizontally along the wheel axis, and transmitted vertically using a large bevel gear or possible a cable and pully in order to reach the mill level. No evidence of the particular system exists, between the wheel (later turbine) and the mill itself. Within the mill shaft fragments, large shaft hangers, and shaft bearings indicate a main shaft probably ran the length of the buildings, a distance of at least 27 m (90 ft). According to Anthony F. C. Wallace (1978:131), "shafting in the mills was regularly constructed to run horizontally as much as 100 feet from the upright shaft." A main line shaft may have been located along both the north and south walls (but perhaps on different stories), as evidenced by line shaft hangers, shaft fragments, and line shaft cap bearings. These would hang from the ceiling, transmitting power along the building, while leather belts and pulleys attached to them would drive the individual machines below.

> "The mill in motion was a shuddering, creaking, hissing mass of shafting turned by the great water wheel outside. Gearing and the varying diameters of pulleys brought machine speeds up to velocities hundreds of times that of the six to twelve revolutions per minute of the wheel. Belts whirred and hummed; gears clicked; cams and cranks clanked. The whole mill must have seemed to come alive with vibration when the power train was connected at the wheel in the morning. And even at night, when the shafting and machines were still, the wheel was allowed to run at idle lest it become uneven in it motion by resting in the same position in water every night" (Wallace 1978:134).

A Reconstruction

Having outlined the results of our excavations at the Bay Springs Mill we may now attempt to reconstruct, based on those excavations and historical analogs, how the factory might have appeared in the 1880s prior to its demise (Figure 10.16). First we will examine its outward appearance, then we will present a possible interior scenario, following a typical bale of cotton through our mill to its final product.

The Exterior

The archaeological remains indicate two main buildings, one adjacent to the other, but constructed at different times. We assume efforts were made to maintain some architectural continuity between these structures, but can only guess at their exterior appearance. Citing William Pierson's work on English mills, Zimiles and Zimiles (1973:112) described the basic similarity of mill construction:

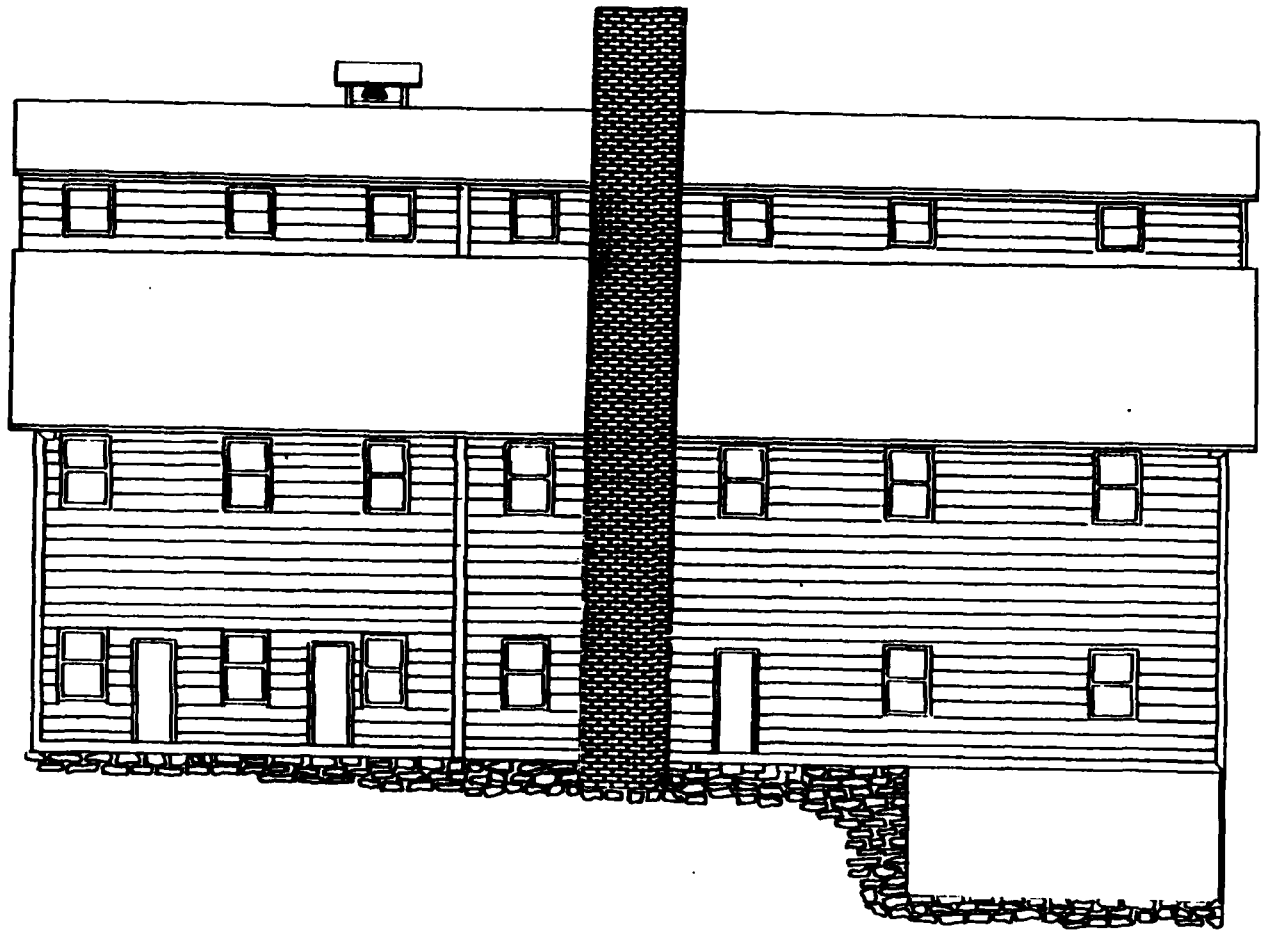


Figure 10.16.--Hypothetical Reconstruction of Bay Springs Mill.

"Functional requirements produced the basic form, unchanged in its essentials throughout the eighteenth- and nineteenth-century mill building: a rectangular edifice, somewhat long and narrow in its proportions, with several stories, many windows, and an unbroken, uncomplicated interior space. Such proportions were adapted to the arrangement of machines and to the vertical transmission of power from huge wheels or turbines to gears and shafts or belts."

Our mill was most probably a two story frame structure with low stone foundations. Martin notes that it was "more than one store tall" and it is unlikely that a three story building would have been necessary given the size of its operations (Martin 1978:32). Considering the date of its initial construction, wood as a building material might have been somewhat unexpected based upon our knowledge of contemporary mills in Alabama. Randal Miller describes these mills:

"With limited capital and widespread pressure from town boosters to begin maufactures as rapidly as possible, one might have expected that the factories built during the cotton mill boom of the 1840s and early 1850s would be of the cheapest construction. Indeed, several prominent industrial advocates, including John Skinner and J.D.B. DeBow, in an effort to persuade the cotton planter that local cotton mills need not be expensive, preached the blessings of wood factory buildings. As late as 1853, DeBow clung to his position favoring cheap building materials, despite criticism that wood was highly flammable and did not adequately protect the machinery from the elements. Alabama's cotton manufacturers had the good sense to reject Debow's counsel. With an abundance of stone and brick at hand, Alabama industrialists were able to erect sturdy, permanent structures, more than adequate to protect the cotton machinery. In fact, during the 1840's and 1850's, almost every mill constructed was of stone or brick. The factory buildings at Dog River, for example, cost $27,000. The main building was described as 'first rate' and the roof was 'well covered with slate, laid on sheathing, tongued and groved, and as tight as a floor.' Autaugaville Factory was fireproof, having a brick and iron construction. At Tallassee Barnett and Marks built their first factory of stone, and the building survives to this day. Joseph Bradford's factory was also of stone construction with walls as much as three feet thick in the lower floors. At Globe factory near Florence James Martin put up a 'larger and more substantial building' after the fire burned his wooden factory."

On the other hand, Mississippi's industrialists seem to have taken DeBow's advice. Not only did Gresham build a wooden frame structure but likewise did a fellow Mississippi entrepreneur in 1850: "Our building is made of wood, 108 feet long, 48 wide and three stories high. We are now running about 800 spindles, 10 cards, 12 looms and all the accompanying necessary machinery for spinning and weaving." That mill, located in Choctaw County, was not much larger than Bay Springs in terms of the number of spindles operated, but it had a third story, where likely the weaving occurred.

There were common functional attributes that can help us with our reconstruction. For instance, there would be a need for adequate lighting. The west wall, facing the dam and water wheel likely had few, if any windows, because of the need to keep away the moist air blowing off the wheel, and to eliminate as much noise as possible (Zimiles and Zimiles 1973:39-40). Other walls would need as many windows as possible to provide lighting, and lessen the dangerous need for oil lamps. However, the large numbers of broken lamp chimneys recovered indicate their use anyway. The distribution of burned window glass shows large concentrations along the north and south walls near the center of each bay. We would expect a window in each bay and the glass concentrations in Figure 10.17 support our expectation. Lighting the interior could also be accomplished by building a clerestory monitor on the roof, popular in mill construction of the first half of the 19th century (Zimiles and Zimiles 1973:113). Because we found part of a bell in the southwest corner of Structure E, we assume a bell tower or cupola was built above the clerestory monitor there. The bell would have been used to summon workers from their nearby houses. Grist mills require doors to the outside on each floor to bring in grain, as well as new machinery. To hoist the grain to the top floor, the roof ridge would extend out several extra feet. For a cotton factory the need to hoist would be less in terms of raw materials, but just as great for machinery. We assume the cotton bales were stored in the ground floor of the addition or at least processed there. This would require wide doors and a porch or loading dock, to be located on either the south or east side. We have chosen to show this on the east side. Other doors are noted by the presence of a brick door stoop and door hinges on the north side, a hinge in the area of the additional shed on the south side of Structure D, and a lock plate found along the south wall (Figure 10.18). Finally, we have already mentioned the location of the eaves and the gables as defined by a dripline along the north wall.

The specific architectural style is debatable. We have shown the style as Greek Revival but not particularly elaborate. The 1838-1852 period is appropriate for Greek Revival elements to occur at Bay Springs. Photographs of New England mills of this period reveal the range of adaptation in Greek Revival mill construction (Zimiles and Zimiles 1973:134). Because of the communication necessary between New England and Bay Springs, for equipment purchase, it is not unreasonable to assume great architectural similarity for these structures. It is even conceivable that Gresham had New Englanders build the mill. The architectural elements selected for this construction were low pitched roof with cornice return, and remnant pilasters and capitals.

The Interior

The primary units in production of yarn are cleaning, aligning, drawing, and spinning of the fibers. Depending on the quality or type of final product desired, other steps may be added to this process.

At Bay Springs Union Factory, we know they were producing yarn or thread. While they processed both cotton and wool, the wool was prepared

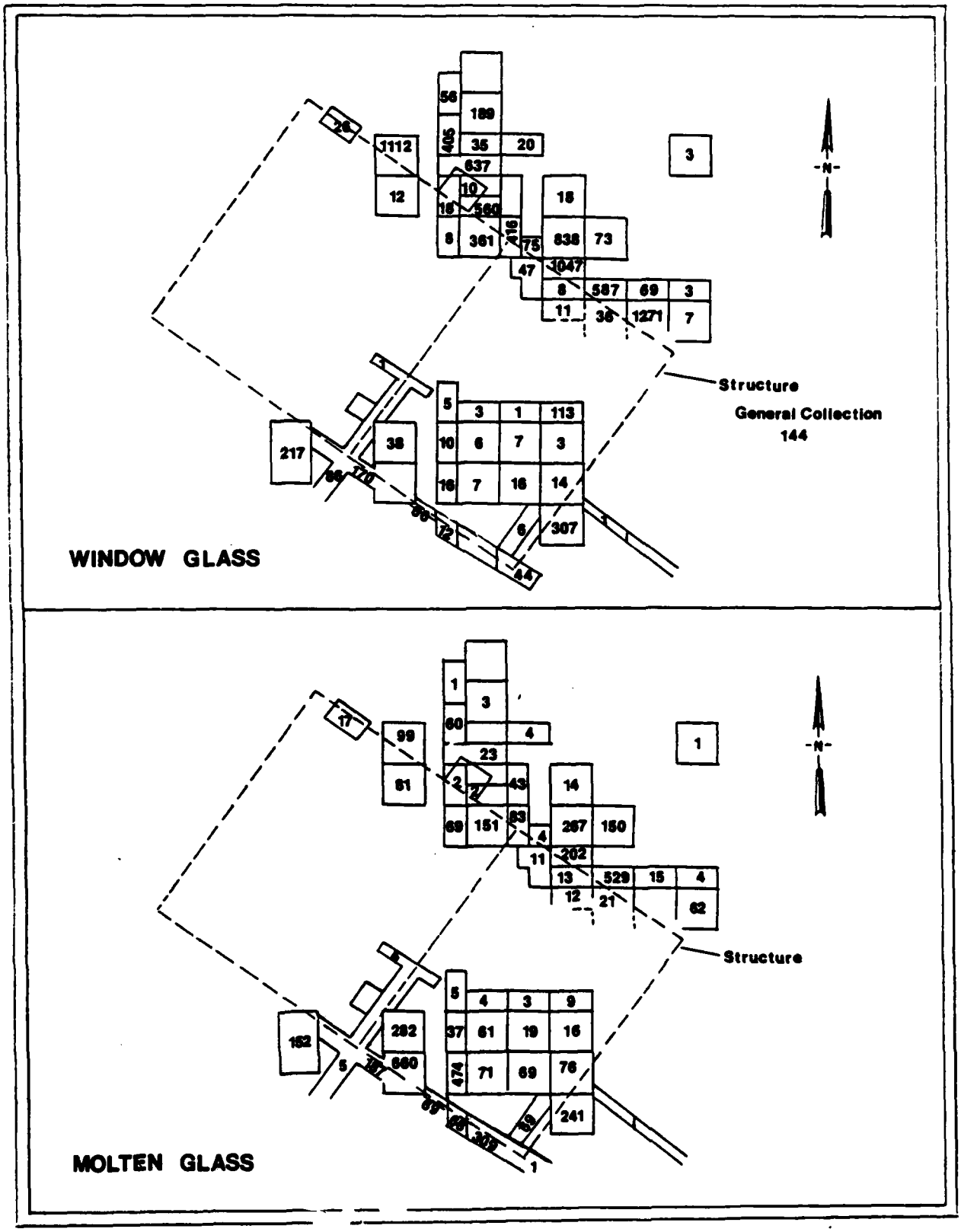


Figure 10.17.--Distributions of Window Glass and Molten Glass at the Mill.

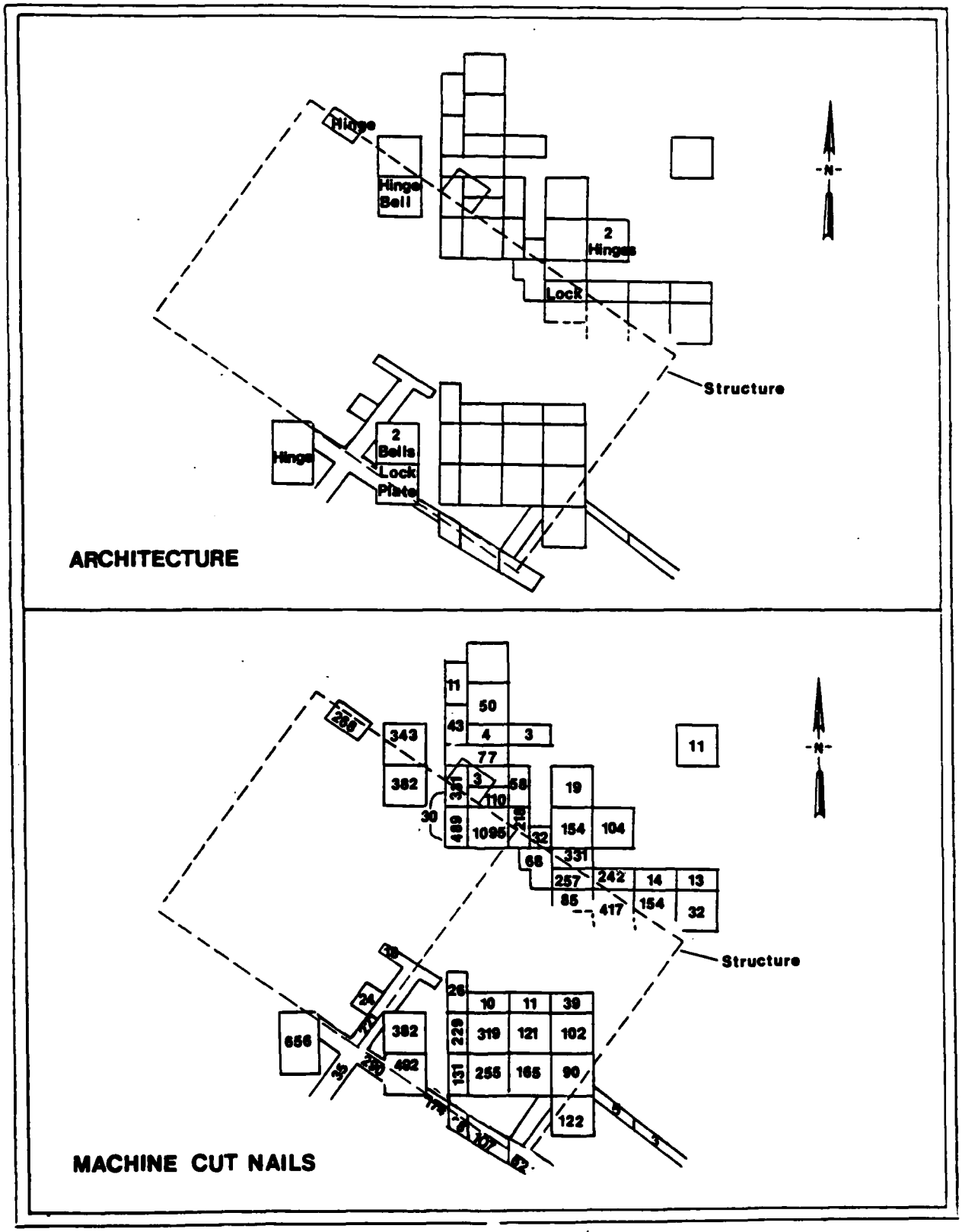


Figure 10.18.--Distribution of Architectural Remains and Machine Cut Nails.

as rolls and spun elsewhere. Only cotton yarn was spun at the mill. It is not known what kind of yarn this was. As a result, we can only surmise what processes were used to produce it. For example, the diameter and strength of a yarn is dependent on the number of times it is drawn before being spun. Some mills have as many as four separate sets of drawing frames. It is unlikely such a system was in operation at Bay Springs.

What sort of operations were occurring and where were they located within the Bay Springs Union Factory? There are two lines of evidence which can be brought to bear on this question, the artifacts recovered and the general system of milling in the 1852-1885 period. By using both lines of evidence, we can estimate how closely this mill compares to others of the period. The easiest way to approach this would be to follow a bale of cotton from its opening to the final product. Figure 10.19 shows the normal steps in the processing of cotton. Each of these steps will be treated separately.

(1) Bale Breaking: This process involves removing the bale ties and allowing the cotton to expand.

> "The opening of the American bale simply consists in cutting the ties, removing the bagging and ties, and breaking up and shaking out the condensed mass of cotton. When the bale is opened, the contents will be found in sheets, or layers of condensed cotton, due to the pressure exerted in baling. This cotton is hard and compact, and before use must be allowed to expand" (Umpleby et al. 1907:24).

The initial bale breaking was done by hand; however, in some mills a machine was used to separate the compact layers of cotton into smaller pieces. The purpose of this step is to allow the mixing of several bales of cotton to insure a standard, uniform end product. The lack of attention given to this step in early American mills was a serious problem:

> "that is, a number of bales of cotton mixed together, so as to incorporate their various qualities, and thereby obtain a large quantity of an equal and uniform quality. The method of mixing need not be here described, and the utility of doing so must be obvious to every practical manufacturer; but there is one great error which seems to prevade all the Cotton Factories in America, that is, to have too little room in their picking houses: few of those that I have seen have more than barely room for two or three bales of cotton, besides a willow and lap spreader. Now it is not uncommon in Great Britain to mix up from 20 to 30 bales into one heap called a bing or bin; and if there is any waste to be mixed with the cotton, there is ample convenience for doing so: by which means a large quantity of cotton, perfectly uniform, and equal in quality, may be obtained" (Montgomery 1840:29).

At the Bay Springs Mill, this process took place in the southern side of the mill. Evidence for this activity comes from the clustering of cotton bale bands in this area (Figure 10.20). No artifacts could be

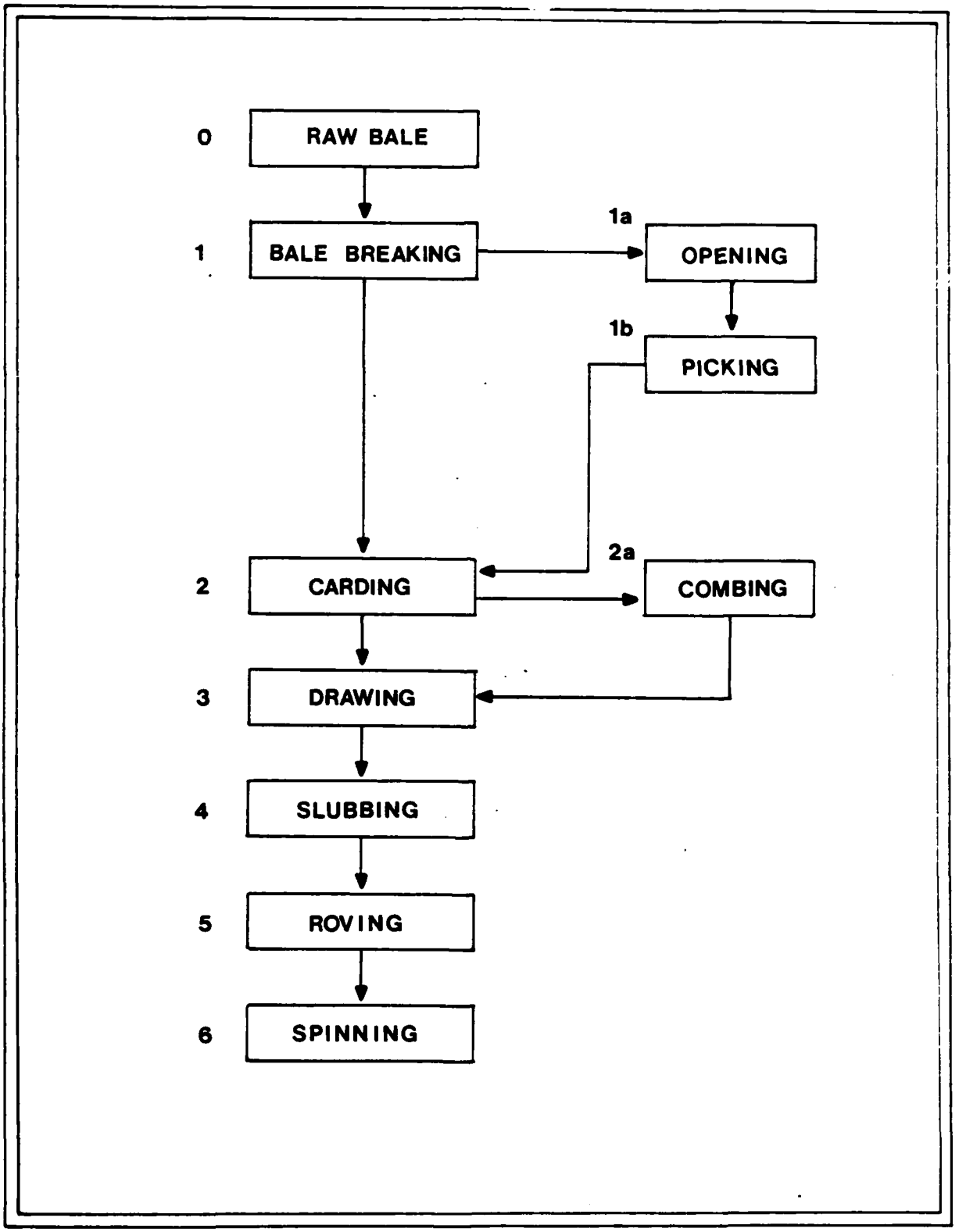


Figure 10.19.--Steps in the Processing of Cotton.

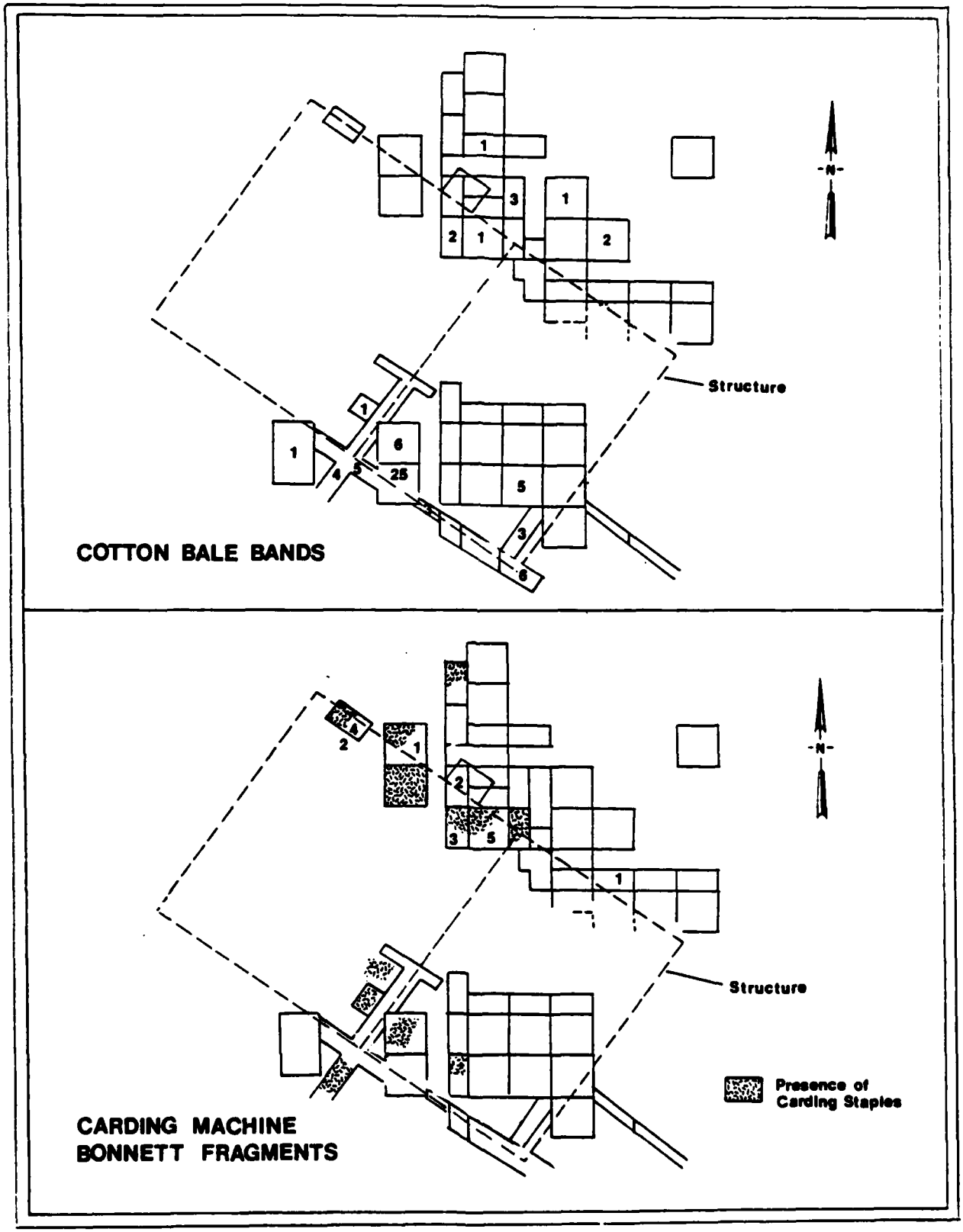


Figure 10.20.--Distribution of Cotton Bale Bands and Carding Machine Bonnett Fragments.

definitely associated with a bale breaking machine. These machines were not then in common use in America (Umpleby et al. 1907:25) so it is unlikely that one would be found at Bay Springs.

(1a) Opening: The opening process was the first mechanical cleaning and mixing process at most mills. An opening machine delivers cotton first to a doffer which throws the cotton against a screen, shaking any loose dirt from between the fibers. From here, the cotton is compressed by rollers and fed to the beater. The beater revolves at about 1200 rpm and the blades beat the cotton against the beater screen. Heavy particles of dirt and seed are removed by this process. Its purpose was:

> "the removal of as much foreign substances as possible with the least injury to the fibers. The foreign substances found are particles of sand, which have been blown about and have become lodged in the bolls; dirt which during a heavy rain has splattered upon the bolls, which grow low upon the stalks; particles of dried leaves and stalks, gathered in picking and pieces of seeds and husks broken in ginning" (Umpleby et al. 1907:5).

One artifact from Bay Springs is related to this process. A large beater with two ridged blades was recovered from the southeastern corner of Structure D. This beater could represent the opening process or the picking process.

(1b) Picking: The picking process continues the opening and cleaning of the cotton as well as providing the first alignment of fibers. The cotton comes out of the picker in a continuous uniform sheet called a lap. This is wound into big rolls called lap rolls. The opened cotton is fed into the picker where it is forced between two revolving screens. These aid in cleaning. From here, the cotton passes between a series of rollers and into another rigid beater where it undergoes the same process mentioned previously. After beating, the cotton again passes between revolving screens where it is formed into the lap and compressed between rollers. At the end of the process it is wound on the lap roll and is ready for carding.

The only artifact which could be associated with this process at Bay Springs is the beater mentioned above. It is likely that the opening and picking operations at Bay Springs Mill were combined into one machine.

> "In the Cotton Factories of Great Britain, are generally two separate machines; but in this country they are combined into one, denominated the lap spreader. In any of the British Factories where the two are combined into one machine, they generally have four or five beaters or scutchers; but here they have only one, two, or at most three" (Montgomery 1840:28).

(2) Carding: This process is the final cleaning and separating process. The carding machine takes the lap and aligns the individual cotton fibers in a single direction. Thus, this process also begins building the yarn. Carding "engines" or machines come in two varieties, flat cards and roller cards. This distinction is based on the shape and motion of the top cards of the machine.

"The roller carding engine is probably the one most extensively in use, as it is the one best adapted for the production of low and medium numbers of yarn. It is comparatively simple in construction, easily set, and not liable to get out of order, whilst in its working capacity it excels all other forms. The work it performs, however, hardly equals in quality that obtained from either the Wellman, or the revolving flat cards" (Marsden 1909:119).

Roller carding machines have a series of large and small rollers above the main carding drum. These act to clean and stretch the lap. To begin the carding, the lap is placed on the machine and fed under a roller which, in turn carries it to the "licker-in". The licker-in has a surface speed of about 800 ft per minute and is equipped with carding teeth. It partially cards the fibers and carries them to the large carding drum. This drum is covered with a leather cloth which contains innumerable carding teeth or staples. The drum has a surface speed of about 1600 ft per minute. The drum carries the cotton upward to the first roller, which is usually a cleaning roll. It revolves at only 15 ft per minute and its function is to remove the larger pieces of dirt and unwanted plant parts. The remaining rollers are divided into pairs of workers and cleaners. The worker picks up the cotton from the main cylinder, aligns it, and passes it to the main cylinder. This process is repeated as many as ten times in the revolving of the main cylinder and results in a thorough carding of the cotton. At the end of this process, the cotton is delivered to the doffer which removes it from the main cylinder and feeds the cotton through a trumpet shaped tube. It is now in the shape of a round, untwisted card. It is flattened through a pair of rollers and coiled into a roving can. This product is called sliver. It is almost certain that the seven carding machines at Bay Springs Mill were roller carding machines. Eighteen metal fragments have been positively identified as bonnett or cover fragments from such machines. These machines bear the imprint of "C. Danforth & Co. Patterson, N.J." They were made between 1848-1852 (Trumbull 1882:77).

Carding machine staple and bonnett fragments all occur in the northern part of the mill but they all are in the first two levels so this may be a spurious distribution (Figure 10.20).

(2a) Combing: This operation produces a sliver in which all of the fibers are of the same length. It is used exclusively to produce high quality yarns. This process was probably not in use at the Bay Springs Mill.

(3) Drawing: This process is intended to impart a slight twist to the sliver as well as make it more even in cross-section. This is done by feeding the sliver through a series of rollers. Several slivers are put through together and come out as one. This is called doubling. Anywhere between two and eight slivers may be fed into a "head" and a drawing frame may have one to six heads. Generally, American drawing frames before the Civil War had three heads (Montgomery 1840:55). In addition, the cotton may pass through the drawing frame several times. The cans of sliver from the carding machine are arranged behind the drawing frame. Several slivers are inserted into each pair of back rollers. The bottom rolls extend the length of the frame and contain twice as many fluted bosses (or bearing surfaces) as there are heads to the frame. The top rolls are covered in leather or flannel and are only long enough to cover one head. These are also double bossed. The top rolls are set in the same bearings and rest upon the bottom

rolls. The cotton has to pass between four pairs of these rollers, the taking-in rollers, second pair, third pair, and fourth or front pair. They are generally set apart from each other the length of a cotton fiber and are run at different speeds. The ratio is as follows taking the back pair as standard: Back pair 1.00; Second pair 1.25: Third pair 1.75: Front pair 2.75. The different speeds of the rollers serve to draw out the sliver and align the fibers. The process also imparts a slight twist to the sliver.

A total of eight rollers have been identified as being part of drawing frames. Five of these rollers occur in the southeastern part of the mill (Figure 10.21). The information is too fragmentary, however, to estimate the number of heads at the mill.

(4) Slubbing: After the initial drawing process, the cotton fiber goes through a different series of operations which also draw out the yarn and give it twist. The first of these processes is called slubbing. The yarn is greatly reduced in diameter by this step and is wound on bobbins. The amount of twist given to the yarn in this step is slight as it would impede the stretching of the yarn. The end product of this step is called slubber. The cans of sliver are brought from the drawing frame and placed behind the slubbing frame, one can per spindle on the frame. The sliver is fed in through three pairs of rollers, much like the drawing frame and is wound onto bobbins by a flyer or other such device. There is very little that is diagnostic of a slubbing frame as opposed to roving or spinning frames. Numerous spindles, bobbins drives, and bobbin drive seat bushings were recovered from the mill. Possibly the spindle length could be diagonistic:

> "As before observed, the roving frame is one of the series of bobbin-and-fly frames, and the opportunity may be taken of describing it as the representative machine of the series. In its details it is smaller than either of the preceeding machines. The sizes of the spindles and bobbins are decreased, whilst the number are increased" (Marsden 1909:163).

(5.) Roving: This is the final process prior to the actual spinning of the yarn. The diameter of the yarn is further reduced and more twist applied. At the end of this process, the strand is called roving and is wound onto bobbins ready for spinning. The slubber, on bobbins, is placed in the creel of the roving frame (a creel is a rack for holding bobbins) and again fed through three pairs of rollers. After being compressed and stretched by the rollers, the strand is twisted by the flyer and wound onto a bobbin. It is now ready for spinning.

As mentioned above, there is little to distinguish roving frames from other "bobbin and fly" frames. No artifacts specifically associated with this operation have been identified.

Figure 10.22 shows the distribution of spindles by length. There is a definite pattern of distribution. The longest spindles are in the north and a small spindle clusters in the southwest area. This distribution could show a distinction between slubbing frames on the south and roving and spinning frames on the north.

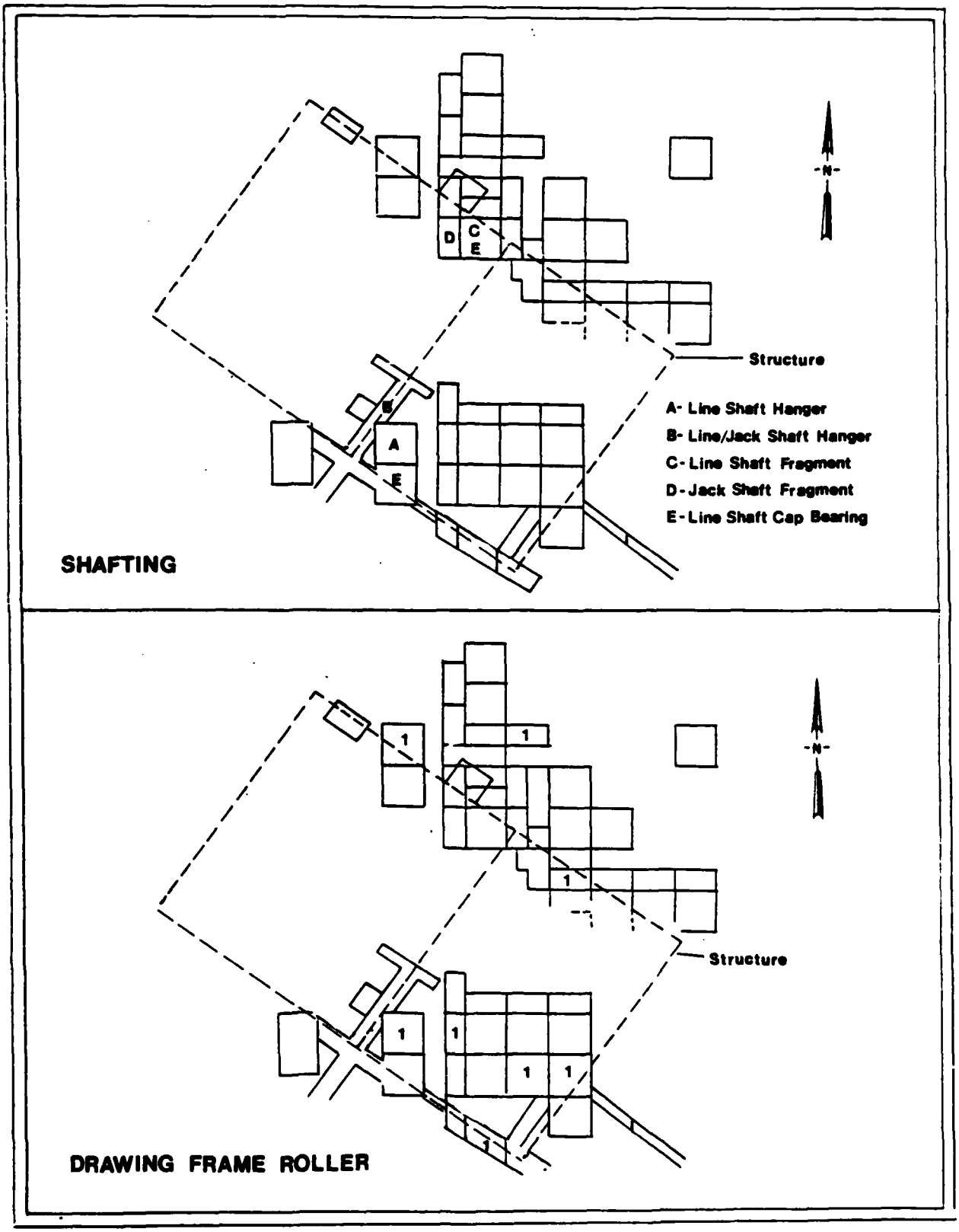


Figure 10.21.--Distribution of Shafting Materials and Drawing Frame Rollers at the Mill.

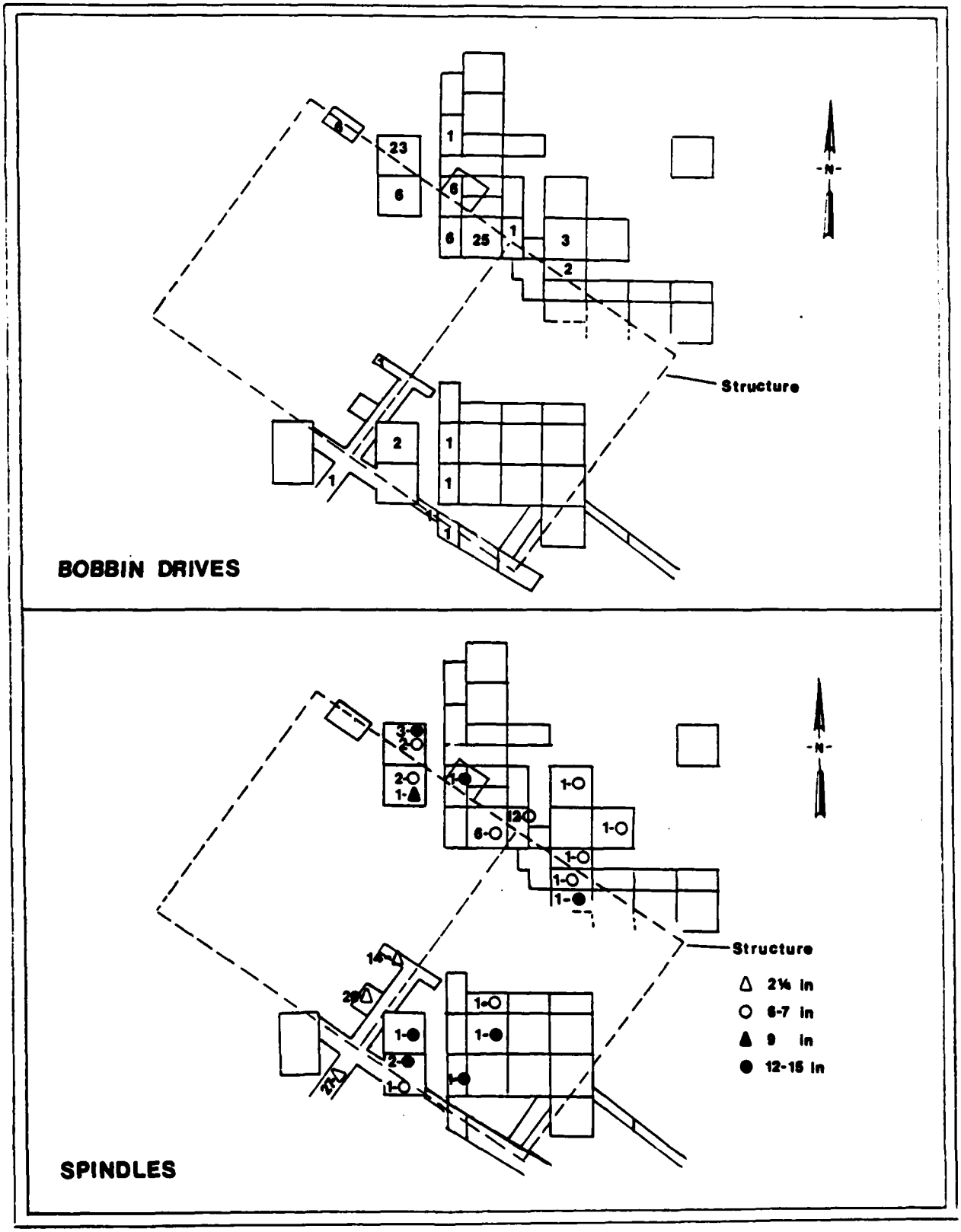


Figure 10.22.--Distribution of Bobbin Drives and Spindles at the Mill.

(6.) Spinning: The process of spinning the roving into finished yarn was the last operation carried on at the mill. During this process the strand was further reduced in diameter and given its final twist. The same type of machinery described for roving and slubbing frames was used in this final frame. Bobbins of roving were placed in the creel of the spinning frame, the roving was compressed by a series of rollers and twisted by a flyer. It was then wound onto a bobbin as a finished product.

As stated above, three distinct systems of spinning are possible for the Bay Springs Mill: flyers, rings, or caps. The evidence from the site points strongly to cap spinning. The spindles recovered are known as dead spindles, that is, they are stationary and do not spin. Both flyers and ring spinners have live, or moving spindles. A second line of evidence comes from the marked carding machine fragments. Charles Danforth, who produced those machines, also invented the cap spinning frame.

> "Simplicity and speed were the virtues of the Danforth cap frame. In his initial model, Danforth cut the loops off the legs of a conventional flyer, then attached a horizontal ring to the legs. In later versions, he supported from the spindle top a metal cap resembling an inverted drinking glass. In either version, the bobbin was driven by a whorl that spun loosely about a dead spindle. The thread coming from the rollers above the cap was fed outside the cap or ring before being wound on the spindle. The drag necessary for twisting thread was produced by air resistance on the ballon of thread from the rollers to the cap and by the friction of the thread and the bottom of the cap" (Lozier 1978:212-213).

It is not unlikely that the equipment for the Bay Springs Mill all came from the Patterson, New Jersey factory of Charles Danforth and Company.

> "The principal manufacturing towns and villages, in the third or Southern District, are the towns of Patterson in New Jersey, (which is next to Lowell as regards the number of its manufactories): Matteawan, New York; Manayunk near Philadelphia; Baltimore etc., etc. The Factories in this district generally adopt the plans and improvements of Patterson and Matteawan . . . " (Montgomery 1840:14).

Mill Organization

The general organization of cotton mills in the mid-19th century was fairly standard so it may be possible to get some idea of what Bay Springs Union Factory was like. Montgomery (1840:19) discusses mills having separate floors for carding, spinnning, and weaving, with operations proceeding from the lower stories to the higher ones. This pattern is repeated in the mills at Rockdale (Wallace 1978:133). There, the carding engines were on the lowest floor, the drawing frames on the floor above, and the spinning frames and weaving frames above those.

The mill at Bay Springs had only two stories. The practice of segregating operations by floor has already been mentioned. Figure 10.23 shows the probable arrangement of operations at the mill based on artifacts recovered and general mill spatial principles. The northwestern area on the first floor above the edge is a problem since few artifacts were recovered in excavations there. The basement of the factory, under Structure D, was

probably devoted to the power system. The first floor contained the carding (cotton and wool) and picking machines, an opening room and another area which may have served as a shop or office. Upstairs were the frames for drawings, slubbing, roving, and spinning of the cotton thread.

The above is a possible reconstruction of the exterior and interior of the Bay Springs Union Factory. Because of the extensive damage to the mill prior to our excavations, we can only make the most tentative statements concerning its exterior appearance or the distribution of the mill machinery within the mill. Our reconstruction is enhanced by historic analogy. Yet we will not truely know what the mill looked like until a photograph of it is found. Hopefully our rendition will bear some similarity.

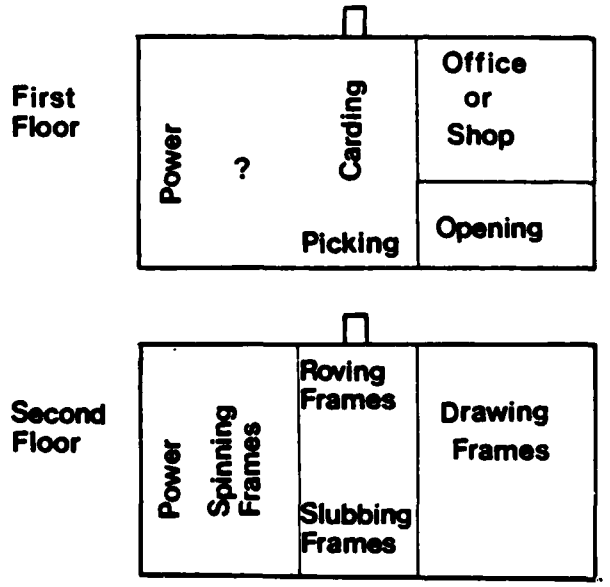


Figure 10.23--Possible Spatial Organization of Bay Springs Mill.

Area B

Besides the factory structure was what appears to be another industrial building in Area B of our excavations. Test excavations revealed two brick pads, two filled trenches, and a post hole (Features 1, 2, 3, 4, 14). On the basis of burning, brick condition (poorly fired), and the lack of mortar, in the testing phase we hypothesized this structure was a brick kiln. Based upon our excavations of a scove kiln at Waverly and other kilns in the area (Atkinson and Elliott 1978), it shared only those attributes mentioned above. Excavations rejected this hypothesis. It lacked distinctive features like firing chambers and had other associated artifacts.

Recommendations called for excavation of 10 2x2 m units to an average depth of 30 cm. Our excavations included 6 2x2 m units, and 8 1x2 m units for a total of 12.96 m^3 excavated.

Excavation began with 1 m wide trenches cross-sectioning the rubble mound. These were expanded to include large areal exposure once the limits had been determined. Excavation was in 10 cm levels with natural/cultural strata having priority. For purposes of association with the two building sequences, the upper (2-3) levels (including Strata 1 and 2) are attributed to the Structure B2 while, the burn level and below are associated with Structure B1. (Figures 10.24-10.27).

Stratigraphy

Four major strata were recognized in Area B. On the surface was a thin, uneven deposit of light gray (10YR7/2) very silty humus, Stratum 1 (Figure 10.24). Also lying in the surface and beneath the humus were small chunks of brick and brick bats, forming Stratum 2, in a matrix of light yellowish brown silt (10YR6/4). The brick bats were scattered in disarray. Beneath them lay two brick pavements interpreted as hearths. These brick "hearths" rested on a burned layer, Stratum 3, containing blackened soil (10YR4/2), a dark grayish brown silt mottled with a tan clay and charcoal. At the base of this stratum were a band of red clay and a band of charcoal at the abrupt contact with the next stratum. A tan to light olive brown silt (2.5YR5/5), Stratum 4, forms the sterile subsoil here.

Interpretation

A list of features and their descriptions is presented in Table 10.1. The 14 features encountered at this site consist of seven brick-lined post holes, three shallow post holes, two filled trenches, and two brick floors. The structures at this site present many problems in terms of architecture. First the structure had little domestic trash and does not appear to have been a domicile. Hence, comparison with folk housing architecture is limited. Second, the architectural evidence is contradictory. There may have been two structures on the site. While the post holes share certain matrix attributes like charcoal and brick-lining, the alignments projected from their locations conflict with the alignments of the brick platforms. Two possible functions for these brick platforms exist. They may be either two or three brick pads for supporting heavy equipment like a cotton gin or scales. However, no iron rods remained to anchor any equipment. The second idea is that these are the remains of double chimneys (Figure 10.25).

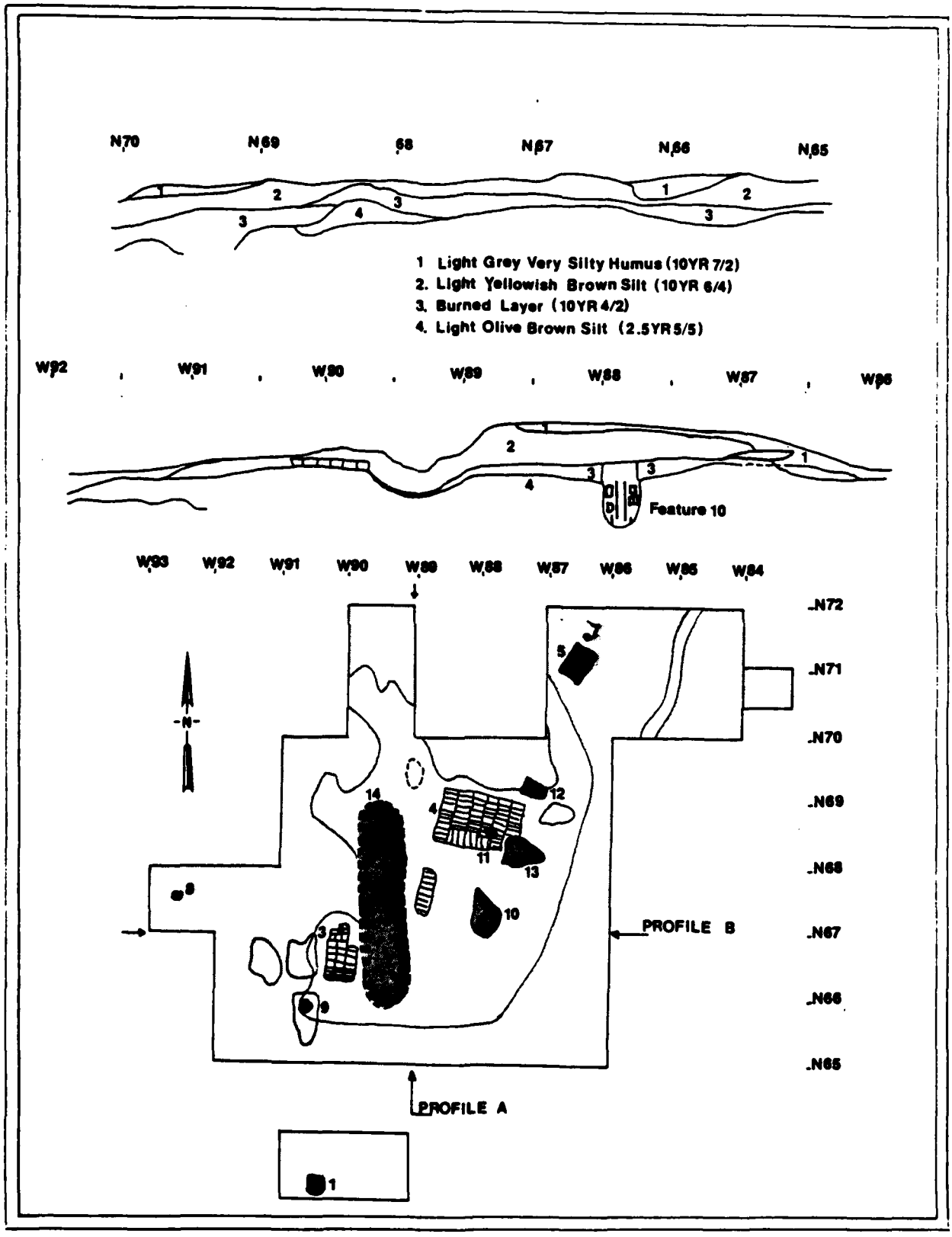


Figure 10.24.--Plan View and Stratigraphy at Site 22TS1103B.

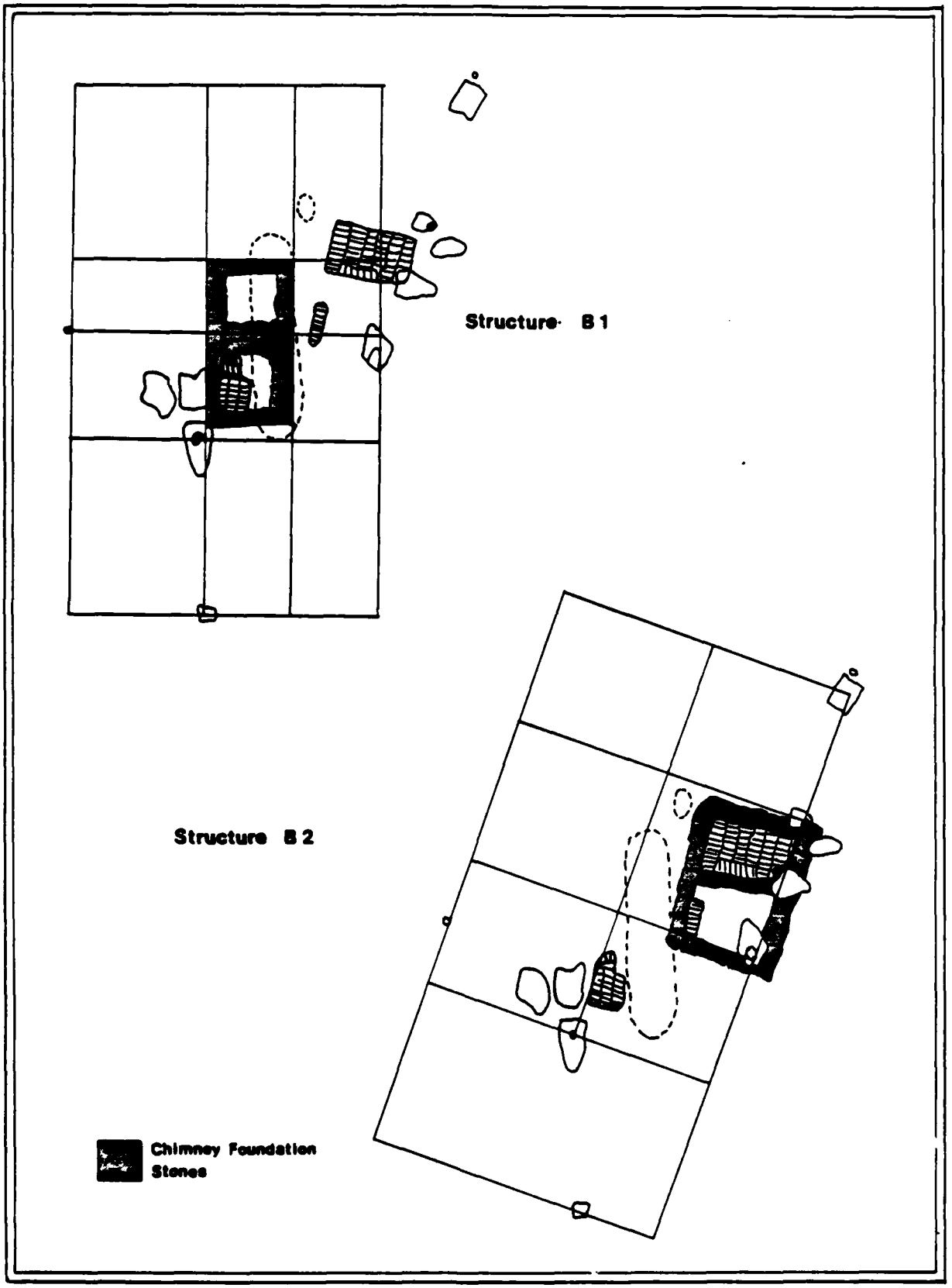


Figure 10.25.--Two Hypothetical Reconstructions at Site TS1103B.

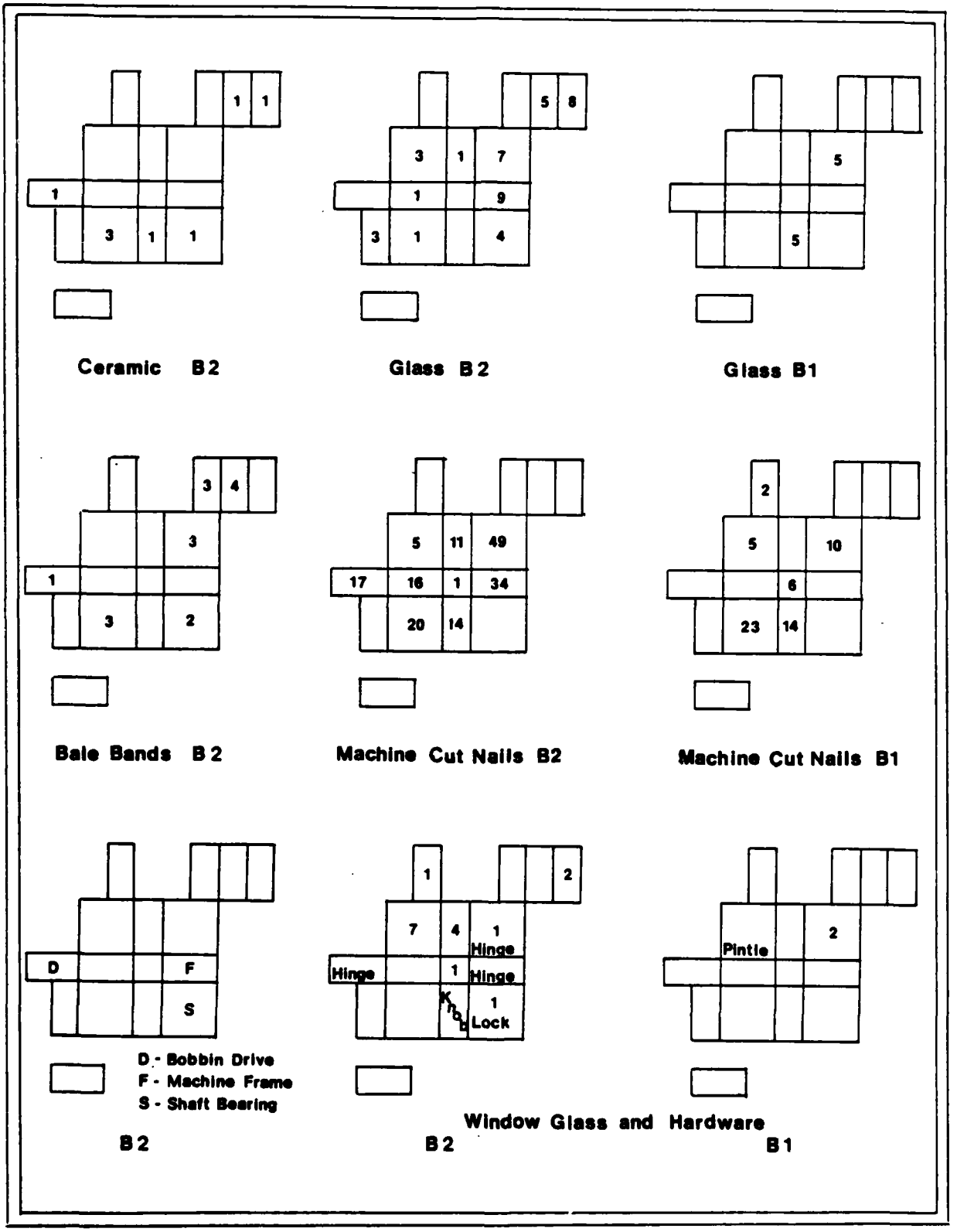


Figure 10.26.--Artifact Distributions at 22TS1103B.

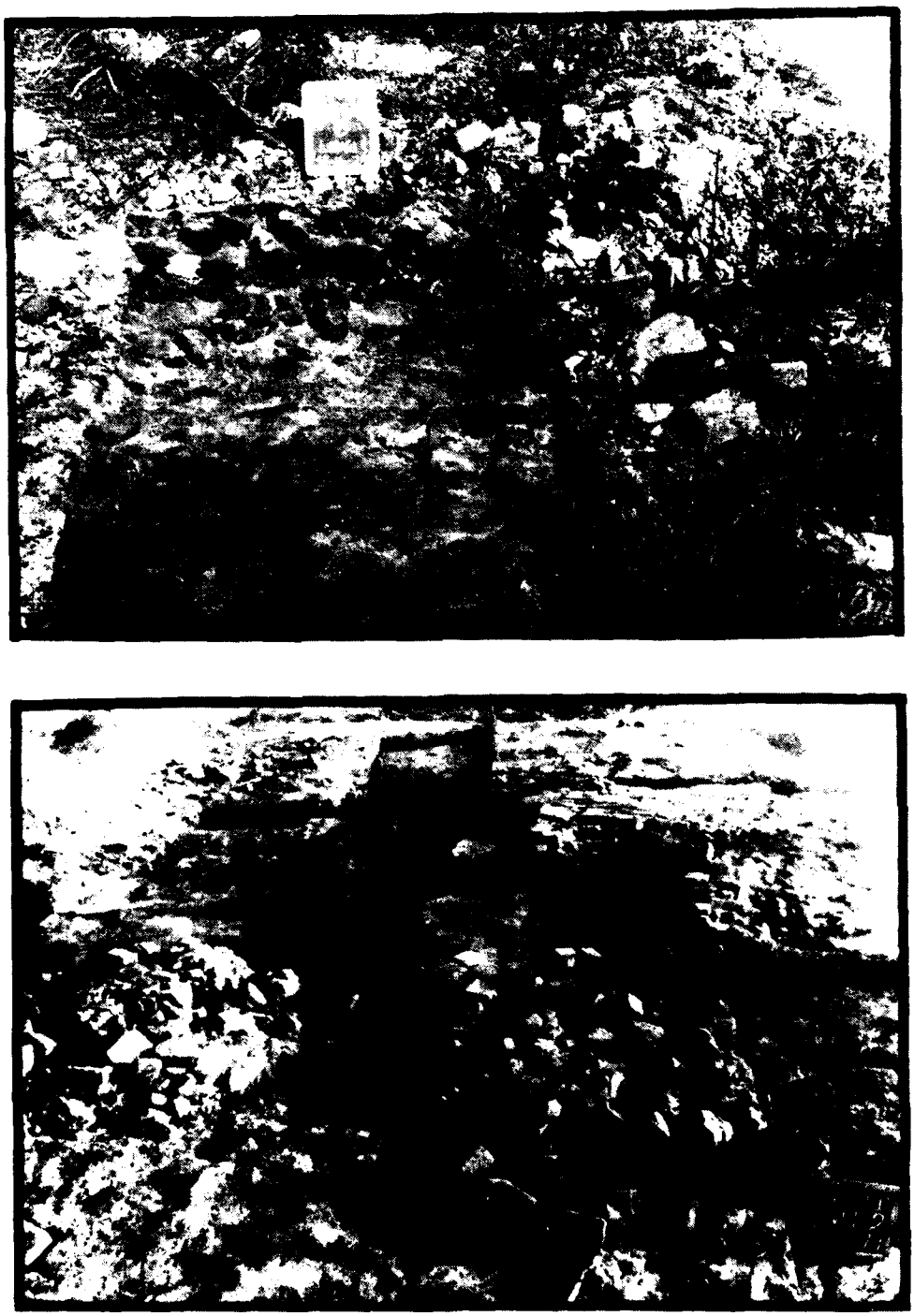


Figure 10.27.--Brick Feature at Site 22TS1103B.

Leaving aside the identification of these pads as chimneys, certain associations of post holes may be projected to suggest possible construction units, assuming that the posts supported sills. A major deficiency in the data is that the origin of the posts could usually not be determined. In addition, certain post holes (Features 11 and 13) were found under the brick pad (Feature 4), while another post hole (Feature 10) would lie under that brick pad if it is symmetrical. As such they should pre-date that brick pad. But their alignment seems to be with that brick pad. Hence, on very limited data we posit two buildings, B1 and B2.

Structure B1 is evidenced by a burn layer (charcoal, burned glass, nails), a robbed wall (Feature 14), a brick "hearth" floor (Feature 3), and perhaps five post holes (Features 1, 8, 9, 11, 13). Figure 10.25 shows one interpretation. In it we assume a builders' trench (Feature 14) was used for the eastern stone wall of the chimney, the stones for this were robbed to construct Structure B2's chimney; charcoal fell into this trench. Two stones remained associated but had been moved just to the west of Feature 3. These stones were resting on a sloping former ground surface. The length of the trench (3 m or 10 ft) is comparable to the length of the proposed chimney base for Structure B1. The only evidence for the B1 chimney are about 30 bricks dry laid on the sterile subsoil. We assume a double chimney, roughly 10x4 ft. The structure itself is more difficult to reconstruct. By orienting post holes and chimney brick alignment we can generate a series of building units any of which may have been used. The structure possibly was 12x30 ft, 16x30 ft, 12x32 ft, or 16x 32 ft but since the mill appears to have been built in 4 ft modules, we will assume the structure was likely 16x32 or 12x32 ft. In any case the structure burned, and nearly all of its chimney was salvaged and rebuilt a few feet to the east.

Structure B2 is evidenced by two aligned but discontinuous brick pads, interpreted as "hearths". The one on the south contained so few bricks that its size is only a guess. The one to the north is better preserved. The identification of these as hearths is based upon comparison to size and construction of the chimney bases at the store and two domestic sites (22TS1103A and 22TS1110). At the general store, the brick hearth measured about 80 cm square. The chimney was built of stone and the whole chimney base measuring 1.8x1.9 m. The firebox at Structure A measured 1.2x.70 m, while the entire hearth area of bricks was 1.56x1.11 m. Bricks on the apron were on their narrow sides, but were flat in the firebox. In Structure B2's chimney the bricks were on their narrow sides, and the remaining brick hearth measured 1.25x.80 m. The edges are fairly straight but not laid prefectly true, as when using a board. We assume this indicates the bricks abutted stone walls, even though no stones remained. Apparently this chimney was also robbed. This "chimney" was also built somewhat differently from the one at Area A, for that one had most of its brick laid on stone blocks, whereas at B2 the brick rest on dirt. The problem is one of identifying a robbed chimney. Post hole alignments (even using some of the same post holes postulated for Structure B1) reveal little of size or configuration. Perhaps the building had a central double chimney and the structure was 24x28 ft. We were not successful in determining the specific association between post holes.

In summary we know little architecturally about this site. We know we have a building, possibly two, built on wooden piers. Posts placed in brick-filled pits supported a wooden superstructure with a stone chimney. The structure(s) shares the same general alignment with the mill structures 20 m to the northwest. Both structures were built entirely of machine cut nails. One wire cut nail was associated with each structure, probably from packing crates or furniture. Built within or beside it were two or three brick pads. We know the artifacts associated with the building are industrial, not domestic. The distribution (Figure 10.26) for B2 indicates a structure extending to the south and west of the "chimney" while the limited number of window glass fragments suggest a single window on the northern wall. The small hinges could have hung a door, but more likely were for cabinets or furniture. The location of the door lock and door knob suggest a door on the southeast side. Glass artifacts consist of a couple of bottles (small fragments only). A few sherds of earthenware and stoneware were recovered, much less than expected for a domestic site. All the industrial artifacts came from the later structure B2, including 16 cotton bale bands, a bobbin drive, machine frame, and shaft bearing--all broken. This suggests the structure served in the processing area for cotton, with storage of old parts of machines as well.

Structure B1 had few artifacts associated with it in comparison to Structure B2. The total artifact assemblage from Structure B1 included one window glass fragment, 10 bottle fragments, six ceramic fragments, one pintle hinge, and 60 machine cut nails. Little else can be said, except that a structure existed here, and the paucity of any material would indicate functions like bulk storage.

Summary: The Industrial Sites

In 1838 the Greshams built a grist mill. Historical evidence indicates this was the location yet no archaeological evidence confirms the presence of a grist mill or a saw mill. Instead the foundations of two buildings were located. From the historical and archaeological evidence we have presented the most likely scenario for the construction history of this site. Structure D was likely to have been the original 1838 grist mill, refurbished as the cotton factory in 1852. Structure E, an addition to Structure D, was probably built at the time of this refurbishing. The factory was built of wood, no more than two stories high, and was using equipment that would have been considered outmoded by textile firms in the North. Power was provided initially by a 12 ft breast wheel, which sometime after the Civil War was converted to a turbine. The rebuilt saw and grist mill operations may have been rebuilt across Mackeys Creek or downstream from the mill. The structures at Area B probably served a storage function. Probably the last of these structures burned in the 1885 fire.

CHAPTER 11. DOMESTIC, COMMERICAL, AND FRATERNAL SITES

Introduction

This chapter discusses the excavations of Bay Springs sites interpreted as having a domestic or commerical function. The domestic sites included 22TS1108, 22TS1109, 22TS1111, 22TS1113, 22TS1115, and 22TS1103A and C (Figures 5.14, 11.1). Trash deposits associated with these sites were 22TS1112, and 22TS1114. The one commercial site was 22TS1105. References are made to other sites explored only during the testing phase: domestic sites 22TS1106 and 22TS1108, and the Masonic Lodge 22TS1107.

Because we noted few architectural features during the testing phase, our objectives were limited to collecting a representative sample of artifacts at these sites and to delineating any subsurface cultural features revealed during excavation. The mill excavations were extensive, while these sites received less intensive investigation. Specific objectives and methods for groups of sites were each different and therefore we will discuss them in groups. Sites 22TS1103A and C are discussed first, followed by those sites east across the county road from the mill area in Commissary Hollow, 22TS1111 through 22TS1115. Next sites 22TS1108 and 22TS1109, (the "Barracks") are discussed. Finally the Masonic Lodge and store will be analyzed.

Some general comments concerning all sites may be stated initially. Except for the chimney base at 22TS1103A and the features at 22TS1105 no positively identified architectural features were revealed. Interpretations as to the function of the sites were made from the types of artifacts found and historical and oral historical information. Two separate grid systems were used during our major investigations, one for the sites on the east side of Mackeys Creek (at the Mill) and one for the west side (22TS1105, 22TS1108, 22TS1109). Additional controlled surface collecting in Commissary Hollow made it necessary to grid each of those site separately. Each grid was tied to the master grid for the project. A summary of features at the domestic and commercial sites is presented in Table 11.1.

Table 11.1. Feature Summaries for Domestic Sites

Feature #	Location	Measurements	Comments
Site 22TS1103A			
1 Post Hole	N106.6/W84.3	dia. 14 X 18 cm depth 32 cm	-
2 Trash Pit	N102.2/W80	dia. 1.2 X 1.3 cm	Compare with Fea. 2 (22TS1108) depth .30 cm
3 Wall Line	N107.5/W85 depth 5 cm	lt. 4.5 cm, wth. 20 cm	Charcoal filled defines southwest wall

TABLE 11.1 continued

Feature #	Location	Measurements	Comments
4 Post Hole	N102.7/W81.6	dia. 40 cm (20 dia), depth 21 cm (66 cm)	Post hole in Feature 2
5 Post Hole	N102.1/W81.5	44 cm X 40 cm, depth 26 cm	Post hole in Feature 2
6 Post Hole	N104.5/W78	dia. 30 cm, depth 26 cm	
7 Post Hole	N110.5/W84.3	15 X 12 cm, depth 3 cm	-
8 Post Hole	N104/W83.8	23 X 28 cm	-
9 Chimney	N106/W81	1.8 X 1.9 X .56 cm	Sandstone and brick platform, partially robbed
Site 22TS1105			
1 Stain	N508-510 W477-479	1 m X .60 cm depth 3 cm	Wall stain of porch
2 Post Hole	-	40 cm X 45 cm depth 36 cm	Post present
3 Post Hole	N508.10/W	21 X 25 cm, depth 8cm	-
Site 22TS1108			
1 Trench ?	N346-549 /W571.2	1.35 m X .32 cm depth 10 cm	Identity not confirmed
2 Trash Pit	N550.6/W578.8	1 m X .45 m depth 26 cm	
Site 22TS1109			
1 Trash Pit	N575.4/W514.6	.7 m X 1.09 m depth .53 m	Expanded toward base
2 Pit	N574.2-574.8 W514.0-514.8	.46 m X .80 m depth 16 cm	-
Site 22TS1115			
1 Trash Pit	N68.2/E68.5	2 m dia., depth 28 cm	-

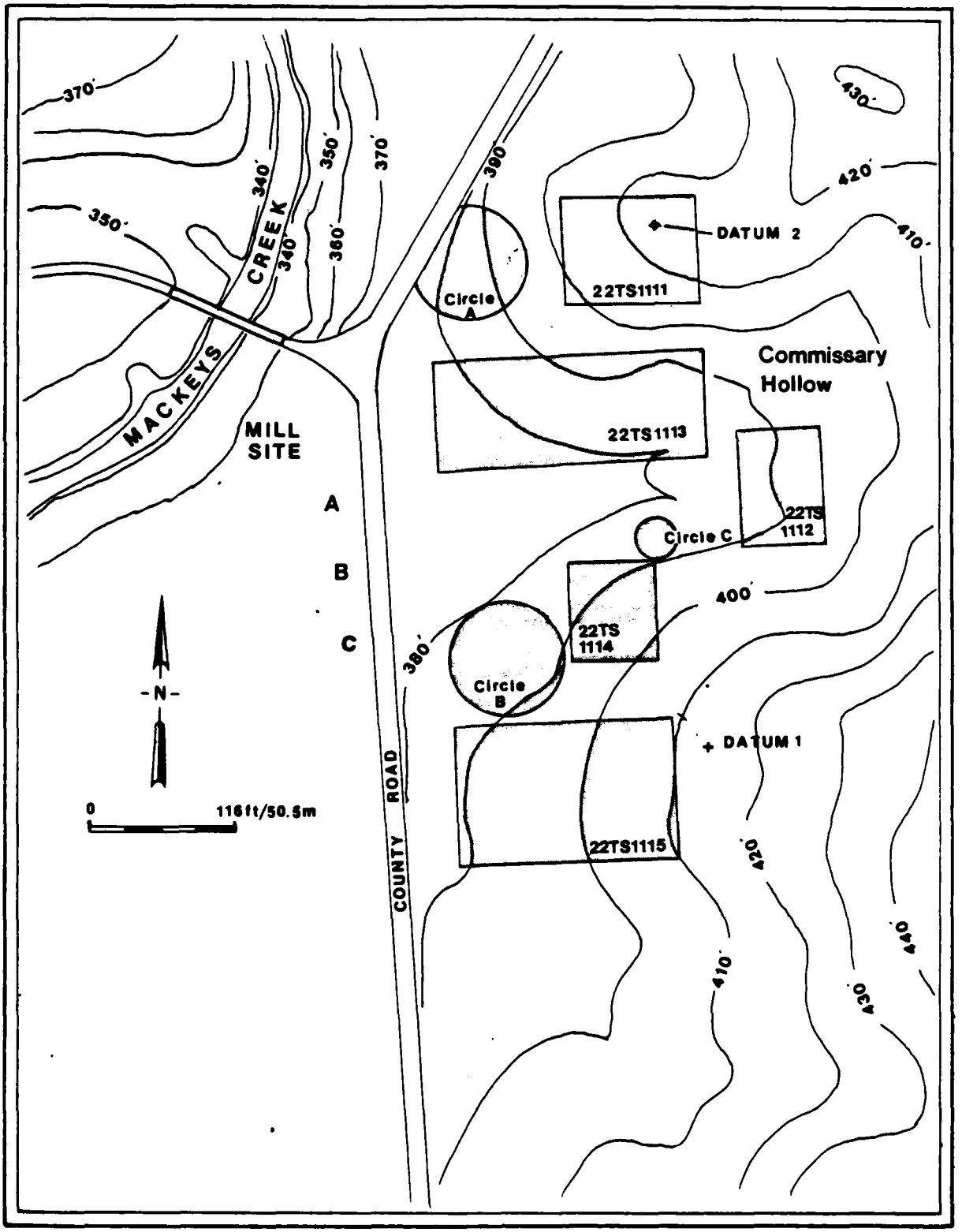


Figure 11.1.--Location of Sites in Commissary Hollow.

The Mill--Areas A and C

Two areas at the mill site (22TS1103) produced domestic material and little or no industrial material: hence, they are examined here rather than in the preceding chapter. Mill Area A was located 15 m east and 8 m north of the northeast corner of the mill. Area C was 45 m directly south of Area A. Between the two was Area B an industrial site examined in Chapter 10. Also present between A and B was an old dirt road encountered at the mill excavations, Features 2 and 4.

Area A was located in a rectangle defined by N95-N115 and W75-W90. This site has been interpretated as a domestic structure contemporaneous with operations at the cotton mill (Figures 11.2, 11.3). The close proximity to the mill strongly implies daily interaction between the occupants of both structures. Perhaps it was the home and office of a factory foreman or watchman. Most artifacts imply this structure was the oldest of the sites excavated at Bay Springs. We hypothesized it might be the original house of James Gresham; however, a spindle from underneath the brick firebox of the chimney suggests the structure was built after the factory (i.e. post 1852). A less likely but possible explanation is that the structure was built prior to the mill and the brick firebox was replaced at least once during its post 1852 use.

Based upon our testing, our recommendations for this site were to excavate ten 2x2 m units to an average depth of 20 cm. We excavated eight 1x2 m units, eight 2x2 m units and one 1x1 m unit totaling 9.06 m^3. The units ranged from 10 cm to 40 cm deep.

Stratigraphy (Figure 11.4) across the site consisted of a thin irregular humus averaging 4 cm thick, draped over a greyish-brown silt loam (10YR5/2), 10 cm thick. In some areas this latter stratum was indistinguishable from the humus above it. To the west of the chimney the soils beneath this stratum became a red clay (2.5YR4/8). In areas to the east of the site a yellowish brown (10YR3/4) silt was below the greyish brown silt loam. Artifacts were generally confined to the upper 20 cm. The red clay was sterile, except for an occasional artifact in the upper 3 cm. Excavations were conducted in 10 cm levels: from the artifact analysis no chronological difference existed between Level 1 and Level 2. Artifacts were contemporanous both between levels, and across the site, as evidenced by a fragment of a glass bottle base from Level 3 finding a glass bottle from Level 2, and instances of decorated ceramic earthenware sherds from the same vessel scattered across the site.

A total of nine cultural features were recognized during excavations (Table 11.1). Central to all was the chimney base (Feature 9). This base consisted of cut sandstone blocks topped with a brick pad (Figure 11.2). The sandstone blocks lay in three tiers, the bottom tier resting in the red clay to a depth of approximately 20 cm. This bottom tier was 1.80 m E/W by 1.9 m N/S. The second tier was stepped back 24 cm on the south side but not on the east, west, or north. This was true also of the top tier. The entire base plus brick was 56 cm high. While the southern part

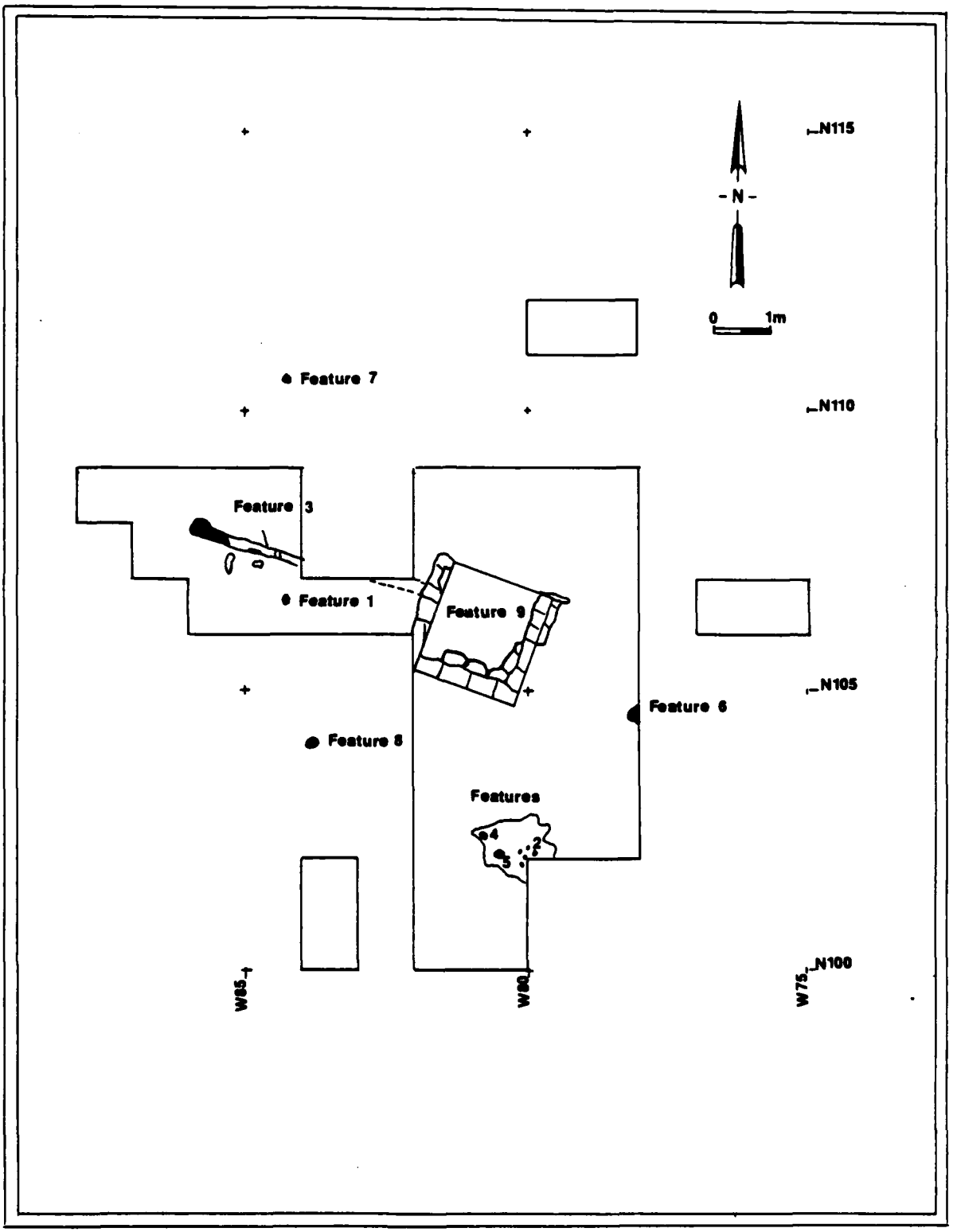


Figure 11.2.--Location of Features at Site 22TS1103A.

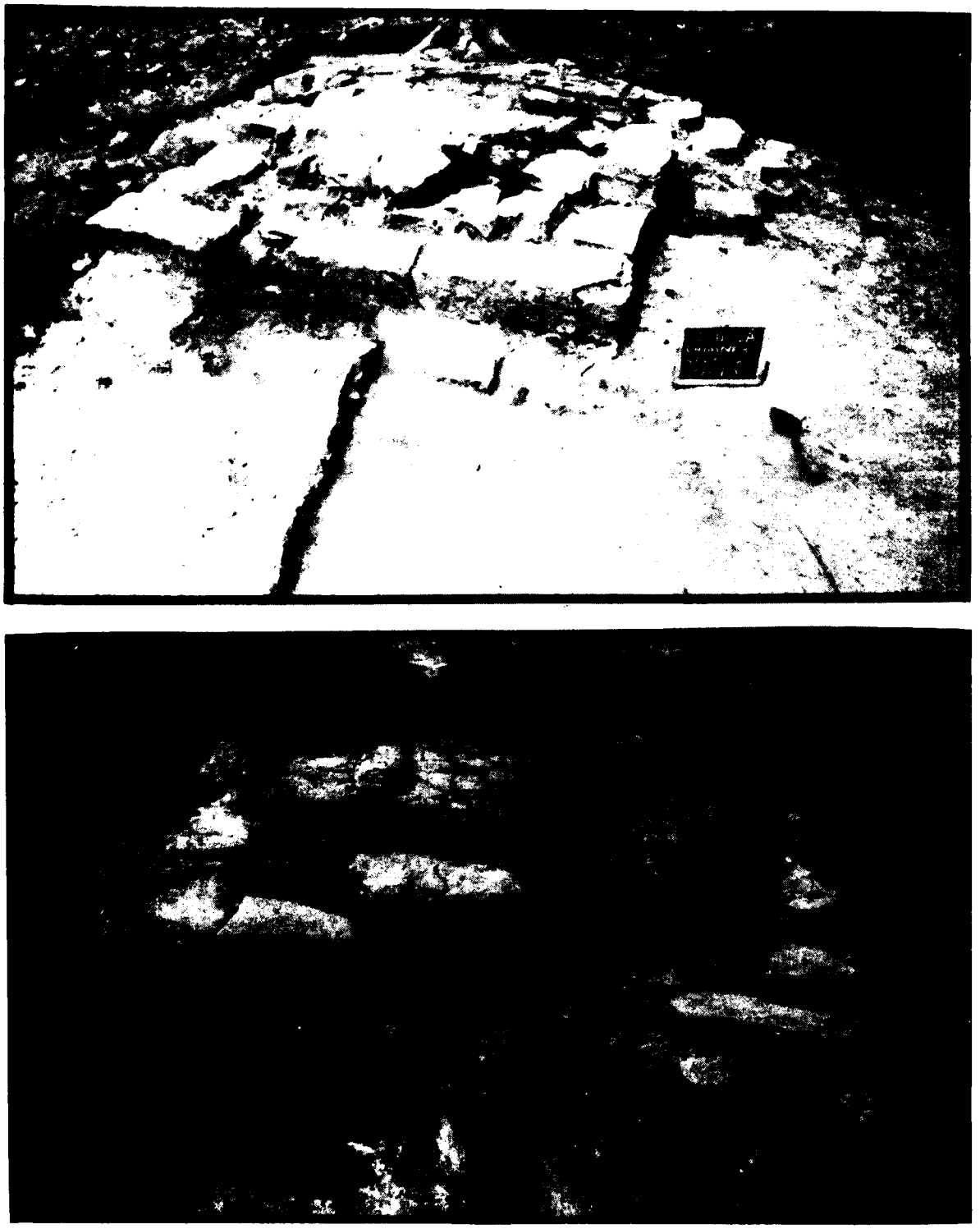


Figure 11.3.--Chimney Base at Site 22TS1103A.

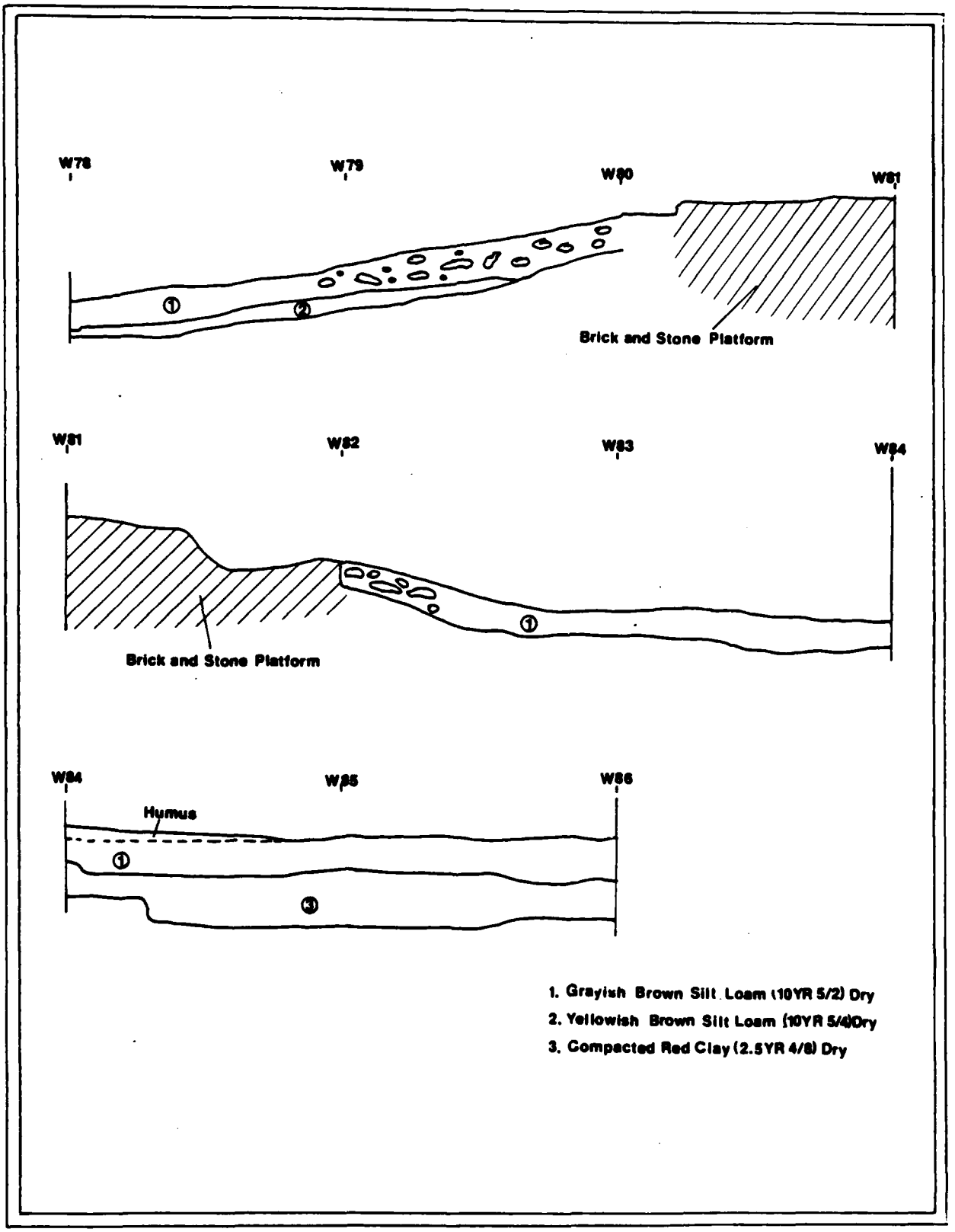


Figure 11.4.--Stratigraphy at Site 22TS1103A.

of this chimney lay in place, the eastern, western, and northern sections showed signs of having been robbed. Also, the north side had been disturbed by a large tree. The top of the platform had been covered with bricks, necessary for the construction of a firebox (sandstone, upon heating may crumble).

The brick platform can be divided into two sections for discussion. From the north, the first six rows of very worn brick had their long axes running east and west (140 cm E/W by 45 cm N/S) (Figure 11.5). No mortar had existed between these bricks which lay on a brown, charcoal flecked loam. There was only one course of brick. Beneath the brick were five separate strata of fill with artifacts, beginning with a loose brown charcoal flecked loam, 10 cm deep. Beneath this was a 15 cm stratum of sandstone rubble in a matrix of brown loam, a 5 cm stratum of decayed sandstone, a 12 cm stratum of brown hard packed loam, and a 2 cm stratum of brown loam with charcoal and roots. At the base was the sterile red clay. This fill was encompassed by the sandstone chimney base, forming a rectanglar box 45 cm by 120 cm and 44 cm deep. One significant artifact at the base of the fill was a contoured spindle. This would date the laying of the brick (and probably the construction of the chimney as well) to after 1852 when the factory was first in operation. As previously mentioned this chimney closely base resembles those at sites 22TS1110 and 22TS1105, and the robbed chimney at 22TS1103B.

Directly south of the six rows of brick were more brick running north and south along their long axis. This consisted of 13 rows of brick (perhaps more but the chimney had been robbed) 56 cm N/S by 1.56 m E/W. These bricks lay on their widest side, whereas the previous bricks were on their narrow side. This brick had no mortar between bricks but consisted of two layers of brick, mortared between layers. The brick lay on top of a solid sandstone foundation and were raised slightly above (3-4) cm that of the previously described section. A line projected west and east from the junction between the two different brick sections would correspond to the line defined by Feature 3. Thus this feature probably represents the south wall of the structure and the line formed by the two brick sections defines the area of the chimney inside the structure from that outside. Most likely the first section of brick defines the hearth area, whereas the south section functioned as the back and entrance to the flue (firebox).

Feature 3 was a shallow trench filled with charcoal, running in a northwest to southeast direction through excavation Unit 8 (Figure 11.2). It was irregular in depth and width and was interrupted at one point along its length. At its widest point it was 20 cm and 5 cm at its deepest. The feature contained machine cut nails. Excavation Unit 7 was opened to intercept the feature and locate the corner of the structure. No corner was found there and the feature tapered to an end in the northeast corner of excavation Unit 17. No further evidence of the feature existed to the north or south. No similar features were seen to the west in excavation Units 12 or 16. If the length of Feature 3 actually depicts the eastern side of the structure, we can speculate as to the size of the structure. Assuming that the chimney was located in the center of the wall we can project a line east of the chimney equal in length to Feature 3. Feature 3 was 4.5 m from chimney to end. This would define a wall, to include the chimney, approximately 10.8 m (4.5 m x 2 + 1.8 m) or 35 ft long--a rather large

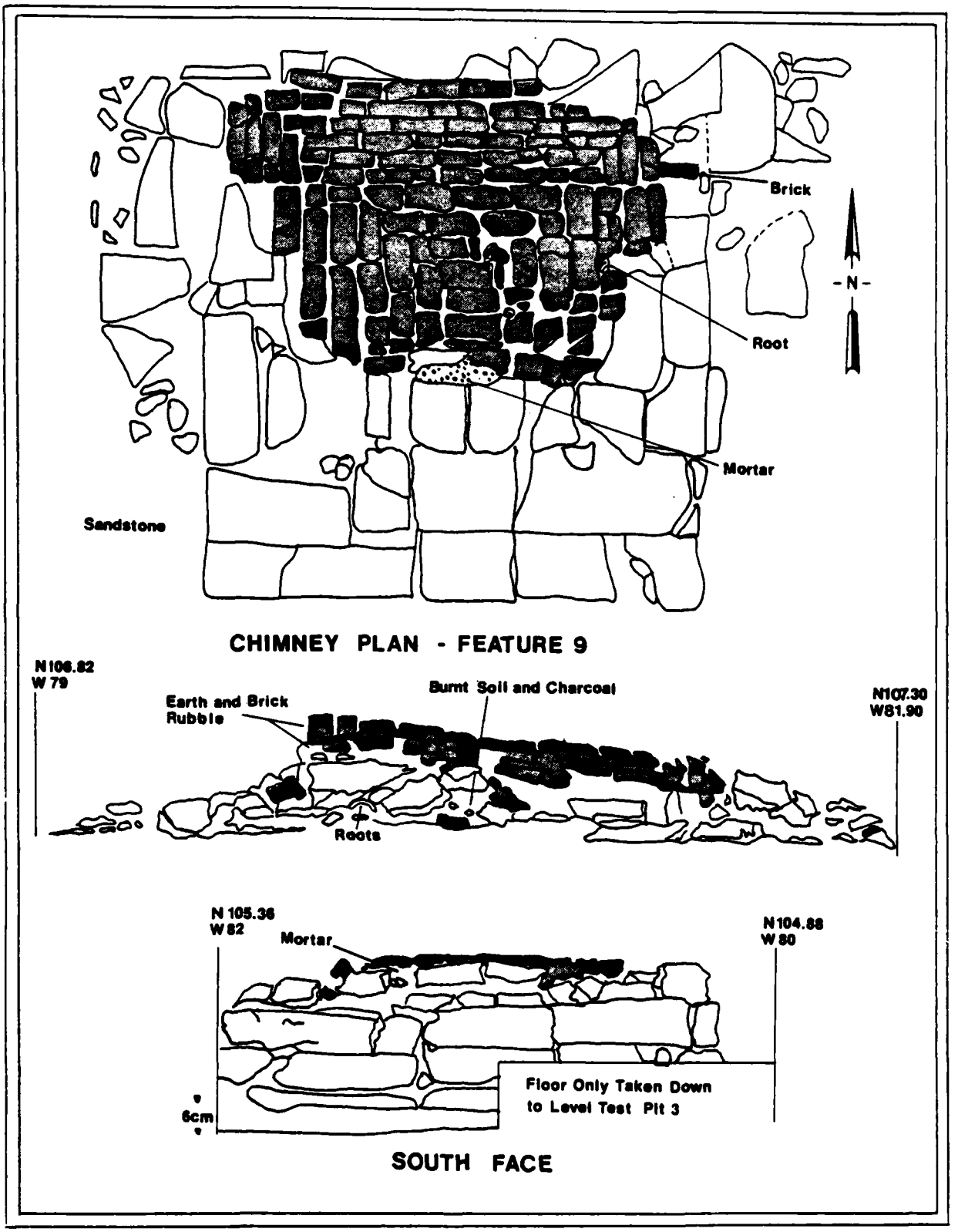


Figure 11.5.--Chimney at Site 22TS1103A.

structure. From the arrangement of the chimney, the structure must have been located north of the chimney. This area has a pronounced slope which drops from 114.26 m MSL to 113.54 (72 cm), 7 m north of the chimney. To the east it drops .36 cm in 5 m. Thus the building must have been built on blocks of wood or stone. To the southeast of this chimney the ground was level. While this would have seemed to have been a better location, if the building was built after 1852 with a southern orientation it might have interfered with mill yard operations. Excavation Unit 15 was opened to intercept any features that would delineate the eastern wall of the structure but this was not successful. Unfortunately, a road-side ditch constructed by the U. S. Army Corps of Engineers prevented further extension of test units to the east.

The distribution of artifacts generally support the concept of a structure oriented to the north. Units North of the chimney (Units 10, 14, 15, and 13) contained few domestic artifacts and window glass, but did contain many nails (Figure 11.6). Larger concentrations of domestic artifacts were found in units to the south. This would be an expected pattern resulting from artifacts accumulating mostly around the house rather than under the structure.

Besides features defining the structure were others that did not seem to conform to any particular pattern. Feature 1 (Figure 11.2) located at N106.60/W84.30 was a post hole measuring 14 by 18 cm (tear shaped) and was 32 cm deep from its point of origin at the base of Level 2. No artifacts were recovered from this feature. Another post hole, Feature 6, was located at N104.5/W78. This large post hole was 30 cm in diameter and 62 cm in depth from its point of origin in Level 1. We could not determine if the feature originated in the humus or in the gray-brown soil immediately beneath it. Artifacts found in this feature consisted of only machine cut nails. Because of the depth of the point of origin in Feature 1, the two post holes are not considered to be directly associated with each other. Also noted was a complex of three features south of the chimney: Feature 2, a trash pit; and two post holes, Features 4 and 5.

Feature 2 was a trash pit with its center located at N102.20/W80. It was 1.20 m N/S, 1.3 m E/W, and was 30 cm deep from the bottom of Level 1. Again the exact point of origin could not be deciphered since the dark greyish brown (10YR3/2) fill was analogous to Level 1 soils around it. The feature is very reminiscent of Feature 1 at Site 22TS1115. It was filled with sandstone rubble, dark fill, and many artifacts.

Artifacts recovered included clay reed pipes, bowls, machine cut nails, pontil marked bottle bases, and edge painted ceramics. Also found in the first level of the feature was a pulley arm fragment from the m. 1.

Intruding into Feature 2 were two post holes, Features 4 and 5. Feature 4 was located at N102.70/W81.60. It was 40 cm in diameter at its point of origin but 5 cm below this tapered to 20 cm in diameter. This post hole extended through Feature 2 to a total depth of 66 cm below the surface. Feature 5, located at N102.10/W81.05, was 44 cm E/W by 40 cm N/S, and 26 cm deep. Artifacts from both features were similar to those recovered in Feature 2.

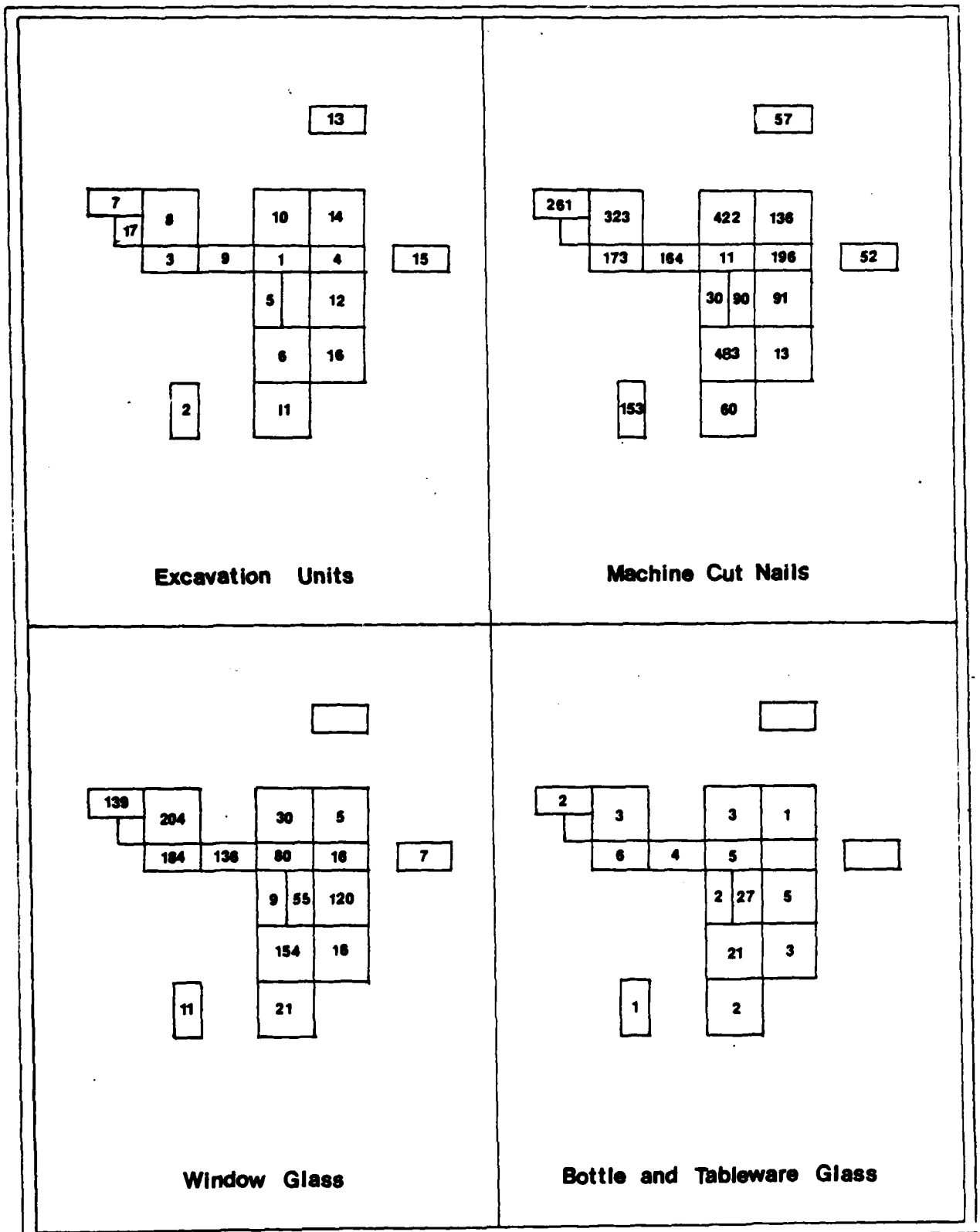


Figure 11.6.--Excavation Units and Artifact Distribution at Site 22TS1103A.

Two other post holes were discovered during the bulldozing operations in the final clearing of the site prior to haul road construction. The two post holes (Features 7 and 8) were located at N110.5/W84.30 and N104/W83.80 respectively. Feature 7 was 15 cm N/S by 12 cm E/W. Feature 8 was 23 cm N/S by 28 cm E/W. Their depths were shallow at approximately 3 cm, however, this could only be measured from a bulldozer surface and so the actual depths from surface are not known. Feature 7 contained a blue edged ceramic sherd and a machine cut nail. Feature 8 did not contain any artifacts. Feature 7 may define the west wall of the structure but this is not confirmable.

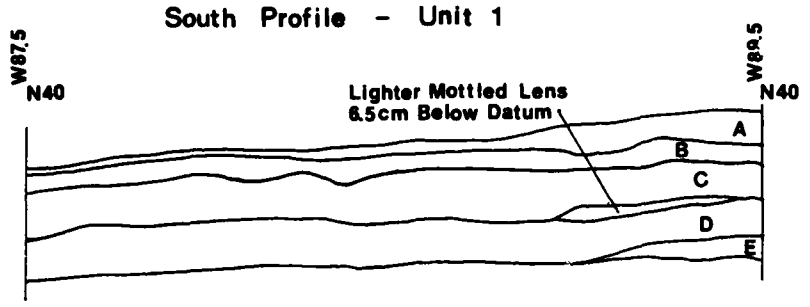
In summary, the structure in Area A was probably in active use during the operations of the mill and probably built soon after the factory's cotton operations began. Artifacts generally would date the building of the structure prior to the factory but the presence of a spindle in the chimney indicates that, unless the bricks were replaced at a later date, the chimney was built after 1852. This structure was built to the north of the chimney and it is likely, because of the slope, that it was built on piers.

Area C

This area is located south of Area B and an old road bed at N35-N50/W78-W95 (Figures 10.1, 11.1). This area of the mill site was thought to be the location of another domestic structure according to oral history sources, who remembered three structures along the county road. During testing, three cut stone blocks were evident on the surface. The test units and soil test failed to reveal any significant features, though a few machine cut nails were recovered. Recommendations called for a 10 sq m to be exposed for further exploration. Upon arrival at the site during the mitigation phase of the project, it was evident that the construction of a haul road in the interim period had greatly disturbed the southern portion. The dressed stone seen during testing had disappeared. Two 2x2 m units and one 1x2 m unit were excavated in areas of least disturbance. The 2x2 m units were excavated in half units one side (1x2 m) excavated deeper than the other. A total of 2.9 m^3 were excavated. No cultural features were found and because of the destruction to the site, no further work was deemed appropriate. With IAS and Corps approval the remaining time was shifted to Areas A and B.

Stratigraphy consisted of five separate thin strata (Figure 11.7). The upper layer was mixed humus and some very dark greyish brown clay loam (2.5YR3/2). This averaged 4 cm in depth. Below this was 4 cm of the same clay loam without humus. The third stratum consisted of a dark greyish brown loam (2.5YR4/2), averaging 10 cm deep. Below this was a greyish brown mottled loam (2.5YR5/2), for an additional 10 cm. In some areas a light olive brown loam (2.5YR5/4) intruded into this level.

Artifacts from this area included one ceramic hallmark, probably that of Baker and Company, which manufactured earthenware from 1839-1932 (Godden 1964:51).



A. Overburden – Bulldozing
B. Very Dark Grayish Brown Clay Loam (2.5YR 3/2)
C. Dark Grayish Brown Loam (2.5YR 4/2)
D. Grayish Brown Mottled Loam (2.5YR 5/2)
E. Light Olive Brown Mottled Loam (2.5YR 5/4)

Figure 11.7

In summary, the presence of a structure was not confirmed here, although limited evidence suggests it had existed. Because of the destruction of the area only minimal levels of testing were conducted.

Commissary Hollow

As previously mentioned, these sites (Figures 5.4, 11.1) were located only after substantial clearing by bulldozers. After clearing, the two ridges seemed to be littered with artifacts. A controlled surface collection was necessary to delineate potential areas for subsurface testing. Prior to our arrival for this testing two exploratory pits were excavated by Corps of Engineers personnel to determine whether or not the soils were suitable for clay fill at the dam. This afforded us the opportunity of learning what the subsurface stratigraphy would be. Their report stated that stratigraphy on the hillside consisted of six inches of disturbed soils followed by approximately 5 ft of "Red Clay".

Strategy for the controlled surface collection consisted of first visually defining site areas. The site areas were marked and tied to two datum stakes located on the ridge tops. These datum stakes were later tied into permanent Monuments 1 and 2 by Corps surveying personnel (Figure 11.1). With the artifact concentrations as general guides, four stakes were placed beyond site areas, along N/S and E/W magnetic directionals. Flags were placed at five or ten m intervals along two parallel sides of the rectangular areas. Metric tapes were then run between flags. In this manner, using the flags and tapes as guides, units could be defined for the collection and bagging of artifacts for each site. Ground visibility was 100% at the time of surface collection. This method was successful in defining the major surface concentrations. However, we noticed some artifacts still remained in minor concentrations beyond site limits. These artifacts were collected using a different strategy. A single stake was placed within the concentrations. From this stake artifacts were bagged within a circle defined by the radius from the stake to a prescribed distance. These were labeled Areas A, B, and C.

Initially artifact distribution maps were prepared showing eight categories:

--Ceramics: earthenware, stoneware, porcelain;
--Bottle glass: curved glass from glass containers;
--Window glass: flat, clear glass;
--Other glass: pressed-in-mold glass, glass known to be from tablewares, or lighting devices;
--Metal: unidentified metal objects, metal artifacts not identified as architectural hardware;
--Nails: square and wire cut;
--Architectural hardware and construction materials: brick, plaster, tile, metal, and hinges;
--Other objects: recently deposited beverage containers, oil cans, shotgun shells, bone, buttons, and chert.

These maps provided a key for constructing the two types of maps presented here (Figure 11.8, 11.9) for Sites 22TS1113 and 22TS1115 (at Sites 22TS1111, 22TS1112, and 22TS1114, only one map was constructed, because no heavy artifact clusters were evident). The top map presents architectural artifacts and the location of test units. Architectural artifact distribution included nails, metal door hardware, and construction materials like brick, plaster, or tile. The bottom map denotes ceramic artifact clusters assumed to be associated with domestic activities. Shading of squares corresponds to raw numbers of sherds. Ceramics are considered here because of their prevalence and because their clustering represents the same clustering as seen with other artifact types.

After the initial artifact analysis, we returned to Bay Springs to conduct a subsurface testing program for these sites. Six 1x1 m units and 14 1x2 m units were excavated at these sites, a total of 7.6 m^3. Units were placed primarily in areas of artifact concentration. Augering, using a one inch soil extruder, was also conducted across all sites. This consisted of 5 m interval augering in two N/S and E/W transects. At Site 22TS1115, three additional transects were placed at 2.5 m intervals and one additional transect was completed at Site 22TS1113. It was quickly evident that the upper 10 to 20 cm of soil at all sites had been greatly disturbed by the clearing and subsequent erosion. A final site surface collection was completed after testing, picking up newly eroded material resulting from a rainstorm.

The Monroe Gilley House--22TS1111

Site 22TS1111 and Circle A were interpretated by artifact analysis to be of 20th century origin. Oral history had designated this area as the location of a 20th century house occupied by Monroe Gilley. No structural remains were located. The site lies on the north ridge top of Commissary Hollow directly south of the modern bridge crossing Mackeys Creek. The systematic surface collection at this site consisted of a 40 m N/S by 50 m E/W rectangle collected in 5x5 m units. There was a slight clustering of artifacts, within a 15 x 15 m area from N320 to N335 and from E315 to E330 (Figure 11.10). Testing consisted of placing three 1x2 m units at N326.60/E317; N323.70/E324.15; and N324.9/E332.2 and one 1x1 m unit in Circle A for a total of .7 m^3 excavated (all unit locations are given from the northeast corner). One unit was placed outside the surface artifact

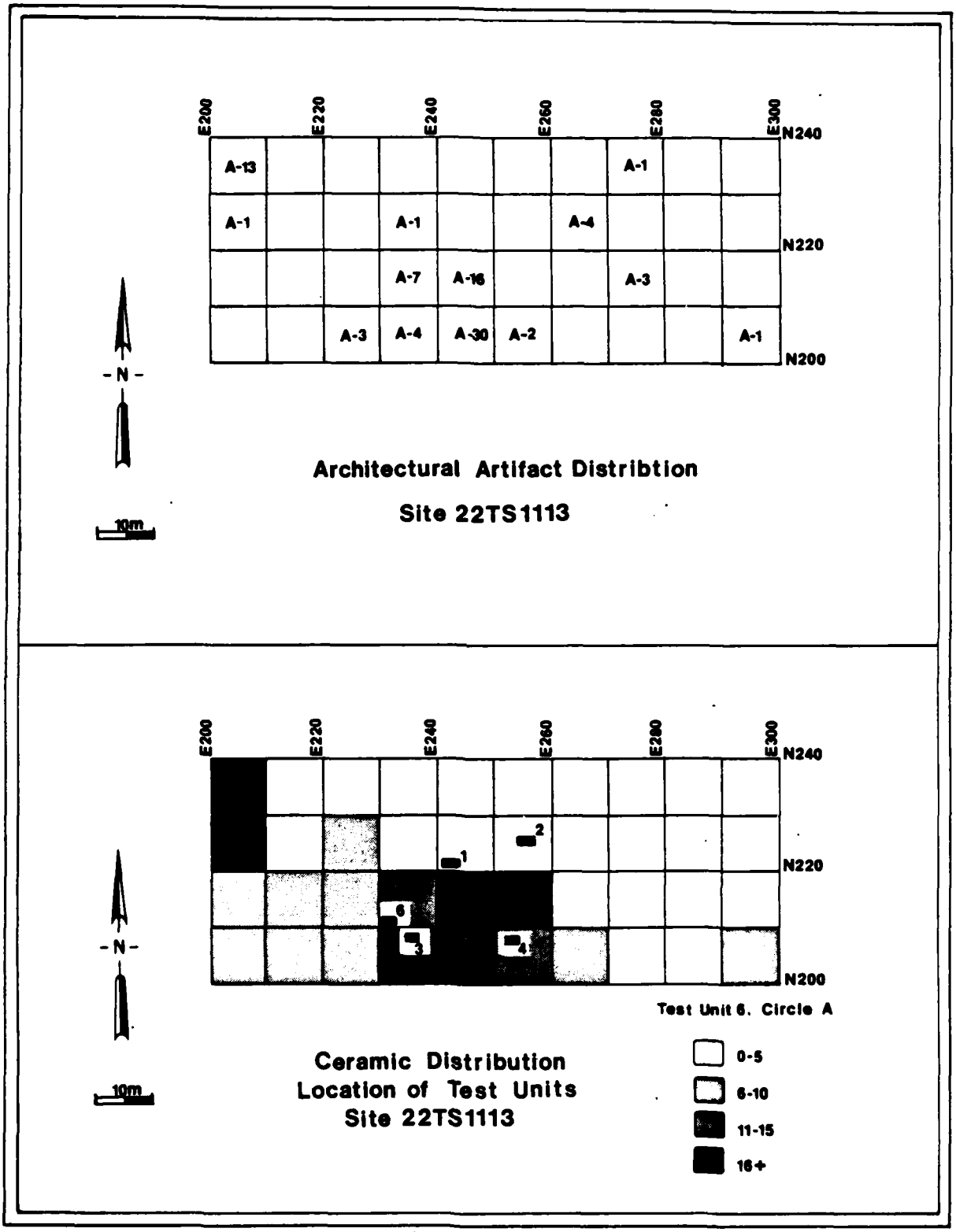


Figure 11.8.--Location of Test Units and Distribution of Artifacts at Site 22TS1113.

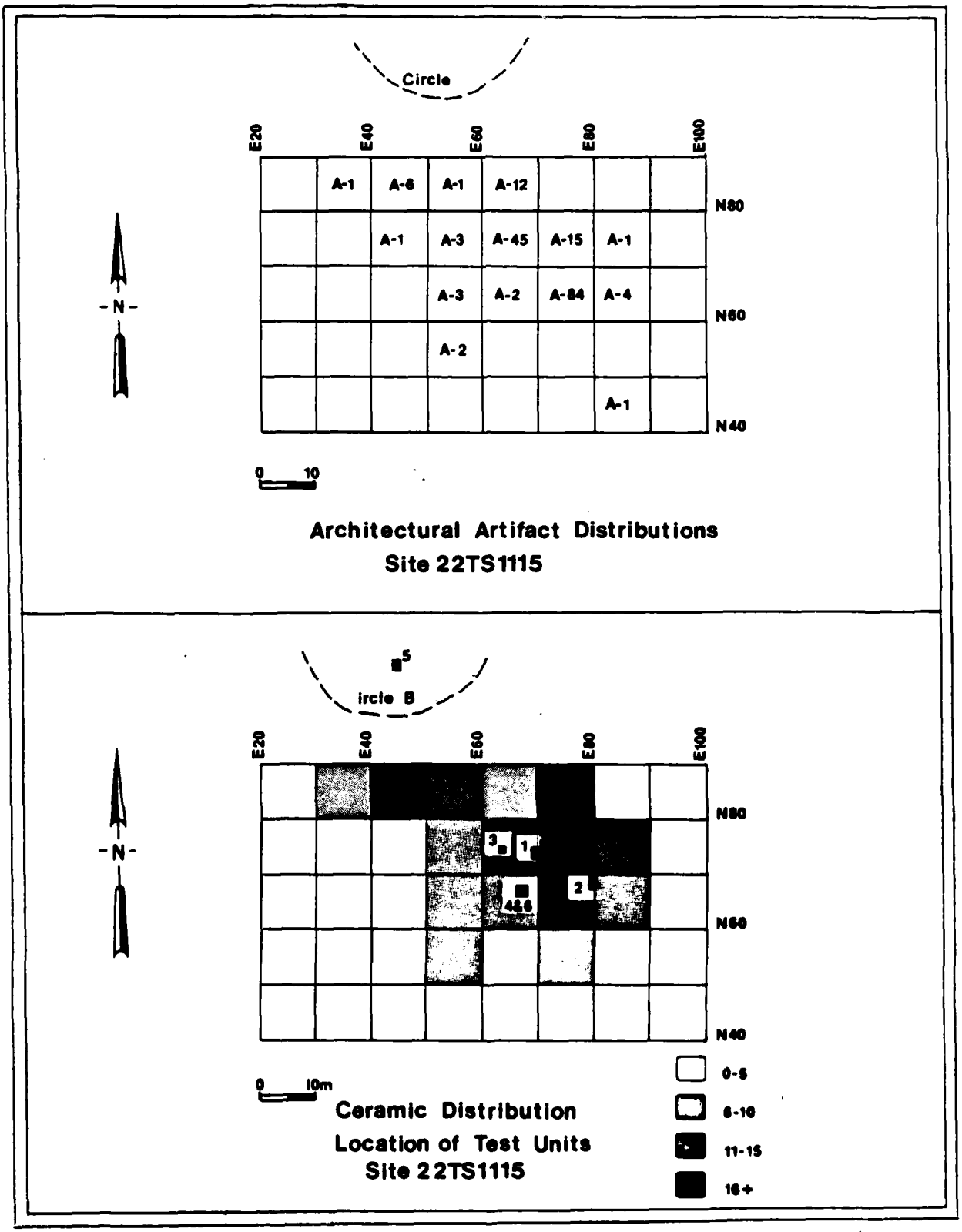


Figure 11.9.--Location of Test Units and Distribution of Artifacts at Site 22TS1115.

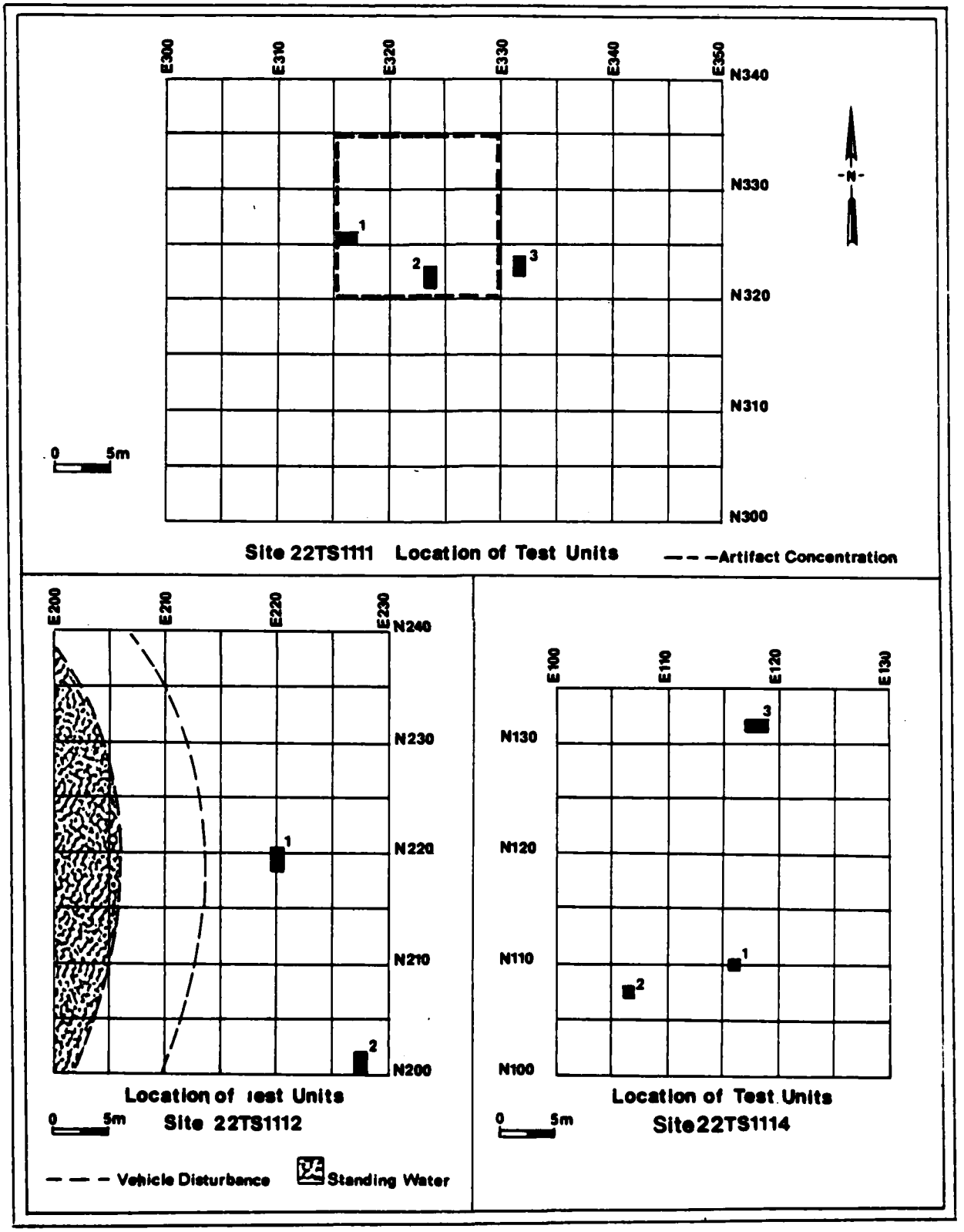


Figure 11.10.--Location of Test Units at Sites 22TS1111, 1112, and 1114.

concentration because previously excavated test units within the concentration revealed highly disturbed soils making further excavation there unnecessary. In addition to the test units, soil augering to the depth of 30 cm was conducted at 5 m intervals along the N325 line and the E315 line. In most cases, units did not have to proceed further than 10 cm to determine the extremely high level of disturbance at this site.

Stratigraphy was inconsistent across the site (Figure 11.11). In some areas topsoils had been mixed with sterile red clay (2.5YR4/8) while in others the topsoils had been stripped entirely. Where undisturbed, soils consisted of an average of 8 cm of dark brown sandy loam (10YR6/3) below which was red clay. All test units lacked cultural features.

Artifacts from 22TS1111 and Circle A were diagnostic of an early to mid-20th century occupation. A bottle base recovered was marked from Corinth, Mississippi, and dated from 1917-1932 (Toulouse 1971:462). Another contained an Owens-Illinois Glass Company mark dating from 1911-1929 (Toulouse 1971:343). These suggest this site was indeed the one occupied by Monroe Gilley, and therefore not associated with the mill community.

The Upper Commissary Hollow Site--22TS1112

This site is located at the southeastern base of the ridge occupied by Site 22TS1111 and at the origin of a small intermittent stream (Figures 11.1, 11.10). Its location in a poorly drained area at the base of two ridges implied the possibility of a trash disposal area. Subsequent test excavation and probing failed to confirm this hypothesis. Given the sparse quantity of the assemblage we suspect the material eroded from a site upslope and to the east, just outside of the area cleared by the Corps of Engineers, or it was a minor dumping area.

The area encompassed by the controlled surface collection was 40 m N/S by 30 m E/W (Figure 11.10). Artifacts were collected in 5x5 m units. There was some standing water and weeds to the west. Distribution maps indicated no concentrations of artifacts, although there seemed to be slightly more artifacts on the western part of the site. Upon returning to the site for subsurface testing this area had been further disturbed by a heavy four-wheeled vehicle and parts were still in standing water. Therefore, test units were located farther to the east in less disturbed areas, at N220.50/E220.60 and N202.20/E228.40. These 1x2 m units were excavated to sterile soil which averaged 25 cm below the surface. Probing was executed along the N220 and E215 line at 5 m intervals.

Stratigraphy in the test units consisted of 6 cm of mixed humus and subsoils of yellowish brown sandy loam (10YR6/3) which gradually became a strong brown loam (7.5YR4/6) until reaching the red clay, approximately 25 cm below the surface (Figure 11.11).

Test excavations and probing revealed no subsurface features. Test Unit 1 (N218.50/E214.60) contained no artifacts. Pontil marked bottles and square cut nails were found mixed in the same excavation levels and surface units as machine-made bottles and linoleum tile.

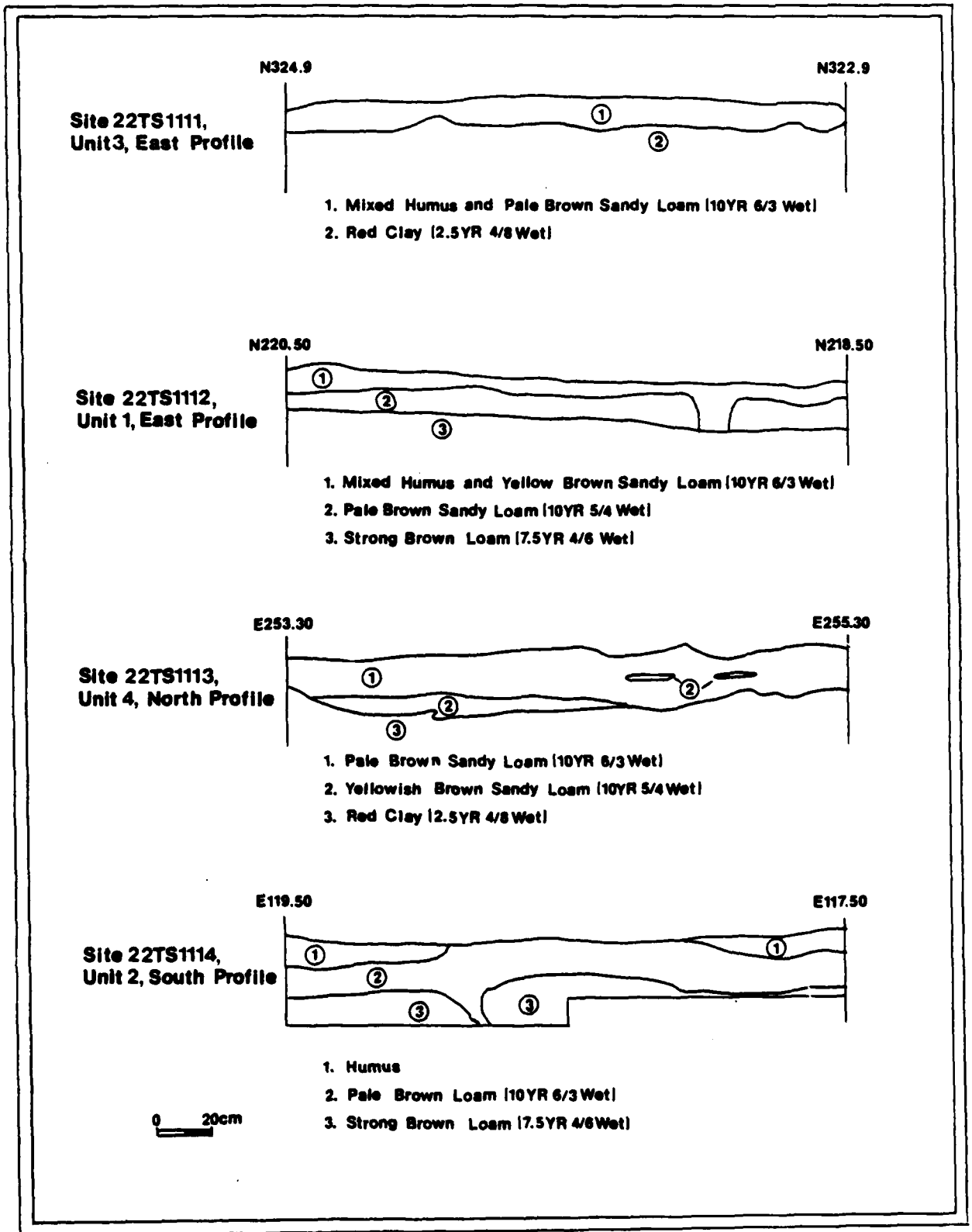


Figure 11.11.--Stratigraphy at Sites 22TS1111, 1112, 1113, and 1114.

The Commissary--22TS1113

Site 22TS1113 was located on the southwest slope of the ridge containing Site 22TS1111 (Figure 11.8). It was bordered to the south by the intermittent stream and on the west by a county road. It is interpreted as the location of a sawmill house or possibly the early factory commissary.

A long rectangular area 40 m N/S and 100 m E/W and was collected in 10 sq m units. Artifacts clustered in two areas (Figure 11.8), the heaviest was approximately from N200-220 and E220-260 (excluding N210-20/E220-230). Within this area, Unit N200-E240 alone contained 85 ceramics, 39 glass sherds, and 30 architectural artifacts (nails and window glass). Artifacts also clustered in units N220-240/E200-210.

Three 1x2 m test units were placed within the boundaries defined by the artifact concentrations: N211.80/E232.20, N208/E237.50, and N208.00/E255.30. The slope in this area was highly eroded and gullied. Artifacts concentrated here could have resulted from trash deposited in the gullies or as a result of erosion. Therefore two additional test units were placed directly north and upslope of the gullies at N221.10/E243.00 and N224.35/E256.10 (Figure 11.8). Soil augering was conducted along the E240, and N220 lines with additional probing along the E230 and E250 lines in the areas of artifact concentrations.

Soils across the site consisted of topsoils and subsoils on the western part of the site, eroded topsoils at mid-site near artifact concentrations, and red clay (top soils stripped away) toward the eastern portion of the site. Stratigraphy in the test excavation units indicated a pale brown sandy loam (10YR6/3) averaging 16 cm in depth below which was a 6 cm stratum of yellowish brown sandy loam (10YR5/4). This lower stratum was often permeated by the red clay (2.5YR4/8) and in some places did not exist at all.

No cultural features were revealed in the excavations. Most artifacts were associated with a late 19th century context. For example, both square and wire cut nails were found, and one ceramic mark was "Alfred Meakin" (Royal Arms) dating post-1875 (Godden 1964:425). One pontil marked bottle base was recovered, perhaps impling a mid-nineteeth century component to the site. Although informants clearly indicate this was the Commissary location, we cannot confirm this. The combination of late and mid 19th century materials could mean that a commissary was here, then the building or general location was reused for a sawmill house. Given the complete lack of architectural evidence and high level of disturbance we can not confirm a structure in this area though several informants indicated this area as the location of the mill commissary and later a house for saw mill workers.

The Dump Site--22TS1114, and Circle C

This site was located on the northern slope of the second ridge which formed Commissary Hollow (Figures 11.1, 11.10). The site covered the slope from ridgetop to the intermittent stream. We interpret the site to be a 19th century trash scatter probably associated with Site 22TS1115.

The controlled surface collection included an area 35 m N/S and 30 m E/W. We collected in 5x5 m units. The surface collection revealed no artifact concentrations. Two 1x1 m units were excavated at N110.90/E116.60 and N108.60/E107.70, and one 1x2 m unit at N132.00/E119.50. Soil augering was completed along the N115 and the E115 lines.

Like the Commissary Site this site was heavily eroded. The crest of the ridge at this location was completely stripped of topsoils. Stratigraphy near the base of the hill consisted of a pale brown loam (10YR6/3) intruding upward into the disturbed humus and continuing to about 20 cm below the surface. Below this was a strong brown loam (7.5YR4/6), culturally sterile.

No cultural features were present. A number of blue edged plate rims implied that the site was associated with a mid 19th century context.

The Mill Worker House--22TS1115 and Circle B

This site was located on the same ridge as the above dump but separated from it by a gulley (Figures 11.1, 11.9). We interpret the site to be a mid 19th century domestic site, a part of the 19th century mill community.

The surface collection consisted of a large rectangular area 50 m N/S by 80 m E/W and artifacts were bagged in 10x10 m units. This site had the only surface feature of any of the Commissary Hollow sites, a sandstone block located at N75/E64 and believed to have been part of a chimney. Excavations near it determined that if it was once a chimney block, it had been moved out of place. However, the block was in an area where artifacts clustered within N60-80 and E50-80 (Figure 11.9). Beyond this area artifacts seemed to concentrate to the northwest especially in an area from N80-N90/E40-70. This concentration of artifacts followed the ground slope defined by a gulley which carried into Circle B. Therefore, the original structure is believed to be in the area of the sandstone rock with perhaps a trash disposal area at Circle B.

A total of four 1x2 m units and two 1x1 m units were excavated (one in Circle B). The 1x2 m units were located at N75.50/E70.65, N70/E80, N68.20/E68.50 (this unit was expanded by an additional 1x2 m). Augering was completed along the N70 line, E70 (at 2.3 m intervals) E65 and in the areas of artifact concentration at E60 and E67.5 at 2.5 m intervals. Additionally, augering was completed along the E50 line from N70 to N90.

Soils across this site consisted of around 20 cm of yellowish brown loam (10YR5/4) before becoming red clay. Humus was mixed in the yellowish brown loam. Towards the crest of the ridge top soil did not exist, while at the base of the gulley the eroded top soil was 12 cm in thickness. The stratigraphy in Unit 1 (Figure 11.12) is demonstrative of the soils across the site. An intermittent humus zone above 10 cm of yellow brown sandy loam (10YR5/4) which became red clay (2.5YR4/8).

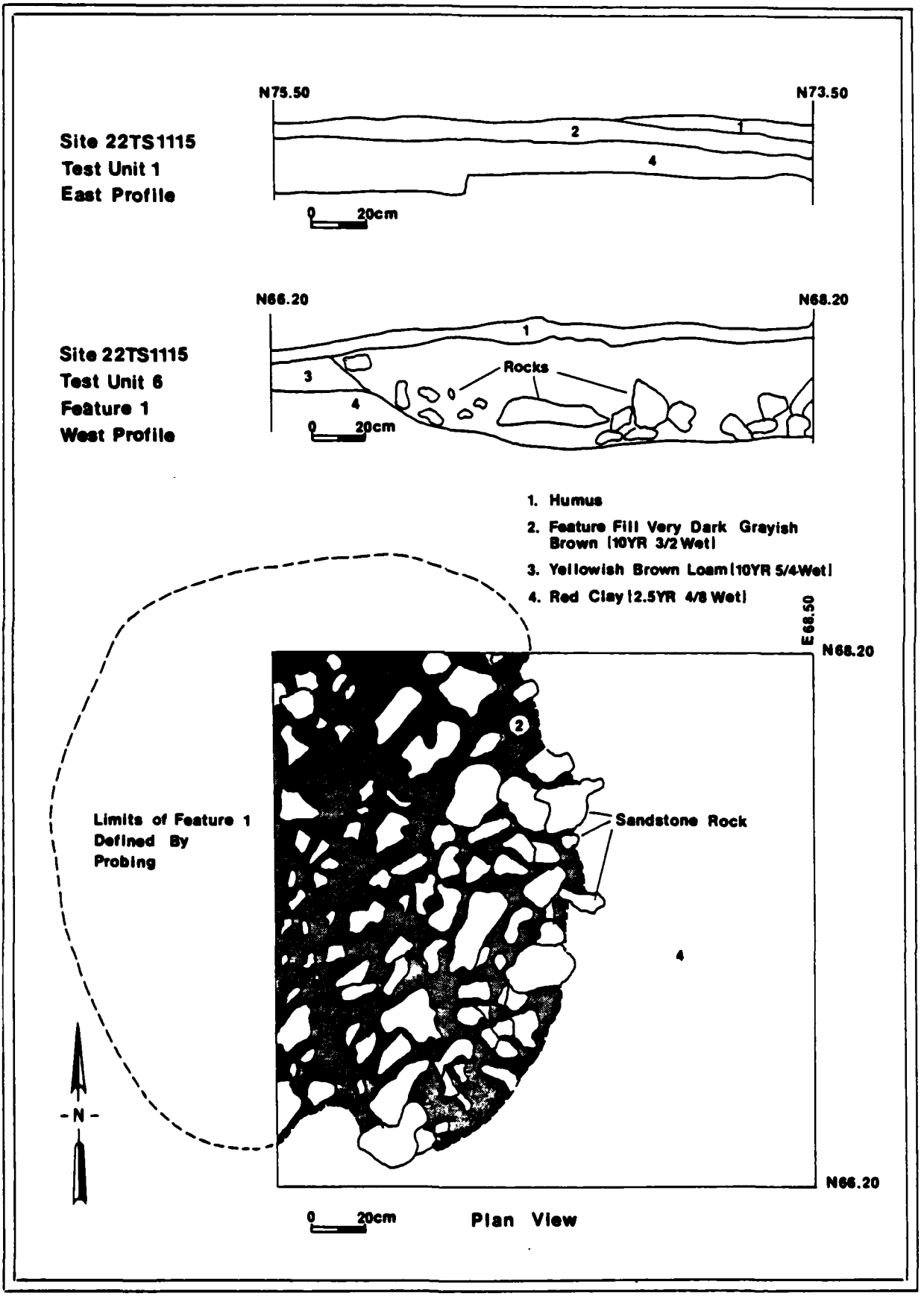


Figure 11.12.--Plan View and Stratigraphy at Site 22TS1115.

One cultural feature was excavated (Figure 11.12), a sandstone rock and artifact filled pit, roughly circular in shape and 2 m in diameter. Its point of origin was 20 cm below the surface and continued to an average depth of 48 cm below the surface. The feature was reminiscent of Feature 2 at Site 22TS1108. Both were filled with sandstone rock and artifacts, but this feature was much larger. Soils in this feature were analogous to soils above it, yellowish brown loam (10YR5/4). Artifacts from this feature and from this site were of a mid 19th century context: pontil marked bottle bases, machine cut nails, annular and edge painted ceramics, for example.

The Barracks--22TS1108 and 22TS1109

Sites 22TS1108 and 22TS1109 were located immediately north of Highway 4 (Figure 11.13), on level ground, and bounded by the road to the south and a cliff at Ginn's Branch to the north. The sites were discovered during the survey after informants had pointed out the area as the location of mill workers "barracks".

According to oral history, the barracks were housing for the mill workers. Although informants agree that they were lineally arranged, there is a discrepancy as to whether it was one long building or four in a row. Unfortunately, no written records exist for these structures and our excavations did not reveal any positive evidence for structures in this area, other than artifacts.

We interpret the sites to be backyard areas between the mill workers houses and the cliff. The original structures are believed to have been destroyed during construction of modern Highway 4. Artifacts date the sites to the mid-19th century, contemporanous with the mill community. A 20th century garden was also present at 22TS1109.

At 22TS1108 (Figure 11.14) recommendations called for four 2x2 m excavation units be placed within an area defined from N535 to N555 and from W560 to W580, to intersect any possible structural remains and to collect an artifact assemblage. In order to insure maximum coverage of this area, it was decided that 1x2 m units would be appropriate. A total of six 1x2 m units and one 2x2 m unit were excavated to sterile soil which averaged 15 cm below surface. A total of 2.4 m^3 were excavated. Stratigraphy was not complex at this site. Top soils consisted of a very dark grayish brown humus (10YR3/2) averaging 4 cm in depth but sometimes extending to 10 cm below surface. Below this, the soils became a mottled grayish brown loam (10YR5/2) with a yellowish brown silt loam (10YR5/4) averaging 6 cm in thickness which gradually became a dark yellowish brown silty clay (10YR4/6) 12-15 cm below the surface. While some artifacts were noted in the upper 5 cm of the silt clay below this soils were culturally sterile. Probing indicates that bedrock is approximately 1.2 m below the surface.

During the survey a small donut shaped mound with a central depression 2 m in diameter and .5 m deep was noted at N543/W570 and a test pit placed there. The previous test pit and our excavation unit defined a 10 cm layer of subsurface soils placed over topsoil in reverse stratigraphy. Charcoal flakes and ash were noted to the immediate south in our excavation

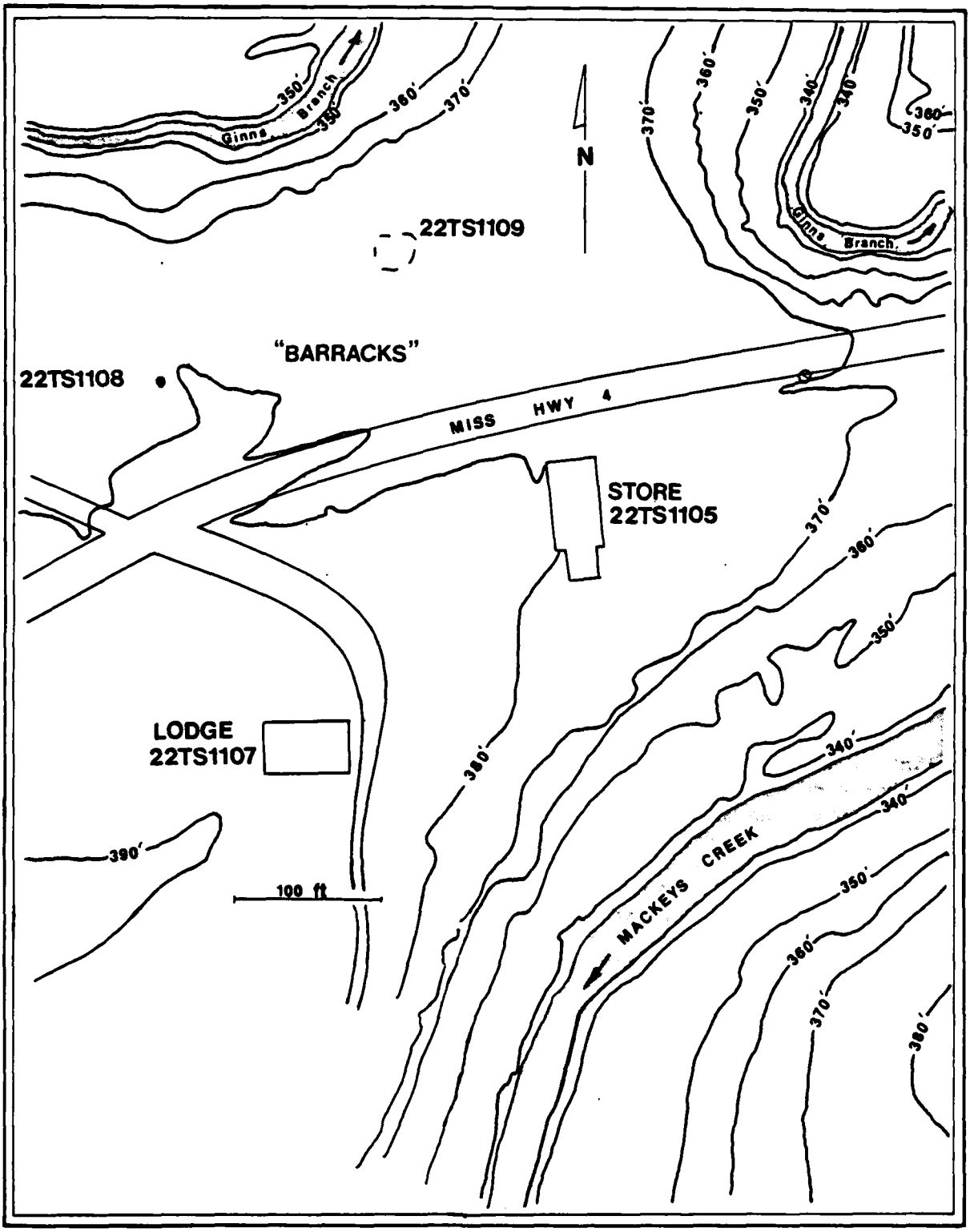


Figure 11.13.--Location of the Bay Springs Lodge, Store and "Barracks".

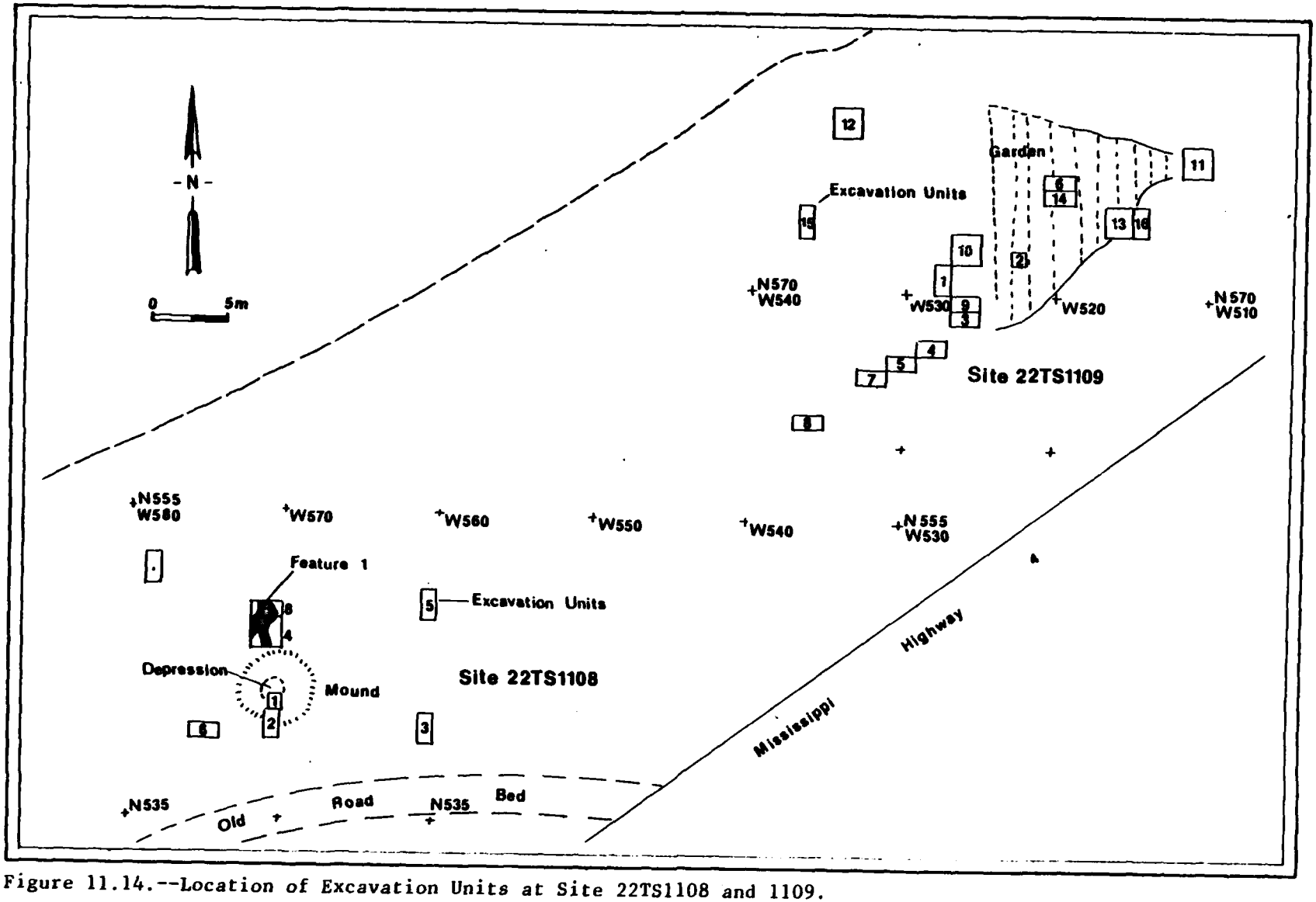


Figure 11.14.--Location of Excavation Units at Site 22TS1108 and 1109.

unit but no structural remains were uncovered. We hypothesized that possibly a well or cistern was located here. However, excavation, probing, and augering, at the mound and depression found no evidence of a cistern or well. Soil within the depression was loosely packed to a depth of 1.2 m. At this point we hit the hard sandstone bedrock. Outside of this depression, soils were hard packed 10 cm below the surface. There were no artifacts found on the surface, around, or in the depression. The depression is interpreted to be a "pot" hole of possibly recent origin.

Two features were uncovered during the excavations. Feature 1 located at N546-549/W571.2 (Figure 11.14), was discovered as a result of excavations around a sandstone block, 1.5 m north of the mound/depression, which was thought to possibly be a house cornerstone. Upon excavation a shallow trench was discovered running at least 3 m to the north and ranged from .32 m to 1.35 m in crosssection. It was only 10 cm deep, and its point of origin was 16 cm below the surface. The sandstone rock did not penetrate into the feature but lay upon the surface. Feature fill was a dark grayish brown (10YR3/2) silt loam. The feature appeared as an intrusion into the surrounding yellowish brown silty clay (10YR5/6). Artifacts collected in and above the feature were associated with a mid 19th century context. A partial ceramic hallmark with the word "WEDGEWOOD" was recovered. The mark resembles the printed mark registered by Podmore Walker & Co. in 1849 (Godden 1964:501). Machine cut nails and a clay pipe were also collected. We interpret the feature to be associated with yard activities, though its exact identity is not known. The sandstone rock may have been a cornerstone but if so it was obviously displaced from its original location.

Feature 2 was a shallow pit, located at N550.6/W578.8 (Figure 11.15). Immediately below the humus the feature was oval shaped measuring 1 m N-S by .45 m E-W. Below this the feature became circular, 60 cm in diameter, and continued to a depth of 26 cm below the surface. It was filled with small sandstone rocks from 8 to 40 cm in diameter. Feature fill was a very dark grayish brown silt loam (10YR3/2). Artifacts recovered within the pit were not helpful in identifying its function. Only machine cut nails were diagnostic, implying a 19th century context.

Our original hypothesis was that this feature and Feature 1 represented remains of the barracks indicated by our informants. The distance from Feature 1 to Feature 2 is 7.5 m (24.7 ft), in range for a large single structure. Assuming that Feature 2 could have been a corner, there were no soil color differences around the pit indicating the presence of a building wall nor were there indications of a dripline. Feature 2 appeared as an isolated pit. There was no evidence of an association between Features 1 and 2.

No other features were found in the remaining three test units. Artifacts were scarce and none were diagnostic. Given time restrictions and the lack of positive evidence of structural remains, no further work was warranted in this area.

The other site in the barracks area was 22TS1109, located within N565-585 and W510-540 (Figure 11.16). Recommendations were to excavate 15 2x2 m units in this area in order to collect a sample of artifacts from

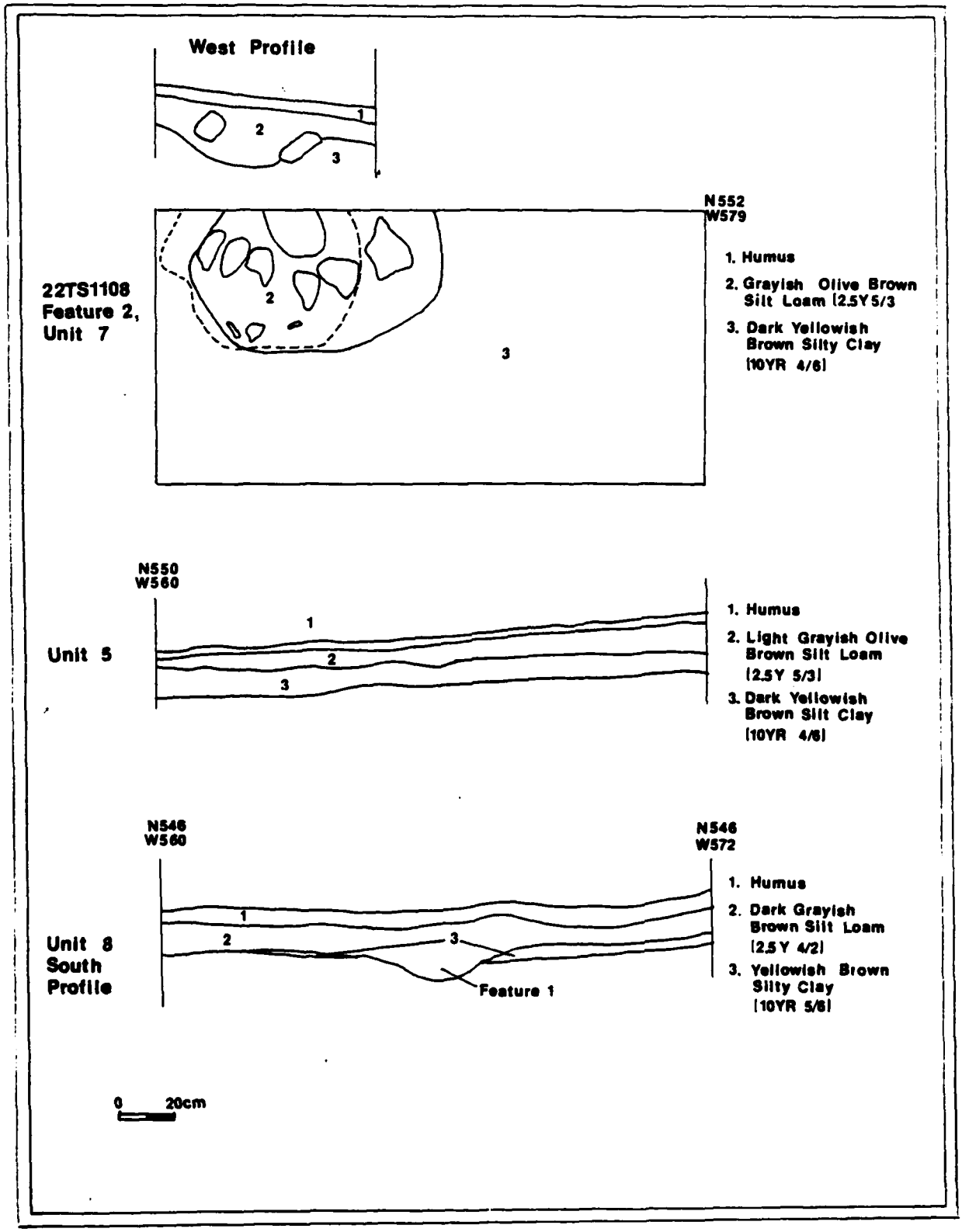


Figure 11.15.--Stratigraphy at Site 22TS1108.

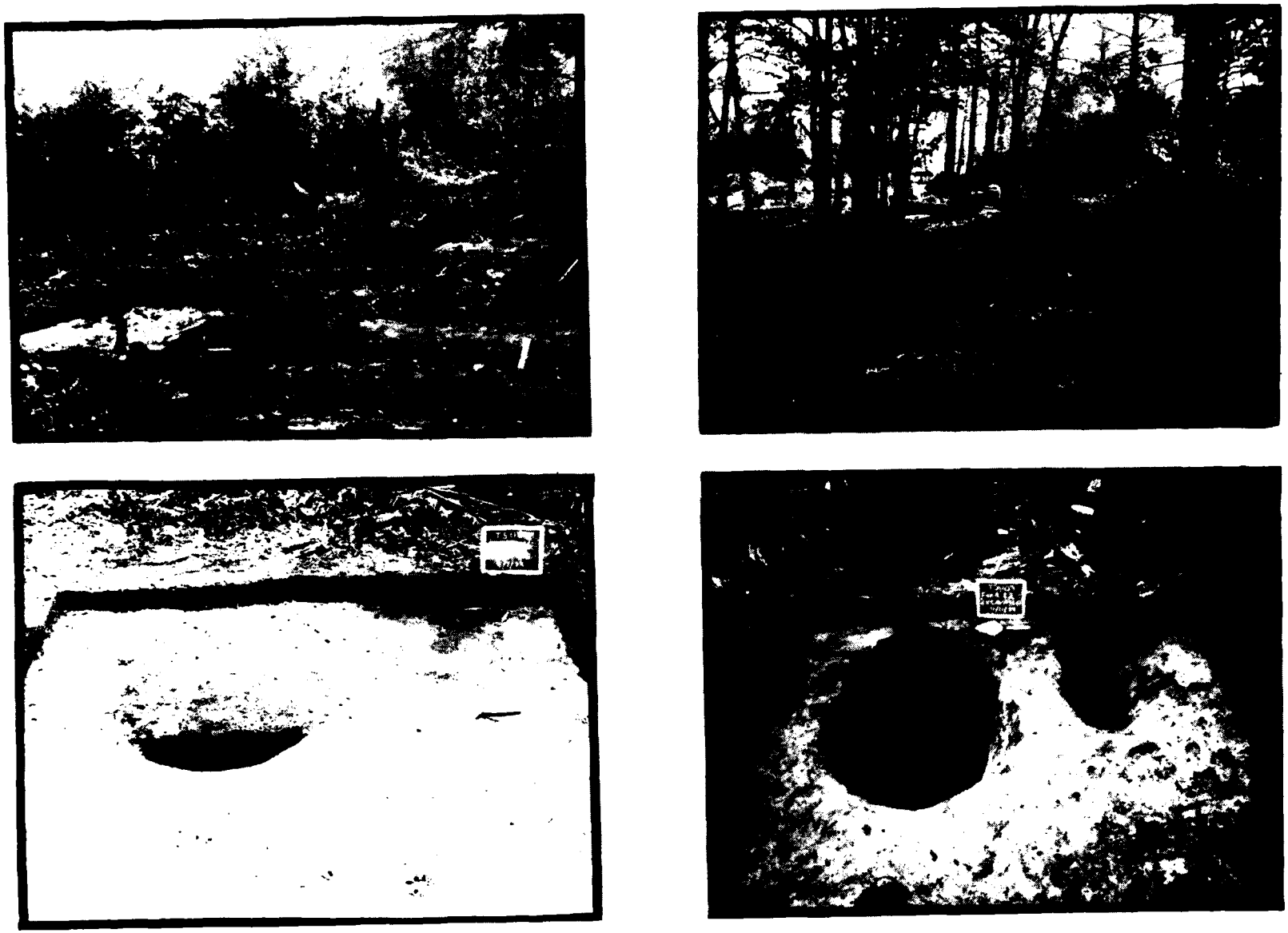


Figure 11.16.--The "Barracks" Site, 22TS1109, and Features 1 and 2.

what oral data had defined as the barracks area. As at Site 22TS1108, both 1x2 m and 2x2 m units were used, assuring us better coverage of the site area. A total of 10 1x2 m units and four 2x2 m units were excavated to sterile soils at an average depth of 25 cm. A total of 9 m^3 were excavated. Stratigraphy at this site was consistent with 22TS1108. There was a dark grayish brown humus (10YR3/2) averaging 4 cm in depth above a brown silt loam (10YR5/3) which averaged 14 cm in depth. Below, the soils changed to a yellowish brown silt loam (10YR5/4). In the garden area, described below, the silt loam soils below the humus were mottled dark grayish brown (2.5YR4/2) with light yellowish brown (2.5YR6/4) averaging 14 cm in depth. Below this was the yellow brown silt loam. Except for the upper 5 cm, this yellowish brown silt loam was culturally sterile.

Artifacts seemed to cluster in an area around N568-576, W522-528 and also in a roughly triangular shaped surface disturbance (Figure 11.14). This disturbance contained a regularily undulating surface which indicated a garden. Measurements of the distances between "furrows" across the garden ranged from 1.25 m to .8 m with a median of .96 m. This garden is of probable 20th century origin.

Two features were located during the excavations. Feature 1 was an oval shaped pit located at N575.40/W514.60 (Figure 11.17). The pit was .70 m N/S by 1.05 m E/W and .53 m deep. Three stratigraphic levels were apparent in the profile of this feature. Stratum 1 was analogous to the plow zone, a very dark grayish brown silt loam (10YR3/2). Stratum 2 was a dark grayish brown silt loam (10YR4/2) with mottling in the southern side of the pit. Stratum 3 was reddish brown silt loam (5YR4/3). All soils were loosely packed, high in organic matter, and stood in stark contrast to the yellowish brown soil of the natural subsurface. Artifacts from the pit were contemporaneous throughout the three strata. Stratum 2 contained a ceramic fragment with a Staffordshire scenic design called "Ontario Lake," dating from 1845-1853 (Williams 1978:353). This level also contained a general service button of the U.S. Army dating from 1855-1884 (Brinckerhoff 1972:5). Many bone fragments were also recovered (see Appendix 5).

Located at N574.23-N574.78/W514.0-514.81 was Feature 2, another oval pit. This feature was 46 cm N-S by 80 cm E-W and 16 cm deep. Soils were loosely packed and a very dark grayish brown silt loam (10YR3/2). No diagnostic artifacts were recovered.

At this point excavations had opened a total of 36 sq m and no other features had been encountered. A large number of artifacts had been collected and the site area had been adequately covered. Given the time constraints, we felt that a better investment of time could be spent elsewhere. This decision was further warranted later, when adverse weather conditions cut into an already restricted schedule.

Public Sites--22TS1107 and 22TS1105

Three public sites were investigated, the previously discussed commissary, the Masonic Lodge, and the general store.

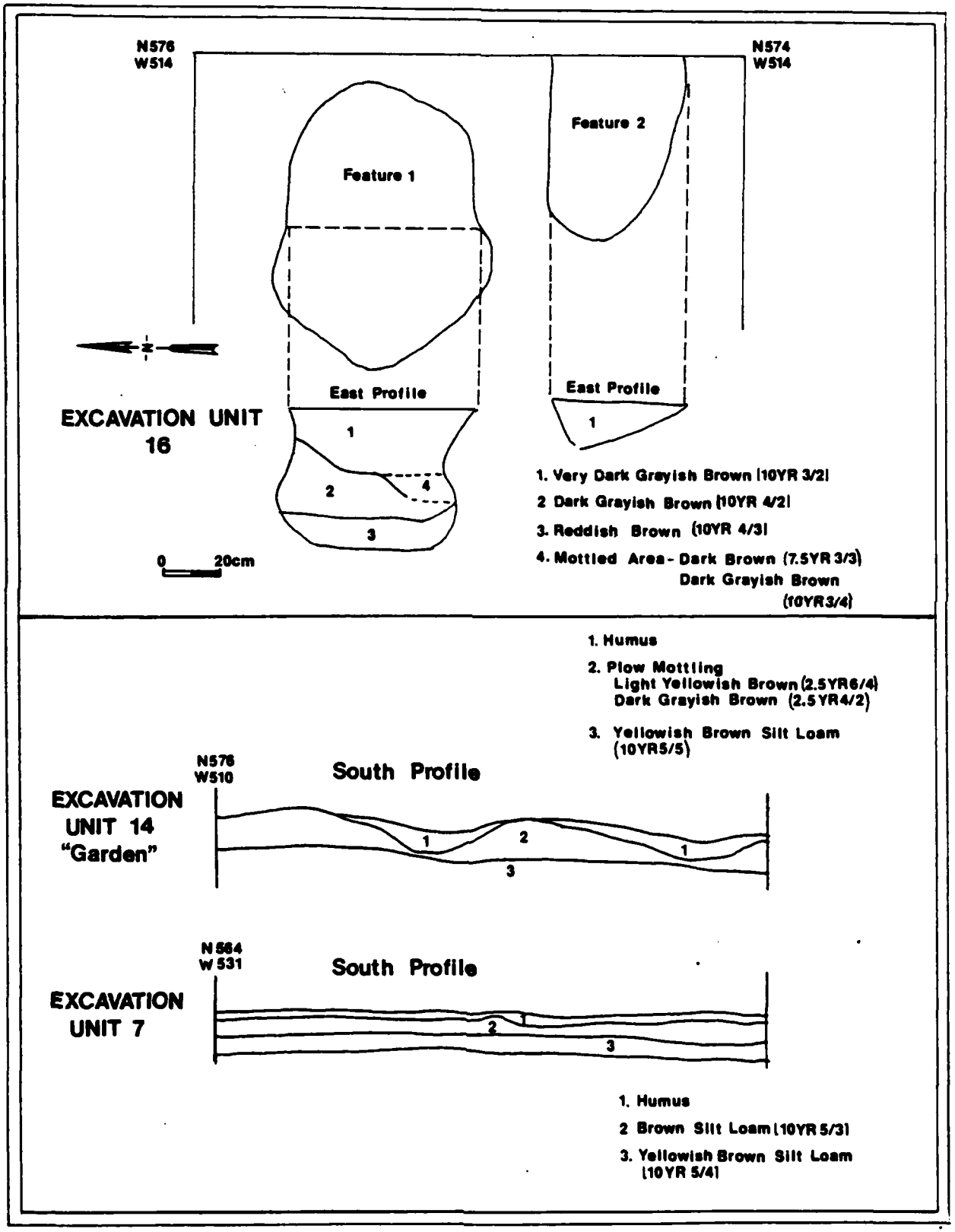


Figure 11.17.--Stratigraphy at 22TS1109

The Masonic Lodge, which also functioned as a church, was examined during the testing phase of the Bay Springs Mill Project (Figure 11.18, 11.19). Additionally, while it was still standing the building was described in detail (Verdel 1976). Because of a lack of artifacts noted in the test units and the existing thorough description of the building had been completed, no further work was warranted. Estimates of the Lodge's age ranged from 1850s (Verdel 1976:12) to the 1880s (Barnes 1953:6). The ground floor of the structure served as an interdominational church until the early 20th century when it was a Church of Christ. It was hoped that more of its history could have been learned from the Mason's confidential records located at the Belmont Bank. Carey B. Oakley, a Mason and an archaeologist at the University of Alabama, agreed to examine these papers, but did not find additional information (Carey B. Oakley:personal communication). A detailed description of archaeological investigations at this site has been reported (Adams et al. 1979). Concerning our findings we may further note here that the stone pillars at the mill were placed at 3 m centers as were the stone pillars at the Masonic Lodge.

The general store (22TS1105) lay 55 m west of the Lodge (Figures 11.13, 11.20). It was bounded by Highway 4 to the north and Mackeys Creek cliff to the south. This store was built ca. 1880.

Although purportedly describing "The Bay Springs Factory," a description of this store was collected from one informant during the 1930s. That it is the store rather than the mill being described is based upon reference to a rock chimney, its use as a general store and later a house, and its extant condition in 1930.

> "This old building is located at Bay Springs in Tishomingo county [in] what was once part of Tishomingo County. It is a large one room building built of hand hewed timber covered with hand made shingles. It has rock pillows and a rock chimney. The rocks were taken from a creek that flows near the building. The floors are made of heavy hand made flooring polished until it is very pretty. Before and several years after the Civil War a wooling [sic] factory was run in this building. All the people made most of their clothing at home in the early days of the county, and many times the house wives [sic] would go to this factory and have their wool carded and made into rolls ready to be spun when they got back home. These rolls made much finer thread than rolls made by hand. After the days of hand made cloth and factories made goods became poplar [sic] the factory was moved away and for some time afterwards the house was used as a General store and for some time after the store was moved it was used as a dwelling house. It is still standing and in very good condition" (W.P.A. n.d.:3).

Excavation objectives for the store were similar to those of the domestic sites: to recover a representative sample of material culture from the "yard" area and the base of the cliff, 21 m south of the store. Because of the cliff's close proximity we believed this area was a likely area for trash accumulation during the active occupation of the store.

Figure 11.18 Site 5, Masonic Lodge #167. A--East Side; B--North Side, C--Northeast Corner, Ground Floor; D--North and West Sides. Photos Courtesy of U.S. Army Corps of Engineers.

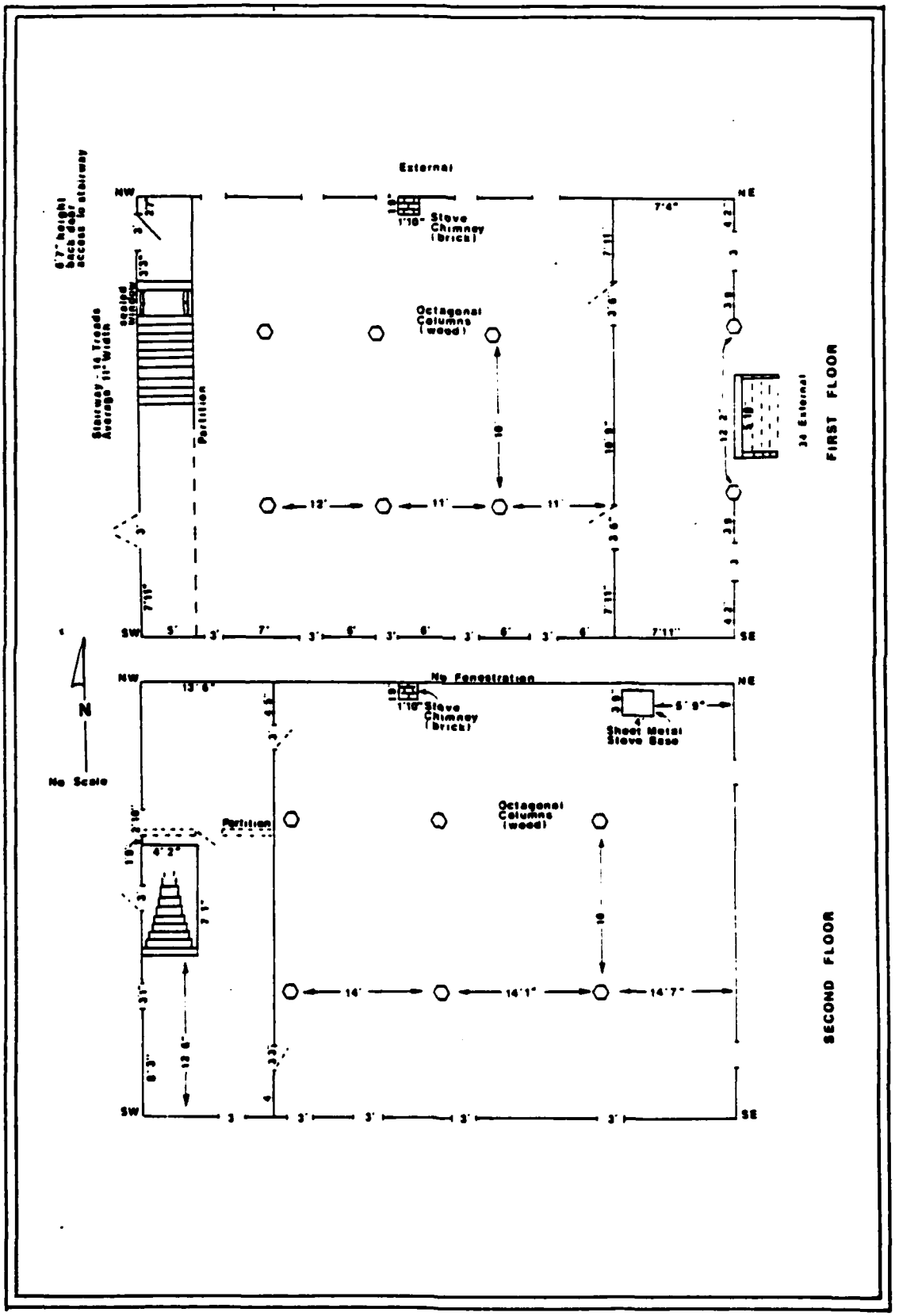


Figure 11.19.--Plan View of the Masonic Lodge

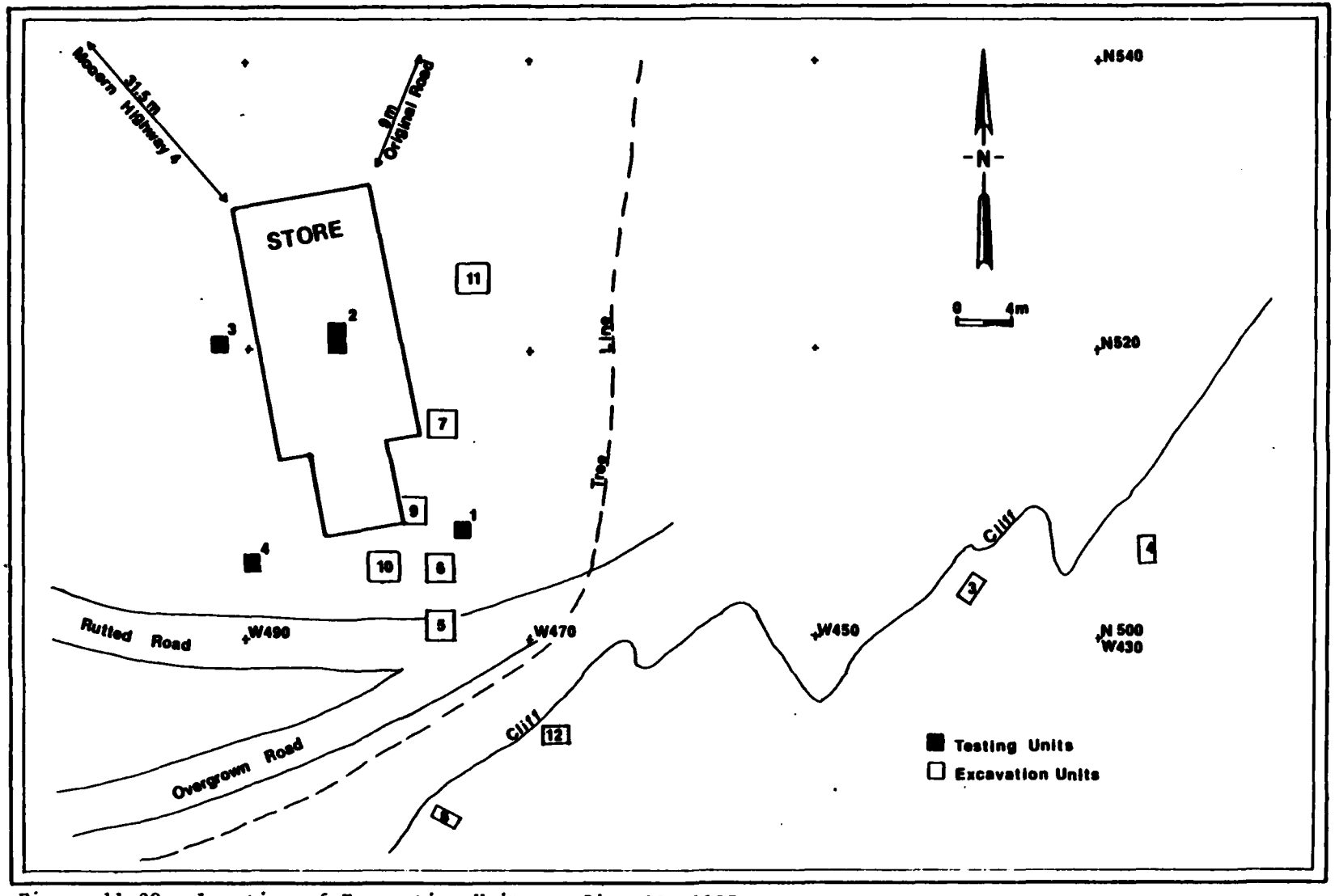


Figure 11.20.--Location of Excavation Units at Site 22TS1105.

Recommendations called for 10 2x2 m units in the yard and 10 2x2 m units along the base of the cliff. However, our objectives were accomplished with a reduced level of effort. A total of six 2x2 m units in yard area and four 1x2 m units were excavated along the cliff base. The cliff base was also probed. Excavation units in the yard area were expectedly shallow averaging only 15 cm in depth before hitting sterile clay or bedrock. The four 1x2 m units averaged 40 cm in depth. A total of 6.8 m^3 were excavated at this site.

Stratigraphy was shallow and inconsistent (Figure 11.21). Units placed near the cliff edge were excavated only 15 cm before hitting bedrock. Toward the north, stratigraphy consisted of a thin 2 cm humus below which was a stratum of pale brown (10YR6/8) silt loam, ranging from 14 to 4 cm in depth. At this point soils gradually became a light brownish yellow clay silt (10YR6/8). Between the northern part of the site and the cliff edge, (Units 7, 9, 10, and 6), the brownish yellow clay silt did not appear, instead the familiar red clay (2.5YR4/8) was present. Except for the first 2 cm, this stratum was culturally sterile. Stratigraphy in units at the base of the cliff was simple but uneven due to rockfall from the cliff and subsequent high water level silt deposits. A humus layer averaging 2 to 4 cm was noted under leaf litter. Generally below this, soils were a pale brownish (10YR6/3) sandy silt, which became dark grayish brown (10YR5/2) near the inevitable rock fill or bedrock outcropping. Units were culturally sterile approximately 40 cm below the surface and excavations ended at this point.

The three features recorded at this site were all associated with the structure itself and all were located in N508-510/W477-479. This unit was placed at the rear of the porch addition at the southeast corner. Unfortunately no features were located along the base of the cliff.

Feature 1 (Figure 11.21) was a dark grayish brown (10YR5/2) stain, 100 cm N/S by 60 cm E/W. It appears in the south wall of the unit at a sandstone cornerstone (48 x 72 cm) and continues north through the unit. Feature 1 was only 3 cm deep and we intrepret it to be the porch wall line. The stain contained a significant amount of charcoal flaking, especially near the cornerstone. Diagnostic artifacts on either side of this line consisted of square and wire cut nails and window glass.

Feature 2 was immediately north of Feature 1. It consisted of a vertical wooden post and a fragment of the post laying beside it on an E/W line. The post had been sawed at the original ground level and apparently left where it fell. Excavation of the post revealed hard compact soils to the south and west with much less compact, loose soils to the north. Apparently the post was set in place by leaning it against the southern wall of the posthole and filling around the post to the north and east with the loose soil. The post was 40 cm by 45 cm. Its point of origin was 18 cm below the present surface and extended 36 cm in depth from that point. The horizontal fragment was 20 cm in width and from the posthole extended 100 cm east. It lay on a slight incline from east to west. Wood from the post was in a poor state of preservation. Since the post was located below the surface, it may be assumed to be part of an earlier structure, perhaps the original store, or fence post that was in use prior to the porch addition.

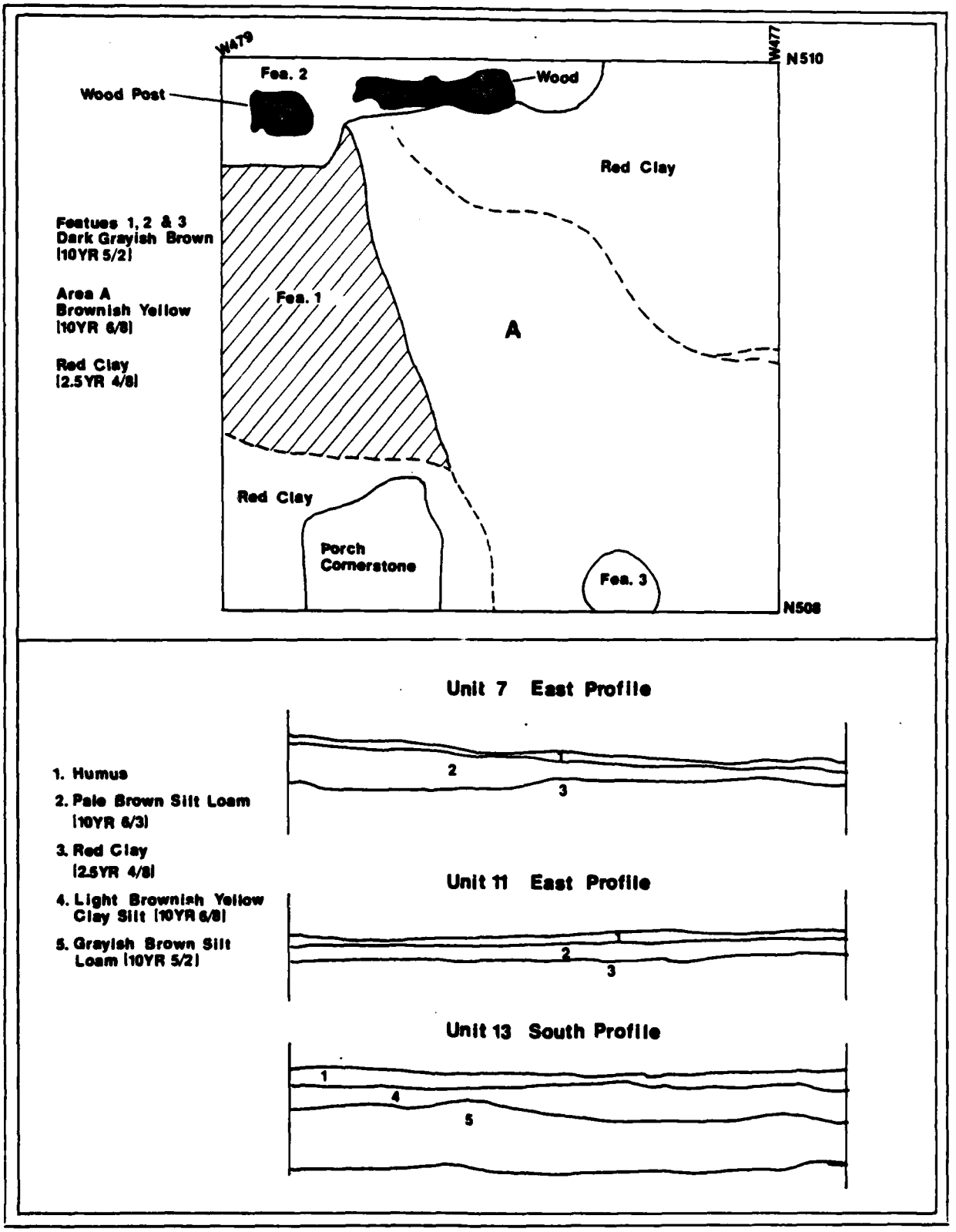


Figure 11.21.--Location of Features and Stratigraphy at Site 22TS1105.

However, diagnostic artifacts from the excavation unit nine were indicative of the late 19th century and 20th century. No artifacts were recovered from the feature.

Feature 3 was a small pit, probably a post mold, located to the east of the cornerstone at N508.10/W477.58. It was 21 cm N/S, 25 cm E/W, 8 cm deep and was first noted 14 cm below the surface. Machine cut nails were found within the feature.

While the structure at the time of testing and excavation lay in ruins, we can reconstruct much of the store's appearance. The store is represented by several sandstone foundation stones, floorboards, joists, sleepers, wall framing, brick rubble, domestic trash, and window glass (Figure 11.22). The store was a rectangular two story framed structure (52 by 27 ft) with a gable end front door facing north and a rear indented shed (17 by 14 ft) facing south. As indicated from the remaining debris, the front facade contained four bays with a central door. The first floor was approximately 11 ft from floor to ceiling, measured from the front wall then resting upon the ground. Evidence of the ridgeline was absent, but apparently it ran roughly along a N/S axis. The remains of a chimney including bricks, stones, and mortar rubble are located at the south end of the main floor room, just north of the shed extension. The chimney is reminiscent of the chimneys seen at 22TS1103A and 22TS1110. The floor of the main room was built of horizontally placed pine sleepers and joints, overlain with pine floorboards. Shed flooring was also pine and joined at the wall seams by the tongue-and-groove method. Windows were identified at three locations: three in the front wall, one in the southeast corner of the main room, and two in the southeast wall of the shed.

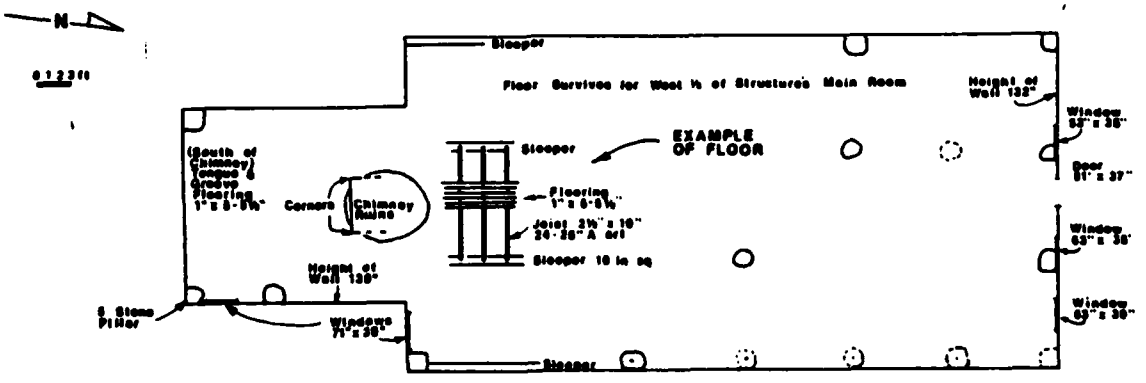


Figure 11.22--Architectural Remains at the Store, 22TS1105.

The heavy timber pine framing of the main room and shed was joined originally with mortise and tenon joints. Siding was of pine and nailed to the structure with both wire cut and machine cut nails. Sills supporting the shed were four-by-seven inch hewn pine logs. Small sandstone foundation

stones remained at the northeast and northwest corners of the main room. Four large sandstone pillars originally supported the shed addition; only three of these stones remain.

According to oral tradition the store consisted of one large downstairs room with a north gable entrance and southern fireplace. The downstairs served as store, kitchen, bedroom, and living room for a few proprietors over the years. During the 1940s the building was used exclusively for lumber storage. The upstairs comprised a large room for storage of drygoods.

As mentioned in the discussion of Feature 3, artifacts from this site were found in late 19th century to early 20th century context. Both wire and machine cut nails were evident as well as was machine made bottles and amethyst glass. Excavation Unit 12 produced a 1907 Indian Head penny in the first level.

Summary

During the testing phase we had hoped to identify the remains of all the mill workers' houses but only were able to locate the "barracks" area, those at the mill (A and C), and 22TS1110. At that time 22TS1110 was largely surrounded by a spoil pile from the dam, and during the testing report writing was essentially destroyed. We suspect that much of the village lay under 10 m of rubble by then. The Commissary Hollow sites were known via the oral history, but survey had not been able to confirm specific locations, so reservior clearing proceeded. This meant bulldozers raking their teeth downward through those sites to pull roots and trees into piles for burning. The result was a ground surface littered with artifacts. The "barracks" probably lay under the 1950s blacktop. So we are left with traces of the mill workers, but much less than desired.

CHAPTER 12. MATERIAL CULTURE

The purpose for this chapter is to provide an impression of the material culture of the people who lived and worked at Bay Springs. Our discussion is quite general, and is offered as a simple, undetailed summary of the mass of data presented in the appendices. Our intentions are to gain insight into the lives of the people rather than to discuss the artifacts in detail, which is accomplished later in our appendices. This chapter is organized by a functional typology.

The functional typology used here (Table 12.1) was modified only slightly from one by used by Roderick Sprague, University of Idaho, and presented in Saastamo (1971:29-31). As a vehicle for organizing an incredibly diverse array of cultural materials, this system furnishes the framework for discussing things and their relation to people. Similar frameworks have been developed; Stanley South's functional typology has been used by many archaeologists.

Functional typologies have two main deficiencies in their usage. First, fragments are not easily classifiable by function, but they may nevertheless contain important attributes. Second, even on recent historical sites, some objects defy functional classification. The specific function assigned an item must be considered as an hypothesis. For example, a canning jar's function is storage, usually wet foods. But, dry goods, moonshine, and even nails could be stored in one. Just to complicate the situation are human pack rats who collect canning jars as a hobby. The advantage of the functional typology is its integrative nature. Hence, artifacts which might be presented in a dozen different locations in a descriptive typology, are instead placed in the same passage.

Personal Items

Clothing

The clothing used by the people of Bay Springs was not well represented in the archaeological record. Only 38 artifacts pertain to clothing, 34 being buttons. The buttons were made of porcelain, glass, rubber, bone, and several kinds of metal. Many styles of buttons were evident including sew-through (77%) and Sanders' loop buttons (12%). Several of the Sanders' loop buttons show floral designs stamped in brass and a U. S. Army button of the Civil War period was also found. Miscellaneous clothing artifacts included a woven cotton belt, a suspender buckle plate, and a slide from a pair of overalls. A single piece of evidence for footwear, a brass heel plate, was found at 22TS1103B.

Adornment

This group is represented by only four artifacts: three metal pins from 22TS1109 and a cobalt glass bead from 22TS1113. No cosmetic or perfume items were found.

Table 12.1 - Functional Categories.

I. Personal items

A. Clothing
B. Footwear
C. Adornment
    1. Jewelry
    2. Cosmetics and perfume
D. Grooming and hygiene
E. Indulgences
    1. Tobacco
    2. Alcohol
    3. Drugs
    4. Gambling
F. Personal accoutrements
G. Infant care

II. Domestic items

A. Furnishings
    1. Furniture
    2. Drapery
    3. Decorative
B. Housewares and appliances
    1. Culinary
    2. Gustatory
    3. Cleaning
    4. Laundry
    5. Sewing
    6. Portable illumination
    7. Portable heating and cooling
    8. Portable waste disposal and sanitation
    9. Pest control
    10. Domestic ritual
    11. Household music, art, sports, and entertainment
    12. Household business (correspondence, bookkeeping)
    13. Yard maintenance

III. Architecture

A. Construction materials
B. Hardware
C. Tools

IV. Economic activities

A. Agriculture
B. Hunting
C. Trapping
D. Fishing
E. Collecting
F. Logging
G. Mining and quarrying
H. Manufacturing
    1. Handcraft
    2. Modern industrial
I. Commercial services
    1. Currency
    2. Entertainment
        a. Shows and theater
        b. Commercial sports, games
        c. Commercial music, dance
        d. Commercial sex
J. Transportation

V. Group services
    A. Military

A. Utilities
    1. Communication systems
    2. Transportation systems
    3. Mail
    4. Power
B. Taxation

VI. Group ritual

A. Religious paraphernalia
B. Fraternal paraphernalia

Grooming and Hygiene

This small group contains 14 artifacts. Only one, a plastic comb tooth from 22TS1103A pertains to grooming and it is probably intrusive into the site. The remaining 13 artifacts are medicine bottles and these reveal something about the health of the Bay Springs people. Three bitters bottles, Hostetter's, Drakes and an unknown beehive shaped bitters bottle were recovered. During the mid-19th century bitters was considered a general cure-all and pick-me-up. Three patent medicines were also found: Warner's Safe Kidney and Liver Cure, Dr. Sage's Catarrh Remedy and Jayne's Vermifuge. Prescription medicines came from S. Mansfield, a druggist in Memphis. Perhaps he produced a local patent medicine. Five of his bottles were recovered. In addition, two medicine bottles of unknown content were found. Probably, people at Bay Springs relied more on home remedies than on those available commerically, especially if we consider the possibility that some patent medicines might have been consumed for their alcoholic content rather than as a cure.

Indulgences

A group of 17 artifacts provides evidence of the use of tobacco at Bay Springs. Three are clear snuff jars which date well after the burning of the mill. The other 14 artifacts represent small fragments of clay elbow pipes, none of which were very useful for identification. It is tempting to suggest that pipe smoking there was replaced by the use of snuff in the late 19th century but the evidence is not clear.

Nine alcoholic bottles were found at Bay Springs. Only two kinds of alcoholic beverages were evident. Six of the bottles were whiskey flasks while three were dark olive green wine bottles. Most of the alcoholic beverage bottles came from the mill complex, four from 22TS1103D and two from 22TS1103A. This is very interesting since drinking was prohibited in and around the mill, as specified in the Mill Charter. Does this suggest a more relaxed atmosphere than we might expect at the mill, or are they the result of covert activities?

Personal Accountrements

This group refers to those items carried on the body or in clothing. Two flat eyeglass lenses were assigned here, one oval and one round.

Domestic Items

Furnishings

Two artifacts represent domestic furnishings, one is a curtain rod found at 22TS1112. The other is the metal end to a furniture leg, found at 22TS1103A. The scarcity of furniture parts is suggestive of an actual lack of furnishings. However, this might be the result of a majority of furnishings being locally produced from simple materials which have not survived, sampling bias, and furniture being removed during abandonment.

Housewares and Appliances

Culinary and Gustatory

Food preparation was represented by few artifacts. Tin cans were found at nearly every site; however, a total of only 24 tin cans was recovered. Three-fourths of these were round, crimped-end food cans. Other varieties were present. That tin cans were conspiciously absent from assemblages reflects the mid 19th century context of many sites. Food storage was primarily in stoneware crocks and jugs. Most were saltglazed (52%) or brown slipglazed (29%). Of 82 stoneware vessels recovered, two-thirds could not be identified as to function because the fragments were too small. Of the identified vessels, crocks were three times as frequent as jugs (16:5), and only two lids and three bottles were found. Glass containers were rare, functionally identifiable containers were mostly medicine bottles. One extract bottle and four canning jars were noted, along with four metal jar closures. Fragments of an iron caldron and dutch oven were also found.

Food consumption at Bay Springs was better represented in the artifact assemblage. Faunal remains indicate a fair reliance on pig, but other species were present. Acid soils in the area likely account for the scarcity of food bones in the sites.

Only two eating utensils, a two-tined fork, and a knife were found. Tableware items of pressed glass were found at each site. No tin or enamelware vessels were found, but this probably results from poor preservation. Of 278 tableware ceramics, 18 (6%) were porcelain. Most porcelain vessels were plain white (72%), but relief decorated (11%), and hand painted vessels (11%) were also present. Nearly all (14 of 18) were cups and saucers. Earthenware vessels were generally plain white (51.2%), but relief decorated (13.5%), edge painted (10.4%), transferprinted (8.1%), annular (6.9%), handpainted (5.4%), and sponge (5.3%) were all present. Including porcelain in the total, earthenware vessels were the following: Cups 27.7%, saucers 3.2%, small bowls 11.5%, large bowls 2.2%, plates 41.7%, and miscellaneous vessels 7.6%.

Cleaning

A bucket bail and a tub handle were the only artifacts assigned here. Based on the artifacts, people at Bay Springs expended little effort on keeping their houses clean, but, again, non-preservation of wooden artifacts like buckets, tubs, and brooms is a better explanation.

Sewing

A straight pin and the handle to a pair of scissors were placed here. No other evidence of clothing care and repair was found.

Portable Illumination

This category contains 377 artifacts, 372 (99%) of which represent lamp glass from the mill site. The total would probably be much higher except the fire probably destroyed most lamp glass. In addition to this extraordinary amount of lamp glass at the mill, two pieces were found at 22TS1103A and two at 22TS1105. A metal wick lifter for a kerosene lamp was found at 22TS1112.

The large amount of lamp glass recovered at the mill site must be related to its function. Presumably, this structure would need more light than a small domestic site, yet lamps definitely represented a major fire hazard.

Portable Heating and Cooling

Twelve fragments of cast iron stoves were found at Bay Springs. Ten fragments came from the mill site: perhaps, these stoves served as an important heat source for the mill. The other two fragments came from 22TS1115. The lack of evidence to the contrary forces us to conclude that most people at Bay Springs relied on fireplaces for warmth and cooking. The fact that the mill used a different system sets it off as a specialized site.

Household, Music, Art, Sports, and Entertainment

Little evidence of the social life of the people at Bay Springs was found. Four children's toys give evidence of play: two ceramic marbles and two small ceramic doll fragments. The people must have relied on themselves for their entertainment.

Architecture

Construction Materials

Construction artifacts are those used to fasten materials together. Fasteners include nails, screws, bolts, staples, and other attachments such as washers and nuts. Also included here are brick and mortar. The category is demonstrative of the diversity of materials and artifacts available to the Bay Springs Community.

Nails came in a wide variety of shapes and sizes. The 15,572 nails recovered are described in Appendix 3. Most of the nails were machine cut (98%). In addition to nails, other metal fasteners such as bolts, screws, and staples totaled 504 artifacts. The mill site claimed most of these with 401 (80%). A total of 29 nuts and washers were found. Again, most of them (24 or 83%) came from the mill site. Other construction materials included brick and mortar which were recorded only by excavation unit on a presence/absence basis.

Hardware

Architectural hardware items include things that would be attached to a structure. All 23 items assigned to this group pertain to doors. No window hardware was found. Eleven butt hinges were recovered. Five came from the mill but were not necessarily related to doors. Certain pieces of machinery had boards hinged to them. Two pintle hinges were also found. Evidence of padlocks come from a hasp (22TS1108) and a padlock key (22TS1105). Rim locks were used extensively, as shown by the striker (22TS1103A), rim lock case and plate (22TS1103D), rim lock bolt (22TS1103B), and the lock escutcheon (22TS1103A). Three drop latches were located as was a single ceramic doorknob.

Tools

A total of 20 metal tools were recovered from the Bay Springs sites. The mill site as would be expected to account for most of them, 15 (75%). The mill tools were wrenches or files. The other five tools represented diverse activities: crosscut saw (22TS1113), hook (22TS1103A), rope pulley (22TS1109), scythe (22TS1103C), and a crank (22TS1105).

Economic Activities

Agriculture

We are including in this category horse and mule equipment which must also be considered as transportation items. Certainly an equally valid argument could be made for placing these items in either category. Agriculture appears to have played but a small role in the lives of the people at the excavated sites. A single hoe fragment was found at 22TS1115. Eight horse and one mule shoe were also found. Five of the horseshoes came from the mill so it is likely that they were not used in agriculture but rather in transportation.

Hunting

Hunting was both a sport and subsistence activity as suggested by the oral history. Archaeologically, hunting activities are represented by ammunition. Eighteen pieces of ammunition were found at Bay Springs. A 12 gauge shotgun was most popular with eight pieces of ammunition (44%). Other ammunition includes 16 gauge (N=3), 20 gauge (N=1), .22 (N=2), and .32 (N=2). In addition, a lead ball and pistol handle were found at the mill site.

Manufacturing

This group includes the 1,336 mill machine parts described elsewhere. The mill was the focal point of the Bay Springs community. These mill parts represent the reason for the existence of the community of Bay Springs. Their function was obviously to produce cotton goods and make a profit but they also served to tie a group of people together in working for a common cause.

Commercial Services

Four coins were recovered. Three nickels help date the mill site, 1867, 1869, and 1872. A single 1907 Indian Head Penny was found at 22TS1105.

Transportation

The only evidence of transportation, besides horseshoes, came in the form of two wagon box staples, one found at 22TS1103A and one at 22TS1103B.

Group Services

Two items were found at Bay Springs which represent not the community but intrusion from outside. A Civil War button from the U. S. Army was found at 22TS1109 and a bayonet blade was found at 22TS1115.

CHAPTER 13. PERSPECTIVES ON THE BAY SPRINGS MILL COMMUNITY

In our study of the Bay Springs Mill Community, we have focused upon the development of the community as a whole, rather than upon specific sites, and have tried to place the community within a framework of settlement, economic, and social systems, bearing in mind that each formed an interrelated part of the community. These have been investigated within a research paradigm of ethnoarchaeology, which combines archaeological, historical, and oral historical methods into a unified approach to the study of the past. The primary objective has been to record and present the story of the community at Bay Springs in a historical and dynamic perspective, while at the same time maintaining a clear separation of different kinds of facts obtained from the different techniques used. Where the three approaches have concensus, data are stated as facts; where a single approach is the source, we have tried to attribute those statements to assist the reader in evaluating credibility.

Intially, the community was the focus of our investigations for two basic reasons. The first is based upon a past reality of social and economic interaction that people at Bay Springs would recognize. The second is pragmatic: the archaeology focused upon specific sites which still existed and within those we could select the best. However, with history and oral history we have less information about these sites, and we must therefore expand our focus. By examining a broader subject--the Bay Springs Locality--we can compensate for the lack of specific data in the area of archaeological concern, while at the same time place the archaeological data within a culturally meaningful framework. What then have we learned of Bay Springs?

Local History

The study of Bay Springs is a study in local history. It reflects the small, but growing trend in American history to seek an understanding of the broad processes of American life by examining their effects upon smaller aspects of America, and by studying the local contribution to regional and national processes. This trend is somewhat radical, for instead of the traditional view of American history as a result of governmental policy and national events affecting the local citizenry, it takes the position that those national facets merely are a reflection of the combined effect of many local trends. David J. Russo (1974:3) has stated that "the basic direction of the focus of attention is clear: It will have to be steadily 'upward,' from the local to the national community."

As we should have known all along, the local history is a microcosm of national history, simply seen from a different viewpoint. "Instead of maintaining a national perspective, we should assume moveable vantage points that take account of the levels of communities all Americans live in simultaneously: countryside or town or city, state, region, as well as nation" (Russo 1974:ix). Bay Springs Union Factory reflects the antebellum regional trend toward industrialization by adapting New England models to a local situation. The Civil War and Reconstruction can be seen at Bay Springs, not just in the troop movements enroute to battles, but in the war's effect on the local population. The nearby Barnes Store closed in the mid-1860s, according to Post Office records, because Samuel Barnes was

killed in a Virginia battle. Wool production at the mill had ceased by the 1870 Census, most likely because of a food shortage during and just after the Civil War necessitated killing the sheep, and because burning of fences by troops allowed livestock to roam free. We generally do not have the kinds of historical data to answer questions like "What was the local impact of the Panic of 1837 and ensuing slump?" However, an awareness of the national and regional economic and political processes certainly affects our interpretations. For much of what we have studied we must be content with simply presenting our view of how Bay Springs residents coped with life in northeastern Mississippi.

Settlement at Bay Springs

Bay Springs Mill existed because of the ideal setting for exploiting waterpower on Mackeys Creek. The creek's strong and steady flow through a gorge made dam construction relatively easy and provided for a flood-safe mill area. Entrepreneurs James F. Gresham and later John M. Nelson, Sr. took advantage of this location to build and maintain a small industrial village. In the early days this location served as a modestly important central place in the area economic network, but with the rise of port and rail towns in Old Tishomingo County, their importance overshadowed Bay Springs. By the 1870s, Bay Springs had lost its early lead as a redistribution point because of its poor location on the transportation network, although it continued as a production center. With the fire of 1885, the industrial phase of Bay Springs ended, and the nucleus continued only as a small store and Masonic Lodge. By the early years of the 20th century small farms and logging activities were the mainstay of the community.

People settled at Bay Springs because of the prospects of economic well-being signaled by the mill village and later cotton factory complex. The gristmill and sawmill provided impetus for settlement, for it made existence easier, and the investment more valuable. As Anthony F. C. Wallace (1978:5) found for the Rockdale mills:

> "And the local farmers were not incommoded by the mills; rather, the proximity of the mill enhanced the value of a farm. Advertisments of nearby farms for sale emphasized the advantage of their closeness to the mills, which were a source of alternative employment for the farmer and his family, a reservoir of laborers during slack times, and a market for produce."

The Mackeys Creek Valley at Bay Springs was one of the earliest areas purchased in southern Old Tishomingo County. By 1840 most land there was owned, even though better land remained unpurchased a few miles away. The reason for this must have been the establishment of the grist and sawmill by George Gresham in 1838. Although the first purchases were on the floodplain and ridge flanks, people soon discovered the better soils were along the ridge tops. A system of roads developed along those ridges to link the farmers into the market towns or centers like Bay Springs. Based upon a 1937 map, we found that 76% of the roads were located on those ridges, and only 24% crossed valley floors. Likewise for the 1937 structures, 76% were located on upland soils of 7-30% slope gradient, while only 15% were on bottom or terrace soils. We feel that the road and structure locations in 1937--an era before paved roads and

massive altering of the road system--are reasonable analogs for the 19th century settlement pattern. This ridge top road system fits well into the Upland South Pattern proposed by cultural geographers. What we have done is to quantify it within a local setting.

Eleven characteristics were listed by Weaver and Doster (1981:35) for the Upland South Pattern. The Upland South Pattern can be defined as having kin-based rural communities of low population density engaged largely in subsistence farming and particularly livestock production; cash crops were adapted to local growing conditions; the society was essentially classless, with individual enterprise valued and status determined primarily upon achievement and/or wealth; low order central places served redistribution needs. Without exception, Bay Springs fits the Upland South Pattern.

Bruce Trigger (1978:169) proposed three levels of organization for study of settlement patterns: the structure, the community, and the region. This needs to be expanded on the first level, by examining the structure in its relation to its individual landscape of associated buildings and terrain. At Bay Springs we were able take the first step in accomplishing this during our investigation of the Wilemon-Searcy farm. There we mapped the location of specific outbuildings in relation to the house and in addition investigated the farmstead by means of oral history. The paradigm of intra-site patterning for the Upland South proposed by Weaver and Doster (1981), and Hart (1977) seems to be quite applicable to the Bay Springs community, based upon our initial oral research. Such a farmstead pattern may be defined as having a dwelling facing the road and an immediate group of outbuildings surrounding the yard, and another outbuilding group set some distance away. The area near the house is dominated by female associated activities of gardening, small livestock tending, and household chores, while the area away from the house is male associated with large machinery operation and livestock tending. What is needed now is a better understanding of the specific patterning and its variation under different circumstances such as time, terrain, and occupants.

The Relationship Between the Mill Area And Surrounding Community

The Bay Springs Mill complex was also a focal point for the surrounding community of millworkers, laborers, and farmers. The factory was the core of an industrial hamlet where residents were strongly influenced by kin, co-operative, and religious ties with their neighbors. The Bay Springs hamlet was the loosely structured Upland South rural community described by Newton (1974).

The mill nucleus served as a low order central place, "a single point of exchange" or "a specialized marketing point" (Weaver and Doster 1981) for local farmers. Several features drew the settlers to Bay Springs besides the obvious need for employment. Within the community residents could buy or arrange for dry goods at the store, have their corn milled, sell their excess wool, cotton, vegetables, and home industries, pick up mail, and vote. The mill provided a ready outlet for agricultural products for surrounding farmers and farm laborers. When the mill burned, the nucleus of

the community dissolved. Mill workers and laborers sought employment elsewhere. Local farmers took their products to distant towns for exchange and sale.

Cultural geographers endow several qualities to central places including: (1) central places are spatially distributed on the cultural landscape in an ordered way: (2) central places develop because they are more accessible to people than are other places: and (3) central places provide scale economies to people in their economic activities.

Bay Springs was a market supplier, raw material purchaser, and a post office (Figure 5.1); accordingly, Bay Springs functioned as a central place embracing all of the above qualities. George Gresham was instrumental in having a road built within a few feet of the grist mill to make it accessible to local farmers. As a raw material buyer and dry goods supplier, the mill owner reduced the need of farmers to travel to several places to conduct business. Farmers could bring in wagon loads of cotton and wool and return home with necessary foodstuffs and supplies for several weeks or months.

Besides economic activities, Bay Springs residents were socially tied to the central place. Many worshipped regularly at the Mackeys Creek Church and, later, at the Bay Springs Interdenominational Church. Families returned to bury their dead. Baptisms were yearly events in the cold waters of Mackeys Creek within a few hundred yards of the mill nucleus. Nearby, the Bay Springs Masons met monthly for over 100 years. Co-operative interaction undoubtedly was regular between local farmers and laborers, including millworkers.

The Bay Springs Mill was not of a size and nature to stimulate urban growth, as was the case with many village central places which become cities. This lack of growth is explained by several factors. Neither the Mobile and Ohio or Memphis and Charleston Railroads extended spur lines to Bay Springs. The factory was always a small, specialized operation producing a limited amount of non-finished goods such as wool rolls and cotton yarn. Employment opportunities were limited; maximum employment at the mill complex was never more than approximately 40 laborers. Even if the fire had never happened, the mill hamlet would have remained small unless an entrepreneur replacing Nelson would have greatly diversified the operation and improved transportation services to the mill. The influx of cheap Northern finished textile goods in the late 19th century would have driven down the profitability of the enterprise.

Relationship Between the Mill and Region/Nation

Bay Springs Factory ran as a frontier operation from 1852-1885. Factories like Bay Springs in Mississippi and Alabama were small concerns when compared with Northern mills and even Southern textile mills. In large part, these small mills existed to produce yarn for local home industry needs and coarse cloth or osnaburg for slave clothing. Bay Springs specialized in producing cotton yarns and wool rolls. Its 1860 production level of 72,000 pounds of cotton yarn and 18,000 pounds of wool would have been the equivalent of clothing (at 12 pounds per person) for perhaps 7,500 people per year, while the county population was 24,149. Since this is an annual rate and some clothing would last, we suspect that Bay Springs

produced about enough yarn and rolls to supply the county and somewhat further. Of course, Gresham may have shipped much yarn out of state as well; we have no information to support either idea.

The mill at Bay Springs represents an early stage in the evolution of the cotton industry, for the end product was not cloth, but only yarn. This yarn was probably sold to the local farmers and to the surrounding counties' farmers for weaving on household looms. As Bartovics (n.d.: Chapter 3) reports for New England:

> "During the first decade of rural manufacturing in Killingly many operations were still carried out by hand at the local farmsteads, particularly hand weaving of yarn spun at the factories. After about 1820, however, introduction of power looms concentrated most activities in the factory hamlets themselves."

Wool production was limited to washing and carding--time consuming tasks when not mechanized. The wool was also probably sold to local and area farmers to be spun and woven or knitted into clothing. Thus, Bay Springs represents that initial stage of the industrial revolution where the first tasks, often tedious and simple, were mechanized to support a cottage industry. This stage had long since passed in the North by 1850. In the 1880s the mill owner was seriously considering adding looms to the mill, but he died before this could be accomplished. The mill burned soon afterward, otherwise we expect looms would have been added. By this time factory-made cloth and even ready-made clothing were probably available to the residents of Bay Springs at affordable prices, and the cottage industry of weaving cloth may well have been dying.

What probably made the Bay Springs industrial complex profitable was its diversified base--textile, lumber, flour, and meal production, blacksmithing, and general store--each operated by the company. The company served as the redistribution point, controlling the flow of goods into the community and the flow of raw materials outward.

A gristmill would have been built by someone else along the gorge area had Gresham not gotten there first. The waterpower was just too plentiful to ignore. The cotton mill is another matter entirely. In 1860 only four cotton mills operated in Mississippi, all except Bay Springs in more populated and also better cotton producing areas. But those same areas lacked waterpower, and had to rely on steam engines for power.

The Bay Springs area was never a particularly productive area agriculturally, but coupled with a diversified industrial base, the local farmers would have been in a good position to use their resources of land and forest to the fullest. The relationship between the mill and the farmers was symbiotic. The role the mill played in the evolution of subsistence farming into cash farming can only be estimated, but it would have been substantial.

When Bay Springs Mill burned in 1885, the South was just beginning to overtake the North in textile production. Whether Bay Springs would have followed this general trend and expanded is uncertain. In order to do so, an entrepreneur with sufficient capital and vision would have had to take hold of the operation and developed an effective transportation system.

From the excavations, very few artifacts were recovered which were labeled with the manufacturer's name, and hence traceable. During the mill period two bottles came from Kentucky, one from New York, and all marked ceramics from England. Gresham bought some of his mill machinery from Charles Danforth & Co. in Patterson, New Jersey.

Bay Springs contrasts sharply with the textile industry as a whole, yet shared many attributes. Because the mill provided workers a commissary and housing, it can be considered a company town, a common situation in the Southern textile industry (Hareven and Langenbach 1978:15). The mill owners never sold land near the mill and hence any development of the hamlet would have been under their control. While some workers lived in scattered housing around Commissary Hollow, others lived near the store in the area called "The Barracks" by informants. Such a folk memory is probably rooted in fact, for boardinghouses and tenements were typical of New England mills (Hareven and Langenbach 1978:15; Wallace 1978:61-62). Bay Springs does not show the carefully planned appearance of such textile towns as Amoskeag, New Hampshire, or Lowell, Massachusetts. Is this a matter of scale of development, environmental restrictions of space and topography, or is it reflective of Upland South industries? At the textile mill at Curtwright Factory (1846-1867) in Georgia, Bartovics (personal communication) found worker housing at fairly regular intervals along a ridge road leading down to the factory. Although that village was planned it still followed the Upland South Pattern of ridge top roads and structures.

Material Culture

The material culture of the mill workers appears sparse and spartan, based upon surface collections and excavations at their domestic sites. The quantity of material culture found there is similar to (and even less than) that of black tenant farmers at Waverly Plantation a few decades later (Adams 1980). Whether this is a true reflection of their poverty or simply indicates different concepts of trash disposal is unknown. They possessed earthenware plates and consumed some bottle medicines. But by and large these domestic sites may be characterized as low density occupations (in terms of material culture).

Architectural items dominate the preserved artifact assemblage. Nails, bolts, and window glass account for 68% (29,373) of the total artifacts recovered. Another 3% (1,336) were industrial artifacts and 19% (8,127) were burned glass from the mill. Thus, only 10% of the artifacts recovered possessed the potential for yielding information about the domestic lives of the people there.

These domestic artifacts show an emphasis on basic necessities of life. Artifacts relating to food preparation and consumption are most frequent, as are clothing items. Indulgences like alcohol and tobacco were evidently important. Tools and other hardware were also frequently found. Recognizing that many items would not have been preserved does not alter our overall impression that the mill workers (both cotton and later saw mill) were exceedingly poor in material possessions.

The People of Bay Springs: An 1881 Scenario

Bay Springs provided us with a place to study and understand. The ways its inhabitants lived their lives are largely unrecorded. By combining the memories of earlier days with the historical documents and archaeology we have derived a better understanding of the local history of Bay Springs and within this an understanding of life in a rural hamlet in the South. The contribution of this study is that it furnishes one more chapter toward a history of America needing to be written--the history of common people and the history of their contribution to the development of America.

The previous discussion portrayed the Bay Springs Community as people interacting on social and economic levels, prospering or growing poorer depending upon regional and national economic trends. To develop the flavor of these hard working, back country people, we present the following scenario--a glimpse of a morning in the Autumn of 1881.

The fog hangs low in the bottoms as Gillis Davis walks up the hill behind his house to hitch up his horse and wagon. A morning chill signals the coming frost. Gillis pulls the dew covered hame and tack down from a peg on the barn crib and smells the fresh hay overhead. It has been a good harvest and the corn crib is nearly full. On the way down the hill he notices a few fence rails will need replacing this next winter. Stopping at the chicken house, he picks up the basket of eggs his wife had gathered at dawn, and walks to the house nearby to get the pail of churned butter. The paling fenced garden next to the house has a sweet potato kiln in one corner; much of the garden will produce greens well into winter. He wishes it were Sunday dinner with sweet potato pie and fatback mustard greens. But it is market Saturday, so he carefully loads his wife's produce beneath the wagon seat and heads south down the rutted road toward his oldest son's house.

Following the ridge south, he soon arrives at James' homestead, a small double pen house set a little back from the road, and just a piece down the road from the old Harris place. James meets him in the kitchen with an offer for coffee and breakfast, but Gillis is anxious to get about his business. So they ride up to James' corn crib, load up bushels of corn, and head toward the grist mill at Bay Springs along the Fulton Road. The trip down into Mackeys Creek valley takes about 20 minutes to the intersection with the Moore's Mill Road.

Just a few hundred feet south the road passes between the cotton factory and the commissary. Davis turns left into commissary hollow and backs his team up to the front porch of the store to load in his supplies. Robert McMechan, the storekeeper, greets them as they enter. They set the eggs and butter on the counter near the cheese wheel, then sit down by the potbelly stove and have a chaw. McMechan pulls out his butter auger and samples the bottom of the butter to make sure it is not rancid, and checks the eggs for signs of hatching. "Everything in good order, but can't be too careful," he says. After a spell of talkin' and chewin' they begin to load up the wagon with barrels of sugar and flour, and a block of salt. Davis asks McMechan if he had seen John Nelson, the mill owner, yet that morning. He replies that Nelson probably will be at home all morning planning the big dance that night at his house.

Standing outside the store they can see the mill workers' houses. Their small one room houses with mud catted chimneys line the ridges on both sides of the hollow. The elder Davis considers himself fortunate to live in a larger house with a bit more privacy than that afforded by these houses so close to the mill. The houses are quiet now, for the children are either in school or working in the mill.

Down the hill, the road heads to the mill and to the bridge. Gillis starts toward the mill as its bell tolls nine o'clock. From the road he sees the two story building is badly in need of some repairs. He comments to James, "You know, that old mill just not gettin' the care it used to." "Yeah," replies James, "Nelson's gettin' on and that son of his don't seem interested in milling." On the east side Hubert Tynes is unloading a bale of cotton into the warehouse, and picking up a wool roll to take home to his wife to spin. Gillis decides to bypass the mill and head directly to Nelson's, crossing by the old wooden bridge. Gillis never goes over the bridge without remembering the fate of the Confederate ammunition wagon that slipped off the bridge into the gorge, and chuckles at the carpetbaggers who later came there looking for the gold supposedly on that wagon.

Just downstream from the bridge he sees the wooden dam across Mackeys Creek, the cotton mill to the east, and on the west side, the newer grist and sawmill. They drop off the corn at the grist mill and drive past the new Masonic Lodge enroute to Nelson's house. John Nelson built himself a fine house for these parts, and Davis feels a bit uncomfortable going there without an invitation. But Davis needs to discuss his upcoming sale of cotton with Nelson, and this is the best time for him. Nelson is sitting on the front porch as Davis rides up, and offers them some fresh buttermilk as Davis gets down from the wagon. After discussing the morning chill and the prospects of an early winter, the men speak of the deplorable state of the cotton industry. "How much are you going to pay me for cotton this year?" says Davis. "Looks like the best I can pay is maybe 11 or 12¢ a pound for lint," Nelson replies. "Why, a man can't barely live on that, John, it cost nearly that much just to raise it, and I need a little extra cash this year to buy a new plow horse. I figure on having maybe four or five bales for you." "Well, Gillis, that's the best I can do, but maybe I could arrange a little more credit at my store for you, if you'd like," says Nelson. "I'll have to think about that, John." Mrs. Nelson arrives with the buttermilk, and the Davises soon leave to pick up their corn meal and head home. On their way home they debate who to hire for helping pick cotton and, disgusted with Nelson's price, wonder if this will be just one more year of just breaking even.

CHAPTER 14 RETROSPECTIVE ON THE BAY SPRINGS MILL PROJECT

Introduction

The Bay Springs Mill Project posed and answered numerous questions. The quality of the answers depended largely upon the available data. Beginning the project we established a research design with potentially answerable questions. In the course of the project, additional questions were added and some discarded as unanswerable. This chapter examines the successes and failures of the project.

In years of trying to ascertain the best ways to study extinct communities, we have made numerous mistakes. We are not convinced that we have found all the right ways, but we are fairly certain of some wrong routes to avoid. This chapter reflects upon the methodology used in various components of this study and seeks to discover how these might better have been employed to answer our questions more fully, or to phrase the questions themselves more clearly.

The ethnoarchaeological approach used here combined three separate and related perspectives. Each perspective was employed to answer a series of related research questions developed from the General Research Design for the Tennessee-Tombigbee Waterway. These questions and the methodology were presented in Chapters 2 and 3. While the field approach used can be called ethnoarchaeology, we do not feel the resultant data generated for Bay Springs differs much from that normally derived from historical archaeology. The interface between oral and archaeological data which creates feedback in ethnoarchaeology was insufficient to test many of our ideas. We had hoped to find much oral data about the mill period, but acquired virtually no such data. The reasons for that are presented later. Another great disappointment was the lack of historical data on the specific sites excavated. The conjunction of the various approaches (actually the lack of conjunction) needs to be examined closely. For the most part each of the three approaches operated independently of one another. This results from archaeological sites being too early for the oral history, and sites being too mundane for most historical data. However, let us first examine some methods of history, oral history, and archaeology.

History

In general, the history of Bay Springs was assembled as a patchwork quilt; enough pieces were found to stich together a fabric, yet too many tantalizing segments were missing. With relatively little secondary historical sources other than Martin's History of Belmont--a nice local history without documentation--the patchwork quilt was constructed using federal census data and county sources such as personal property rolls, land rolls, and police minutes. These are fact laden, but rather dry reading. Despite searching every obvious repository of primary data, and a number of not-so-obvious sources, only a small quantity of documents surfaced. No letters or diaries and few newspaper accounts add to the Bay Springs story. Bay Springs was never an important place and few chronicled its existence. Based upon available documents we would not have chosen Bay Springs to study

historically. But this factor distinguishes cultural resource studies from other histories, for the locale is selected because of specific impact on observable sites.

The settlement-oriented research questions were perhaps the most clearly answered, because they are the most linked to physically observable factors. The question of how the community was structured and located was best answered through an overview of the 1937 Tishomingo County Soil Map, in comparison with the development of the community by reconstructing landownership. In terms of the transportation system, however, it was more difficult to reconstruct the 19th century local roads, because 1937 was the earliest map with detailed roads found. Board of Police Minutes were helpful in determining the number and general alignment of early roads in the area, but not their exact location. We created detailed plat maps of landownership and settlement from Abstract of Title, Section Division, and Land Roll data for Prentiss and Tishomingo Counties, thereby helping to answer how the nature of the community changed, but again, the issue of specific change in the community resulting from the mill fire, could not be addressed.

Economic questions did not have clear-cut answers. Census of Manufactures data describe the grist and sawmill in 1850 and the factory in 1860 and 1870; yet the original schedules mention no factory in District Five in 1880. Census data trace the industrial growth of Bay Springs from 1850-1880, although no records were found to contain information on distribution of finished products. We can only surmise as to where the yarn and wool rolls went and who consumed them. By combining data from the Census of Population and the Census of Manufactures in 1860 and 1870, the changing nature of the labor force at the mill is apparent. By 1870, the mill owners were relying more heavily on women and youths--often from the same families--to run their operations.

A major question remains unanswered via historical documents: the specific effect on the population by the destruction of the mill. The 1880 Census of Manufactures apparently missed Bay Springs and the 1890 Census was destroyed by a fire in Washington, D.C.; thus, only oral statements and one newpaper article detail this period.

Historical research was least useful in answering the social systems questions. No store ledgers from the mill commissary were found to facilitate the association of real people with day-to-day material purchases as we did at Waverly Plantation (Adams 1980). Only one set of Personal Property Rolls from 1882 was found for the area. This roll indicates that the mill owner owned more property (like carriages and guns) than did the mill worker. However, this record gives the researcher only a short glimpse of these material differences. No school records of the area were found, yet the exact years for the operation of the post office and voting precinct helped further refine the chronology of the village.

Racial relations are not mentioned in the historical record except that white riders scoured Tishomingo County in the 1870s to protect farmers from white scalawags and blacks. During the 1850s a "road patrol" operated. The

latter was supposed to check road conditions but was really to catch run-away slaves; however, since there were virtually none in the Bay Springs area, they had little to do. Since less than 30 blacks lived in District Five through much of the 19th century, race was only an important factor in determining social status for a few people. Accomplishments, wealth, and earned prestige were more important considerations.

Although government manuscript records were helpful in reconstructing the history of Bay Springs, they should be used cautiously. Some information is conflicting. For example, the 1860 Census of Manufacturers lists 30 people working at the cotton factory. The Census of Population for the same year lists only six people with mill-related jobs. Obviously, both sources need to be examined.

Oral History

Oral history research questions were drawn from the general research design and further molded into the oral history questionnaire. Even with pretesting, some of the questionnaire inquiries were patently clumsy or unclear to informants. Many informants did not clearly distinguish seasonal use of rooms, the size of rural neighborhoods, a name for a rural place, or the idea of industrial operation. People used all rooms year round, lived on a country road, often with no place name, and worked at jobs, not industries.

Synthesizing informant responses into answers to the research questions was problematic. Specific dates or date ranges for changes in settlement or economic systems were often vague in informants' minds. Informants clearly remembered aspects of Bay Springs as a logging and farming area; however, only a few stories and references were recalled about the mill nucleus. Informants were hesitant to speculate back that far (of course, from the standpoint of accuracy, this is good).

Many settlement questions were answered in a general way. Informants agreed that people lived in Bay Springs because of work opportunities and because it was a good place to live. People also remembered how houses and outbuildings were built and their general placement on the cultural landscape, although they rarely referred to physiographic factors like terrain and streams. In Tishomingo County, stock was generally fenced near the barn, built 75-100 yards from houses and storage sheds. Trash was either burned or hauled away. Informants did not distinguish changes in the settlement pattern other than more rural people were moving to urban centers after the 1930s. The boundaries of Bay Springs and the numbers of people residing there were similarly vague in the minds of informants. Many apparently did not consider Bay Springs to have been a community after the mill burned in 1885.

Informants had clear perceptions of local economic systems operating at Bay Springs after 1900. Memories of peckerwood sawmills, cotton gins, and farming and their effects on population movements were vivid. People remembered where local farm products were sold, although they obviously had no idea of where their local products ended up in regional and national networks. Several described local home industries and self-sufficient

farmsteads, as well as purchases in various towns and mail service. The differences between sharecroppers and tenant farmers were known by almost every informant.

Social systems could be partially reconstructed from informant responses. Specific questions about education and religion received specific responses. School was attended a few months out of the year, squeezed between agricultural activities: almost everyone questioned attended church. The idea of place was broad-based in the minds of many; people had a strong attachment to their land. Informants, in general, valued their kin relations, their homes, whether owned or rented, religious convictions, hard work, and honesty in their dealing with others. Informal education at home and with neighbors seemed more important than formal schooling, although schools were well-attended. Informants freely told stories of their past, many of these stories told them by their parents. These stories were expressed mainly in the form of historical and humorous anecdotes.

Several informants reported remarkably similar anecdotes of the Old Soldiers Reunion. Lemonade stands, horse races, and swap meets were common motifs. A reading of Martin's History of Belmont indicates the source of some of these stories. An oral exchange has taken place. Martin interviewed participants in the Reunion; their perceptions were put into print; other informants, many of whom had been to the Reunions, read the printed version and accepted it as gospel. The printed version became the "correct" form. Fieldworkers must be very careful to interpret these conversions at an early point. For future projects, we suggest fieldworkers familiarize themselves with local historical sources. If detailed oral histories exist, informants should be asked whether they are familiar with them. If they are, then the researcher must attempt to determine to what extent the informant's perceptions have been molded. Futhermore, since we are studying a literate society, and ones with televisions and movies, we must be aware that many ideas about life "back then" could be heavily influenced by the ideals expressed in popular literature. Henry Jackson Turner's 1893 paper on the ideals of the American frontier soon found its way into the dime novels and eventually the silver screen. Researchers using oral history must sadly take note that the pristine informant does not exist. No matter how remote the informant lives in America, he or she has been touched by the ideals and ideas of this century. When the informants speak with pride about their nearly complete self-sufficiency in the early years of this century, they may indeed be accurate, but what they may believe is not necessarily what happened. A statement made truthfully is not necessarily the truth. This is why their statements are cross-checked with others' statements, and with other sources such as archival and archaeological.

Archaeology

The concern for preserving archaeological data has become a real problem, and one with no easy answer. When the dam is finished the sites will be covered with a hundred feet of water and no one will likely visit them again. But what of the information from these sites? The artifacts will be stored at the Mississippi Division of Archives and History along with the project records, so that future scholars can re-examine the collections. Steps were taken to assist preservation, such as "permanent"

labeling of artifacts, and their placement in plastic bags with labels inside. A representative sample of metal artifacts were selected and preserved by dipping them into Manganesed-Phospholene #7 (MP-7) and sealing them in an arcrylic-like solution of Tricloreothene and styrofoam. Now this report is also an artifact of Bay Springs. Copies of the report are on microfilm with NTIS in Washington and hopefully will survive.

The material culture was assembled to determine the very basic answer of what was to be found at Bay Springs. By providing other archaeologists with a usable catalog of the data we hope that others may someday ask different and perhaps better questions than we did. We tried to anticipate the criticisms of the humanists by presenting within the text, general discussions of material culture in a way that perhaps the people of Bay Springs themselves would understand, calling an axe, an axe. We attempted to anticipate the scientists' criticisms by presenting a material-based descriptive typology, so that their Type 1 could be correlated with our Type A01-03-09B.

Most of our archaeological research questions are general questions seeking to derive an empirical data base for the future. We attempted to define each site on the basis of distinctive features, such as aspects of architecture, fence lines, paths, roads, disposal patterns, and site location. Our success varied at each site. Our areal sample was often too small to have much chance of intersecting linear features like paths. We found that structures were often built on wooden blocks or stone, leaving little few architectural features in the ground.. Compounding this problem was the long tradition in rural society of recycling building materials. Anything remaining of use after the abandonment of a structure was usually carted off.

Disposal patterns were examined; however, because few structures were located the trash cannot be related to anything in particular. Finding where people discarded their trash and other waste is exceedingly difficult in a rural setting where hundreds of acres were available for use. Such activity areas lack focus and definition. Informants were vague about locations, usually saying they did not remember or had little to throw away other than that which they burned. Even when there is reasonable focus, a cliff edge or gully near a site as at the general store, nothing was found.

We also think that the reason we did not find much at some of these sites is because there was not much there to find. In three instances we had the opportunity to test the adequacy of our sampling. After the excavations of Areas A, B, and C at the mill were complete, we carefully monitored their destruction by a bulldozer, as it sliced across the site. Outside of our excavation area only two additional post holes were noted, no trash pits, no concentrations of artifacts.

Material poverty and perhaps, just as significant archaeologically, the lack of manufactured items probably contributed toward the general paucity of artifacts on the domestic sites of the mill workers. While we think they were poor and did not have much, we are reminded of a statement by a NASA scientist discussing the Viking data: "Absence of evidence is not evidence of absence."

Regarding survey, it is essential to contact the people who know the area the best and not only talk with them but also listen. At this level of effort it is not so important to ascertain what was there as what might have been there. Few informants will agree anyway. For example, in our survey we discovered the existence of the commissary and the mill worker houses nearby and also near the store, not by surveying the ground, but by means of interviewing. Each informant's perception of the area was different on specifics, but what was certain was they all believed the area east of the mill was the commissary and a residential area. We surveyed and resurveyed and did not find the sites in the dense underbrush. Only after complete vegetation removal were these sites visible, and by then, destroyed.

The surface collection method detailed earlier was very expeditious and informative. We recommend its use in similar areas of high ground visibility. In the case of these sites, the mitigation was the surface collection, whereas the testing simply confirmed the destruction of the sites' integrities.

On the mill site we used several kinds of heavy equipment to aid our excavations. The use of heavy equipment at Bay Springs is the subject of a manuscript currently being prepared for publication. To summarize that paper, we used large flat bladed bulldozers to strip off as much colluvium as possible from the southern part of the mill excavation area, as well as to clear the site of small trees and brush. This worked quite well. Our only regret is that the bulldozer was wheeled, and so we were unable to strip as deeply as would have been possible with a tracked bulldozer. We also used a small backhoe during testing to check some of the areas south and east of the mill, to assure ourselves of the site extent. A large backhoe was employed at the beginning of the excavation phase to dig a protective ditch between the dam's spoil pile and our excavations, to prevent rain and silt runoff. During the two hurricanes this saved days of clean up. It also presented a large area of sterile soil to again establish site limits.

The excavation strategy at the mill worked. In retrospect, perhaps the only major change would have been to run exploratory trenches earlier to define the structures' edges. But since so much of the structures had been removed by the 1970s bulldozer vandal, this did not affect our strategy overall. Had the mill been in pristine condition this would have been much more useful. Our strategy there was to recover as much artifactual and architectural information as possible to be able to interpret the various areas of the mill. This also required the excavation of some units outside the mill structures to determine that nothing additional was located there.

Ethnoarchaeology

The above comments have examined the three approaches that together become ethnoarchaeology. This section examines the ways the separate realities produced by each method provided feedback to better understand the data generated by other approaches. The use of a multiple approach produces both complementary and synergistic data and means of integrating those data. We must take advantage of this ability whenever we are able to use multiple perspectives on a data set. The folk memory furnishes one perspective, the archaeology a different one, the history a third, but they can all be related.

Through the use of an ethnoarchaeological approach, the past may be constructed more fully by a team of researchers than if an archaeologist, a folklorist, or an historian studied the area separately. This synergistic approach generates feedback between the various components because each component provides a slightly diverse view of the subject. The greater the number of views, the greater the chance we can better understand it by considering the individual data sets produced as an analog of the others. As a model, an ethnographic or folk analogy helps explain an archaeological situation. Analogies are inductive, and as such can prove nothing, but only be regarded as either more, or less, acceptable statements. Many possible analogs exist for a particular archaeological thing or event; analogs are only useful to the extent to which they present new perspectives and increase the number of multiple working hypotheses. By using specific analogs the researcher must seek out the best fit among several possibilities, but the choice must be regarded as only a statement of probability.

Manipulating the Separate Realities

In the past twenty years a few studies have incorporated both oral history and ethnographic methods in the study of past settlements to complement both archaeological and historical research. Crow Village was excavated in the early 1950s by Oswalt and VanStone (1967). Although memories of informants had become cloudy due to their longevity, the salvage ethnography project provided data which enhanced the archaeology. Marley Brown (1973) used a combination of oral, archival, and archaeological techniques to reconstruct a rural homestead near Portsmouth, Rhode Island. An attempt was made to reconstruct the layout of the farmstead through each occupation over a three hundred year period. Silcott, Washington, an extinct early 20th century farming community was investigated in 1972 and 1973 using archaeological, historical, and ethnographic techniques (Adams 1977a). Informants who had lived at each site provided first hand accounts for the 1890 to 1930 period. A similar project was undertaken at Waverly Plantation, in Clay County, Mississippi, where six tenant or sharecropper houses were excavated (Adams 1980). For each site investigated we found informants who had lived in the site or had visited it while the structures were in use. Much feedback or synergy was generated. In each of these studies, a continuous individual model framework was used in which informants who had had personal experiences at the sites as young individuals were interviewed.

A variety of cultural resource projects which may be successfully investigated through an ethnoarchaeological approach are being contemplated or have begun through the sponsorship of federal government, universities, and granting institutions. A massive burst of cultural resource energy has been spent on oral history/archaeology projects along the Tennessee Tombigbee Waterway. Several federal agencies like the Forest Service are developing oral history contracts in response to cultural resource mandates from Washington. Universities are developing salvage folklore programs in addition to their more traditional archaeological surveys. With this large number of studies being generated, the question becomes one of how to analyze the data being collected by the folklorists, archaeologists, and historians.

The problem at hand is to manipulate the separate realities of the various disciplines studying a data set. If two or more separate realities are merged, then the resultant viewpoint represents synergy. Seminal to the idea of synergy is redundancy. If the message is not redundant within each of the realities, or viewing frameworks, then there is no synergy. Redundancy of data occurs when the folklorist, or the archaeologist, or the historian uncovers or acquires data which has also been discovered by one or more of his colleagues. Although his colleague will see that data in a different light, the combination of different perspectives sheds new light on the material culture being investigated.

A second form of data is developed when information discovered in one reality or mode has no corollary in either of the other two perspectives. This involves a lack of redundancy and each perspective complements the other. In many cases in ethnoarchaeology, the data acquired from the various perspectives is complementary. Especially when studying a small community where historical records are sparse, oral history and archaeology can often complement the scanty items found in printed historical sources.

Of course all data, or messages, from ethnoarchaeological research projects can not be fit into neat categories either complementary or synergistic in nature. Much data collected from this style of research is vague: some pieces fall in the cracks. Also complementary data, when circumspected, may become synergistic. For instance, those Commissary Hollow sites were regarded as complementary until the reservoir clearing proved their existence; at that point they started to become synergistic, at least in potential. Ethnoarchaeological researchers must beware the discrepancies of the individual memories of oral history informants. One woman interviewed for the Bay Springs Mill Project remembered the dancing flames of the mill burning in 1885, although she was born seven years later!

Ethnoarchaeology combines the viewpoints of archaeologists, folklorists, and historians. The concept of synergy explains why it is important to combine the three perspectives. By viewing the whole from a number of positions, a better overall grasp is acquired. Information theory and the concept of redundancy provide a framework in order to understand better how each message within the whole is coded and decoded by those who view pieces of the whole. By viewing ethnoarchaeological data collected in terms of complementarity and synergy, the different realities add to each other and provide a clearer picture of the material remnant being viewed.

Through the use of ethnoarchaeology the remaining story of Bay Springs has been told. While it is a local story of a mill owner, his workers, and the nearby farmers, it is also in many ways a story about the rural South, and rural communities everywhere in America. People came to the valleys and ridges, built their homes, reared families, raised cotton and corn, milled their produce, and settled debts at the store.

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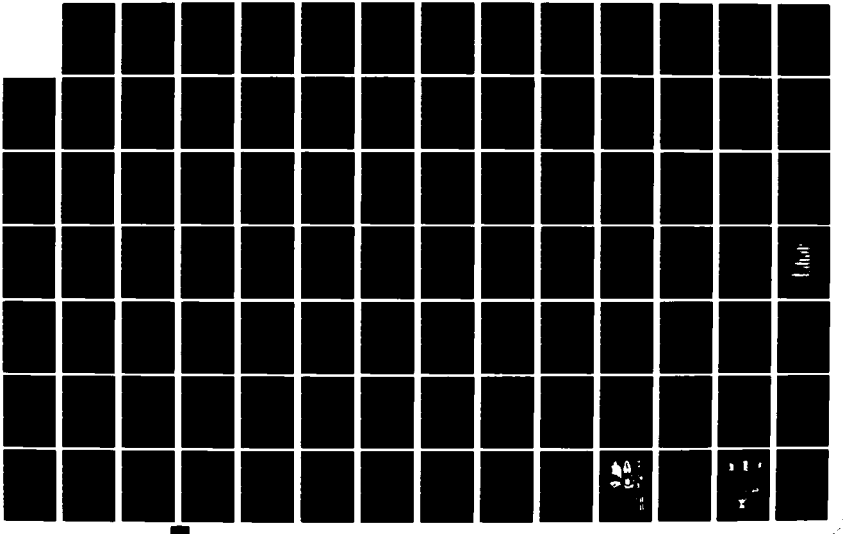

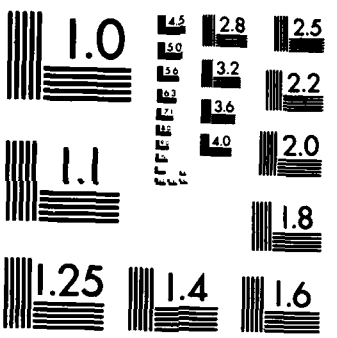

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APPENDIX 1. MATERIAL CULTURE STUDIES

Introduction

After the excavations at Bay Springs, we were faced with a mass of unorganized data. Various functional, descriptive, and mixed typologies were presented in Chapter 3. The functional typology, used in Chapter 12 to discuss the archaeological remains, helps us understand the people at the Bay Springs sites, but it lacks the detail necessary for comparison with sites elsewhere. Comparison requires detailed artifact drawings, descriptions, and measurements. This appendix presents the typology used at Bay Springs and examines the various kinds of artifacts from the standpoint of technology, chronology, and production. Appendix 2 includes photographs and scale drawings of selected artifacts. The artifacts are described in detail in Appendix 3. A terse abbreviated style was used in the descriptions to save space; although this will inconvenience the reader initially, the system soon becomes familiar. Appendix 4 presents the distribution of artifacts by site.

The result of our efforts is a catalog of the materials recovered in the excavations. The organization of the Bay Springs catalog could have been more systematic and more rigorous, but we feel the catalog is presented in a usable manner. Some kinds of artifacts were organized hierarchically while others simply were listed in some order. Hopefully, other researchers with access to good collections of 19th and 20th century material will spend the necessary time to devise a more acceptable and comprehensive typology for those materials. For a project of this size that was simply not possible.

The first step in the analysis was to divide the artifacts into 16 groups based on their material; each has been given a capital letter designation (Table 1). Each group requires a separate typology. While most of these material groups are self-explanatory, some need clarification. The ceramics from Bay Springs were divided into four materials groups because each is historically significant and more levels of distinction were required than in the other groups. Other groups like metals include a wide range of materials, but archaeologists have not studied them in as great a detail as ceramics. The composition of these materials is at least as different from one to another as porcelain is from stoneware. However, we do not have the historical information necessary to make such divisions. The material groups discussed and defined in the following sections are further subdivided into classes, categories, types, and varieties. No two materials will have exactly the same typology, simply because different characteristics are important in each material.

Classes are based generally on function, except the ceramic wares. Within the ceramic materials, classes are based on description of the glaze. Classes can be broadly defined (e.g., metal kitchen equipment) or they can be more specific (e.g., glass buttons). The definition of the class is dependent on the number of artifacts assigned to that class and the amount of historical data available on those artifacts.

Categories are primarily based on description and most often on the shape of an artifact. Again, the ceramics are an exception. The categories in the ceramic materials are based on the decorative technique.

Types are generally based on technology, where applicable, or on morphology. The technological aspects are most important in glass and less so in the other materials. Within the ceramic materials, types are based on vessel form.

Varieties are based exclusively on descriptive attributes. Included in this would be measurements, maker's marks, and information specific to the particular artifact. This is the most specific level of the typology. The artifact descriptions include most additional attributes.

Table 1. Bay Springs Materials

	Material Group	N	%
A	Glass	22,425	51.869
B	Porcelain	62	.143
C	Stoneware	277	.641
D	Earthenware, common	101	.234
E	Earthenware, refined	2636	6.097
F	Metal	17,687	40.909
G	Plastic	40	.092
H	Wood	--	--
I	Bone artifacts	1	.002
J	Shell artifacts	--	--
K	Leather	3	.006
L	Paper	--	--
M	Cloth	1	.002
N	Stone	--	--
O	Rubber	1	.002
P	Miscellaneous	--	--
	Total	43,234*	99.997%

* does not include metal scrap, faunal, floral material, and other miscellaneous material.

The Bay Springs Project was conducted in close conjunction with the Waverly Plantation Project (Adams 1980). Analysis of the Bay Springs artifact assemblage was completed immediately following analysis of artifacts from Waverly and used the same typology or catalog. The two assemblages were quite similar except for metal artifacts, where differences in quantity and kinds were observed. Thus, classes of metal artifacts from Bay Springs have been re-numbered and in a few cases combined. For example, class F02 of the Bay Springs artifact assemblage is Adornment and Personal while at Waverly these artifacts were classed as F14. Categories, types and varieties remain the same and comparisons between the two metal assemblages should not be difficult. Readers should further note that since Waverly artifacts were analyzed first, the typological numbering of artifacts in the descriptions (Appendix 3) may not be complete. Missing types and varieties there are the result of types and varieties occurring at Waverly but not at Bay Springs. Readers are referred to the Waverly Report for these types and varieties. This is especially evident in the metal discussion, since few non-industrial metal artifacts were recovered at Bay Springs.

GLASS ARTIFACTS FROM THE BAY SPRINGS MILL COMMUNITY: MATERIAL A

by Timothy B. Riordan

Glass

This section deals with the glass recovered at Bay Springs. Besides presenting the data, it outlines the analyses and the significant technological changes. The sites at Bay Springs yielded 22,425 pieces of glass. This figure represents 51.87% of the total artifacts recovered. A large number of these fragments, 14,298 (63.8%), was separated for intensive analysis: the other 8,127 fragments were either too small or too burned to be useful. Most of the glass which was further studied was window glass. Fragments of window glass accounted for 92.8% (13,268) of the analyzed glass while only 7.2% (1,030) represented bottles and other glass items. The majority of the window glass came from the mill site.

Glass is one of the most common artifacts found on historic sites. These artifacts show that techniques for producing glass underwent rapid change in the last century resulting in glass products becoming less expensive and more available. The fusion of silica and an alkali produces glass, an inorganic, hard, brittle, non-crystalline substance. Other substances are added to this mixture, making it more durable, more or less colorful, or more workable. It is generally translucent and, almost always, transparent. The use of glass dates to ancient times and the techniques for producing glass underwent little change until the beginning of the 19th century. Technological breakthroughs in the 19th and 20th centuries have made glass products more available and less expensive. Because of this trend, glass has become one of the most abundant substances recovered from archaeological sites of this period.

Developments in glassmaking technology occurring after the mid-19th century led to an increasing standardization of the final product, evident in the glass from Bay Springs. Also evident is an expansion in the uses of glass during this period. Besides its function as a container, glass was put to a large number of uses including architecture, recreation, decoration, dress, lighting, and many other specialized purposes. Because of these trends, the analysis must proceed along two separate yet related lines. The study of the technology used to produce the artifacts can contribute to the general history of technology while a study of the function of an artifact can reveal data on the user of that artifact. In order to analyze such a diverse mass of data, a typology must be developed which can be specific enough to reflect small changes in technological processes and, at the same time, contain broad functional groups to aid in the analysis of the behavior of the persons using such artifacts.

Technology

The technology for making glass bottles changed rapidly in the 19th century. Since much of the typology is based on technology, a clear understanding of these processes is necessary to comprehend the divisions into types and varieties and will also apply to the class level.

Bottle-Making Technology

At the beginning of the 1800s free-blown and dip molded were the two common methods of making bottles. Free-blown glass involved the use of a blowpipe and a pontil rod. The blowpipe was used to expand the glass to the desired shape. The pontil rod was then attached to the base of the bottle to allow the neck to be finished. This process resulted in an asymmetrical product with no mold seams but with a rough ring of glass on the bottom known as a pontil mark. By 1800, this method of bottle production was in decline (Lorrain 1968:38).

Dip molds were the second common way of producing bottles about 1800. The mold was tapered with the larger end near the top. Glass blown into this mold conformed to the mold shape and was then finished by hand. This process produced a more symmetrical product. A pontil mark appears on the base and a mold seam often ran horizontally across the body of the bottle. Dip molds were used in the 18th century and achieved their greatest popularity between 1790 and 1810 (Lorrain 1968:38: Toulouse 1969a:530). However, dip molds continued to be used for wine bottles well into the 19th century (Toulouse 1969a:531) and, in machines, are still used to make jars.

The three-piece mold was developed in 1821 by H. Ricketts' Company of Bristol (Jones 1971:9). This consisted of a dip mold with a hinged mold on top for finishing the neck area. The lip still had to be finished by hand. According to Lorrain (1968:38) this mold was developed around 1810 and was replaced in the 1840s. Toulouse (1969b:578) stated this mold type was most common during the period 1870-1910 but our experience on 1890s to 1930s sites suggests they are not very common. Another kind of three piece mold consisted of three hinged pieces or "leaves" set, generally, 120 degrees apart, leaving three side seams. This mold was usually reserved for art glass or highly decorated bottles (Toulouse 1969b:578). The base has either a cup bottom or post bottom mold.

With the use of hinged molds, bottom molds became common in the 19th century. Post bottom molds are older than cup bottom molds, although both were common. Cup bottom molds are more common in machine-made bottles. Toulouse (1969b:582-583) states:

> "The name 'post bottom mold' comes from the design of the bottom plate. It has a raised platform in the center of the bottom forming area and this is called the post. Its top area surface is shaped to the desired contour of the bottom of the bottle within the ring seam formed by the post. . . . [On the cup bottom molds] in contrast with the post bottom mold, the part that shapes the bottom of the bottle is cut into the bottom plate as a small depression or cup."

These two seam types are easily recognizable in all but the smallest base fragments. Bottles made using a post bottom mold will exhibit seams running down the side on the base (Figure 1). This seam will always be centered. The cup bottom mold produces seams which join a horizontal seam above the heel.

Around 1840, the two-piece hinged mold began to be used with two mold varieties. The earlier appears to be the hinged-bottom mold. This mold, as the name implies, consisted of two halves hinged at the bottom, producing a seam which extended straight across the bottom. This type of mold was in use as early as the 1750s in England (Jones 1971:9) and continued to be used into the 1880s. This mold began to replace the three-piece mold in the 1840s (Lorrain 1968:40). The second variety was the side-hinged mold. Bottles produced in this mold would exhibit either a cup or post bottom mold and had side seams running from the bottom mold seam up to the neck area. The lip would be finished by hand. Although a mold of this type was illustrated in Toulouse (1969a:581, Figure 21) little information could be found concerning its use.

The need for a pontil rod was eliminated in 1857 when the snap case was invented. The snap case was a tool for gripping a bottle while the neck was being finished.

> "The snap case consisted of four curved, padded arms which could be clamped around the bottle. . . . It occasionally left slight indentations on the side of the bottle but usually there is no mark. If a bottle has a hand finished lip and mold marks but no pontil mark, it can be assumed that a snap case was used" (Lorrain 1968:40).

While bottles of this type date after 1857, the presence of a pontil mark does not necessarily mean a bottle dates before 1857.

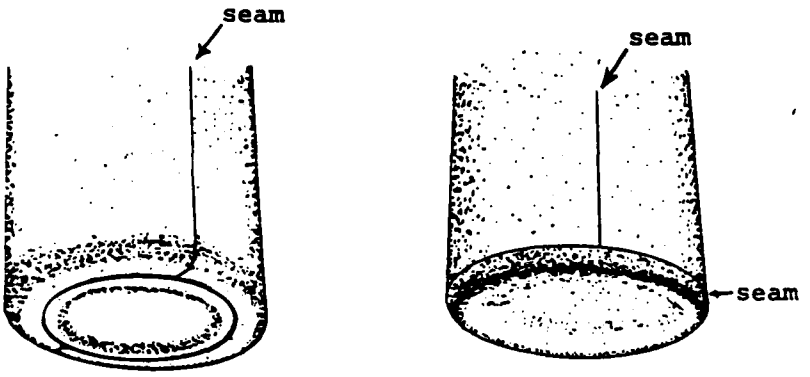


Figure 1.--Post Bottom Mold (left) and Cup Bottom Mold (right).

Another innovation, about which some controversy exists, is the development of the lipping tool (a plug for the bottleneck and two forming arms used to form the lip into a desired shape). The tool was developed in England in the 1830s and was in use in this country by the 1850s. Lorrain (1968:43) and Toulouse (1969a:533) felt that the lipping tool was used in America before the 1850s.

That was the glassmaking technology of America at mid-century. A major change had occurred from free-blown bottles to blown in the mold bottles. During the next 30 years no major changes took place. There were additions and refinements, but the basic technology remained the same until the development of a semi-automatic bottle-making machine in 1882. That machine did not prove workable, however, until the 1890s when commercial production began on a large scale. The semi-automatic designation does not refer to the finishing process, as has been commonly assumed.

> "Glass was gathered at the pot as usual, brought to the machine and a portion was severed by a pair of shears, held in such a position that a 'gob' fell into a newly added 'blank' mold. So long as glass had to be brought to the machine in this fashion, the machine was called 'semi-automatic'. The 1904 patent of the Owens machine was the transfer of glass to the machine machanically leading to the first 'automatic' machine" (Toulouse 1967:42).

The only observable difference between bottles produced on a semi-automatic machine and an automatic machine would be the suction cut off scar on the base of bottles produced by an Owens patent machine (Jones 1971:9). For a long time, archaeologists dealing with this period have assumed that machine-made bottles, as we know them today, were first produced after 1904 (cf. Lorrain 1968; Teague and Shenck 1977). This is not true. Machine-made bottles could be as early as 1882, and we should consider the early 1890s as the beginning of large-scale machine bottle production. However, mold blown bottles were to remain an important part of bottle production well into the 1920s (Jones 1971:8).

Four characteristics prove conclusively a bottle was machine-made: (1) one or more circular seams on top of the finish; (2) ghost seams; (3) valve scar; (4) suction cut-off (sc) scar. Circular seams on top of the finish are important because:

> "One thing almost all machines have in common is a "tip" or "plunger" which merely defines the inner throat diameter of the finish. . . . The tip necessarily contacts glass. Since to guide the tip a collar also descends into contact with the glass--therefore the junction between tip and collar leaves a seam and this seam is circular in form" (Toulouse 1969b:583).

Ghost seams result from the use of separate blank molds and finish molds during machine manufacture. They appear as faint lines paralleling mold seams but often curved or ragged. Occasionally a ghost seam will appear on the bottle base and will look like a post bottom mold seam, but the ghost seams will disappear about one quarter of the way up the body. Valve scars are the third definite characteristic of machine-made bottles. This mark results from a machine using a dip mold to form the blank. The blank is then forced from the mold by a push-up plunger or valve. This action leaves a mark on the base of the bottle.

> "Generally the diameter is from 1/2 to 7/8ths of an inch. It is most often found on wide mouth foods of the 1930s and 1940s and even later on many milk containers. The aspect is hard, i.e. strongly marked, often indented deeply enough that a fingernail may follow it as an indented groove" (Toulouse 1969b:583).

A suction cut-off scar definitely indicates machine manufacture and also a post-1904 date. This process is part of that patented by Owens in 1904. The scar results from the shearing action necessary to stop the glass flow in an automatic bottle-making machine and appears as an irregular circle on the base of bottles. Often the edges are ragged or "feathered" due to the stress caused by the shearing action. Depending on how much expansion of the glass is necessary, a sc scar can be either "hard" or "spread." A hard sc scar will be nearly round and be confined to the base of a bottle. A spread sc scar will be more irregular and often will extend over the heel of a bottle onto the side (Toulouse 1969b:583).

Two other characteristics have been used to distinguish machine manufacture. By themselves they are of dubious usefulness. The first is the parting line or neck seam: a seam encircling the neck below the finish and indicating the finish mold was separate from the body mold. This process was used on blown in the mold bottles as well as machine-made bottles. The earliest patent for such a process was in 1860, long before machine bottle-making (Toulouse 1969b:584). The second of these dubious characteristics is a mold seam running up to and over the lip. Lorrain (1968:43) mentions this as being a characteristic of machine-made bottles. There are bottles other than machine-made bottles having seams running up to and over the lip. Bottles exhibiting this characteristic were being produced as early as 1858 (Toulouse 1969b:583) in a blowback mold. This mold had the finish as an integral part of the mold. The glassblower would expand the glass until it began to come out of the top of the mold. It would then be broken off and polished. This can be confused with modern machine-made bottles.

This has been a brief summary of glass bottle-making in the 19th and 20th centuries. In addition, we have tried to show the attributes left on the glass by each of these processes. These attributes were used in designing the typology.

Glass Typology

This section discusses the glass typology as it was devised and used to describe function, technology, and descriptive attributes. The first division, class, is based mostly on function (Table 2). The category division is based on description and/or function. The next division, type, is based on technology and/or description. The final division into varieties is based on description.

Table 2. Glass Classes

A01	Bottles	A06	Jar Bases	A10	Closures	A14	Tovs
A02	Bottle Bases	A07	Fragments	A11	No Class	A15	Electrical
A03	Bottlenecks	A08	Tableware	A12	Buttons	A16	Beads
A04	Jars	A09	Lighting	A13	Other	A17	Clothing
A05	Jar Rims						

Bottles from Bay Springs

A bottle is defined as a narrow necked container, as opposed to a wide-mouthed container (jar). The dividing line appears to be at 25mm, with only one exception--gallon jugs. The bottles were divided into three classes, A01 Complete Bottles, A02 Bottle Bases, and A03 Bottlenecks, to facilitate using the system (Table 2). Jars were similarly divided.

Class A01: Complete Bottles

A total of 10 complete bottles was recovered from the Bay Springs sites. Analysis began by dividing them into categories based on morphology. Wherever possible, we used the bottle makers' designations. The primary reference for this was the reprinted Whitall, Tatum & Company Catalog for 1880. Table 3 lists the bottle categories. Base shapes for these bottles and for the bottle bases (A02) are shown in Figure 2. The numbers in the figure refer to A02 Bottle Base Categories (Table 4)

Six out of the ten bottles bore embossing which allowed the maker or product to be determined. A01-01-14A - A beer bottle made by the Obear-Nester Glass Co. of East St. Louis, Illinois (Toulouse 1971:374) was found at Site 22TS1111. This bottle had a twist off cap and dates after 1960. A01-05-02B - This bottle contained Dr. J. Hostetters Stomach Bitters and was found at Site 22TS1103D. Bottles such as these have been found on archaeological sites as early as 1865 (Switzer 1974:33-34). A01-12-01C - This extract bottle bore the embossing, "Flavoring Extracts" and was found at Site 22TS1109. No other information could be obtained on this bottle. A01-12-05A - A bottle embossed "Dr. Sage's Catarrh Remedy, Dr. Pierce Prop." This patent medicine was produced in Buffalo, New York. The earliest advertisement for the product was in 1869 (Baldwin 1973:427). The bottle was recovered from 22TS1103A. A01-34-01A - A log cabin shaped bottle was recovered from the mill site. It was embossed with "S.T. DRAKE'S 1860 PLANTATION BITTERS." Many bottles of this type were on the steamer Bertrand when it sank in 1865 (Switzer 1974:36). A01-37-01A - A bottle from 22TS1105 has been identified as "Warner's Safe Kidney and Liver Cure." This product was made in Rochester, N.Y. and the earliest advertisement was in 1880 (Baldwin 1973:508).

Table 3. Class A01, Bottle Categories

A01-34	Drake' square, sides parallel, shoulder tapers
A01-35	Beveled rectangular, sides parallel, shoulder round.
A01-36	Hexagonal, sides parallel, shoulder stepped.
A01-37	Wide oval, sides parallel, shoulder round.

Class A02 Bottle Bases

The Bay Springs sites yielded 93 bottle bases. Many of these showed evidence of the technological processes mentioned above. They were classified within a typology having 37 categories. However, only eight of these categories were present at Bay Springs and these are marked by an asterisk (Table 4, Figure 2).

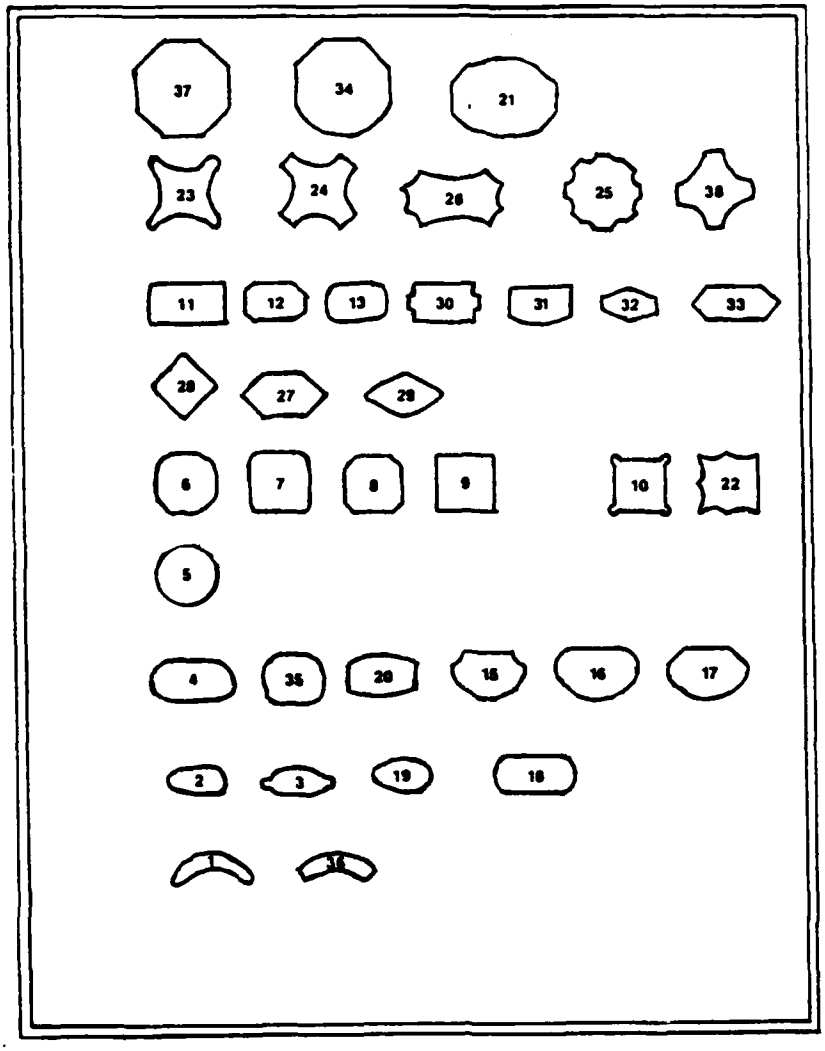


Figure 2.--Bottle Base Shapes for Class A02.

Table 4.--Class A02: Bottle Base Categories.

A02-01	Crescent	A02-20	"Pickle" oval
A02-02*	Narrow oval	A02-21	"Pickle" duodecagonal
A02-03*	Union oval	A02-22	Flat extract
A02-04	Wide oval	A02-23	Extract
A02-05	Round	A02-24	Beveled extract
A02-06	Squared round	A02-25	Catsup
A02-07	Rounded square	A02-26	Fluted pepper
A02-08*	French square	A02-27	Pepper
A02-09	Square	A02-28	Rhomboid
A02-10	Drake's square	A02-29	Smooth diamond
A02-11	Rectangular	A02-30	Union oval squared
A02-12*	Beveled rectangular	A02-31	Rounded rectangular with one oval face
A02-13	Rounded rectangular	A02-32	Square diamond
A02-14	'Category Null'	A02-33	Flared rectangle
A02-15	Fluted Prescription	A02-34*	Double beveled prescription
A02-16	Millville	A02-35*	Squared oval
A02-17*	Beveled prescription	A02-36	Double beveled crescent prescription
A02-18	Philadelphia oval	A02-37*	Octagonal
A02-19	Flat-sided oval	A02-38	Fluted round

Normally bottle bases are extremely useful for dating sites but the small sample size from Bay Springs precludes this. Four bases do bear identifying marks. A02-05-01Z - This recent base was made by the Owens-Illinois Co. at Huntington, W.VA. in either 1954, 1964 or 1974. It was found at 22TS1111. A02-05-02K - A Coca Cola bottle was found at 22TS1111. "Corinth, Miss." was embossed on the base and "Root 27" was on the side; this bottle was made in Terre Haute, Ind., between 1916 and 1932 (Toulouse 1971:445). It was filled at the Coca Cola bottling plant in Corinth, Miss. A02-12-02Q - Another base from 22TS1111 bore embossing of the Owens Bottle Co.; the bottle was probably made in Charleston, W.Va. in 1921 (Toulouse 1971:394-395). A02-34-01A - A recent base was recovered from 22TS1113. This base was made by Owens-Illinois in 1951 (Toulouse 1971:170,403).

Class A03: Bottle Necks

The term bottle neck was used to indicate fragments of bottles exhibiting evidence of lip finish. Commonly these fragments extend from the lip down to the shoulder area. Neck fragments without any evidence of lip form are classed under Fragments (Class A07). In the excavations we recovered 66 whole or partial bottle necks. These were classified into 10 categories based on the shape of the lip. The primary reference for this classification was the Whiteall, Tatum & Co. catalog for 1880. The bottleneck categories and types are shown in Table 5 and Figures 3 and 4. A few definitions are in order so that the distinctions between categories may be made clear:

(1) Prescription lips have a mouth tapering from the lip to the neck hole.

(2) Patent lips possess a lip which is flat across the top.

(3) Ring lips have a round head of glass forming the lip. This is not the term used in the Whiteall, Tatum & Co. catalog, but it is commonly used in historical archaeology and is used here to avoid confusion.

(4) Crown lips are adapted for the crown cap. These lips are too late in time to be mentioned in the Whiteall, Tatum & Co. catalog (1880).

(5) Threaded lips are threaded for screw caps.

(6) Canister lips possess a shelf for the placement of a lid. Milk bottles with cardboard lids were a familiar example.

(7) Cork lips are tall in relation to their width. This refers to a particular finish type and not the closure's use. They are commonly found on alcoholic beverage containers. The Whiteall, Tatum & Co. catalog calls these ring lips, but we chose not to confuse this with what are commonly called ring lips.

(8) Lug lips are a form of threaded lips. They have small, separate projections or "lugs" on the finish which engage a cap to hold it tight.

(9) Wine lips have a narrow ring below the mouth where the cord is tied to hold the closure in place.

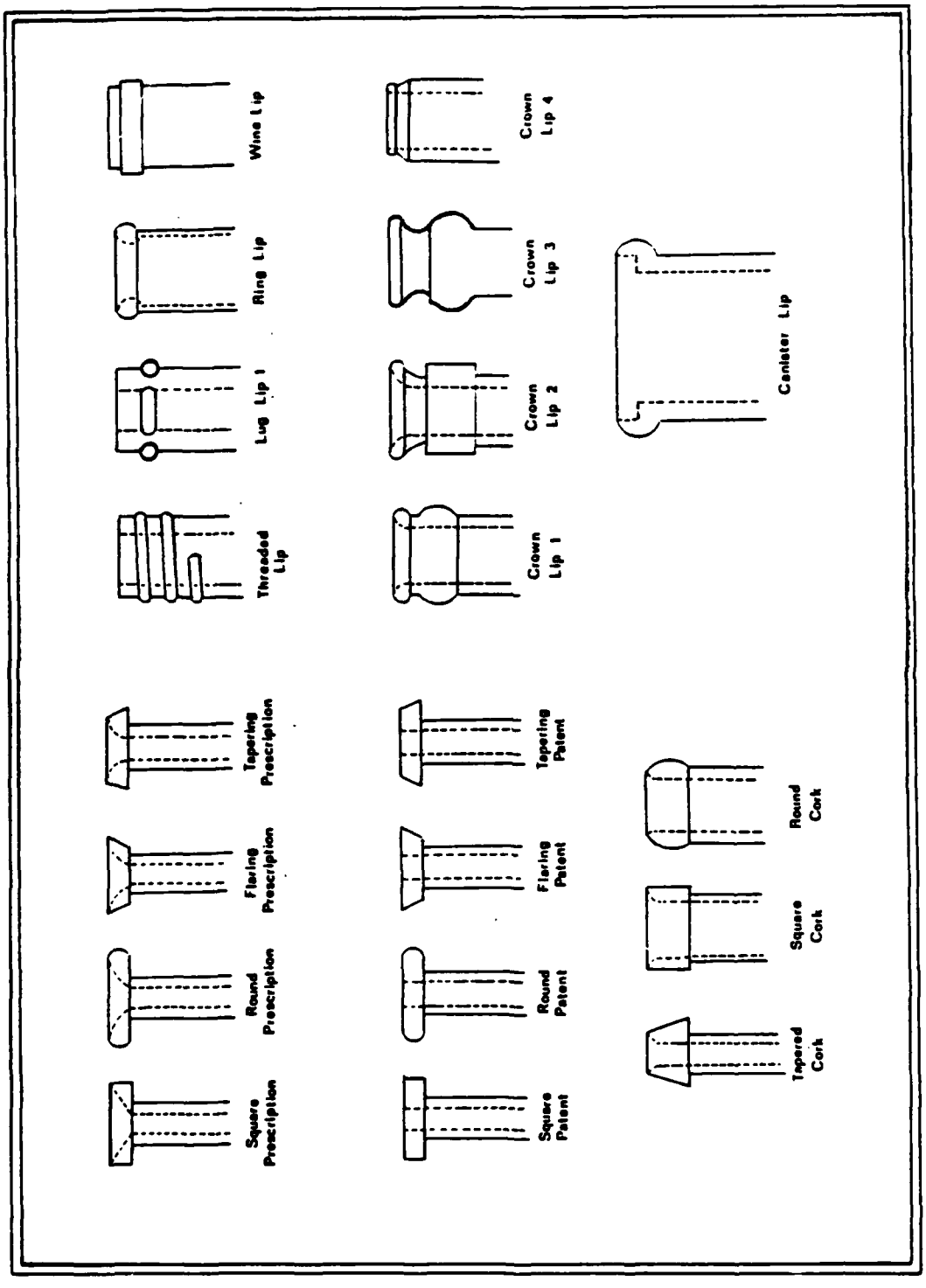


Figure 3.--Lip Finish Types.

Within each category, type distinctions were made on morphology and technology. Thus, a patent lip with sides straight up and down is a square patent, and a lip with sides expanding toward the mouth is a flaring patent lip. The next important criterion was collar type. Finally technology was used as a dividing point. A generalized example of the type distinctions is shown in Figure 4.

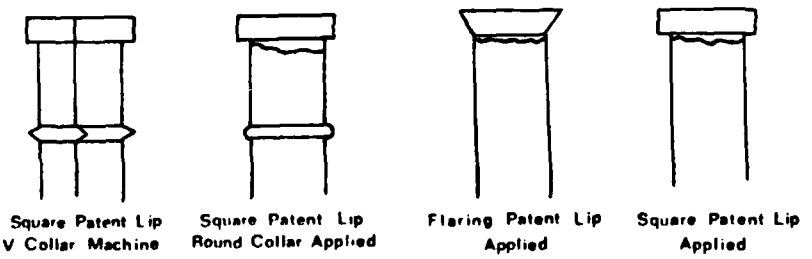


Figure 4.--Generalized Type Distinctions for Bottle Necks.

Table 5. Class A03: Bottleneck Categories

1) Prescription Lip
2) Patent Lip
3) Ring (round) Lip
4) Crown Lip
5) Threaded Lip
6) Canister Lip
7) Miscellaneous
8) Cork Lip
9) Lug Lip
10) Wine Lip

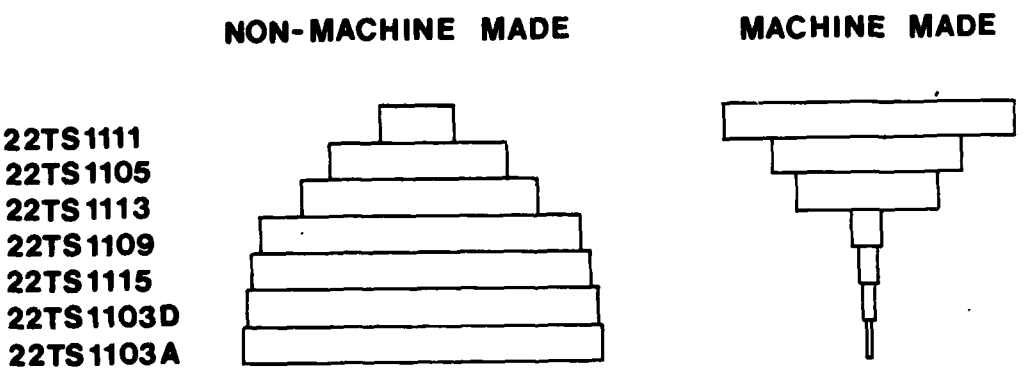


Figure 5.--Percentage of Bottlenecks by Category.

None of the bottle necks recovered provides specific dating or content information. While some authors have tried to assign a function to specific lip finishes, we have seen enough exceptions to conclude that this has limited utility. The data from Bay Springs (Figure 5) do, however, suggest that sites can be ordered on the basis of bottle neck type.

Class A04: Jars

A jar is defined as a wide mouthed container. A separation appears to exist between bottles and jars on the criterion of mouth diameter and the dividing line is 25 mm. The technology used to produce the jars recovered did not differ from that used to produce the bottles. Many of the terms applied to the bottles are used to describe the jars. However, jar closures underwent major changes in the 19th and 20th centuries. In order to understand the typology, we must first understand the development of this new technology.

Jar Closures

The first modern jar with a practical closure was developed by John L. Mason and patented in 1858.

> "Mason's idea was to start a diagonal thread slightly below the top and let it vanish before reaching the shoulder. When the cap was screwed down, its rim imprisoned the rubber. What he achieved was a strong seal on the shoulder" (Lief 1965:12).

After the original Mason jar's success, jar technology began to progress rapidly. Lewis R. Boyd patented (1869) a glass liner for the zinc caps to prevent contact of metal with the contents. A new closure was developed in 1882 by Henry W. Putnam. Termed a "Lightning Fastener," this closure consists of a glass cap held in place by a wire bail. The wire bail is connected to a lever device attached to the neck. This closure has the advantage of allowing the hot air to vent from the jar before closing.

The first commercially acceptable jar closure was the Phoenix cap developed in 1892: this allowed hot processed foods to be packed.

> "The Phoenix was a two piece cap with a metal plate and a rubber washer held on the jar top by a tongue and eye compressing neckband crimped under a ring on the finish. Low cost and machine applied, it was easy to unlock. For the Phoenix finish, the cap maker furnished dimensional specifications to the jar manufacturers. These correspond to fixed sizes of caps and, as with crown and Mason jar finishes, constituted a step towards standardization."

The first step towards a vacuum seal jar was taken in 1902 with the development of the Giles jar and cap. This closure consisted of a horizontal ledge below the mouth of the jar, a rubber gasket, and a flanged cap to press the gasket against the sidewall. This jar was used primarily for cold-packed vacuum processing. Along another technological line, the Amerseal cap was invented in 1906. This cap was made to engage a lug finish. This was the first cap to be knurled on the edges for ease of grip. The major advantage of this cap was its ease of removal and replacement.

The next step in jar closures was the Sure Seal cap developed in 1908. This was an improvement in the vacuum seal.

> "The skirt of this metal cap formed a groove for the gasket and was crimped under the glass finish. Food packers admired its ability to withstand pressures developed in sterilizing, but users had to struggle to remove it. The ledge was eliminated. The skirt was compressed into a V shape for smooth contact with the rubber forced against the glass. Next, the bead of the cap was chucked to diminish the diameter and make the seal. In a new pry-off form this cap became a great success on tumblers. An Anchor opener lifted it with a flip or two. However, the cap was distorted on removal and had no reclosure value. Making a virtue of a fault, the manufacturers pointed out, it's tamperproof" (Lief 1965:22).

A major breakthrough in bottle and jar closures occurred in 1919 with the use of a shallow, continuous thread screw cap. Previous to this, only two types of screw caps were used, the Mason type with several threads and the lug type. In 1924, the Glass Container Manufacturers set-up industry standards for the continuous thread cap. The new cap had many factors in its favor: easy to make, sealed well, opened and closed easily, and decorated easily. It soon began to replace cork and other closures. Meanwhile, research aimed at improving the vacuum seal cap was progressing. In 1925, a cap was invented having a rubber gasket in an angled skirt. The jar was sealed in a vacuum chamber. When the cap was applied it pressed the gasket against the side of the finish. This was the first vacuum side seal and is the form we know today.

Class A04: Jars

Five whole jars were recovered from the Bay Springs sites. These were placed into two categories: A04-03 - Round, sides expanding, interior glass beveled, no shoulder; and A04-05 - Round, sides parallel, no shoulder. The system is the same as that used for bottles. The primary division is on the shape of the base with additional, finer divisions based on body and shoulder morphology. The division into types is the same as for bottles. Technology is the prime consideration and the base area is treated first, then the finish area. Varieties are based on size, color, basemark, and other distinguishing attributes. None was embossed for a maker or product and so direct information was obtained on them.

Class A05: Jar Rims

The class of jar rims is composed of fragments of the finish area of jars (Figure 6). Almost all of the jar rims recovered were broken into very small fragments. Identifying a minimum number of jar rims would be impossible, so we have been forced to rely on a count of fragments. Twenty-nine jar rim fragments were recovered and placed into the following categories based on the type of closure: A05-01 Threaded; A05-03 Vacuum side seal; A05-04 Ring. The technology used to produce the jar rims has been discussed under the bottles and the jars.

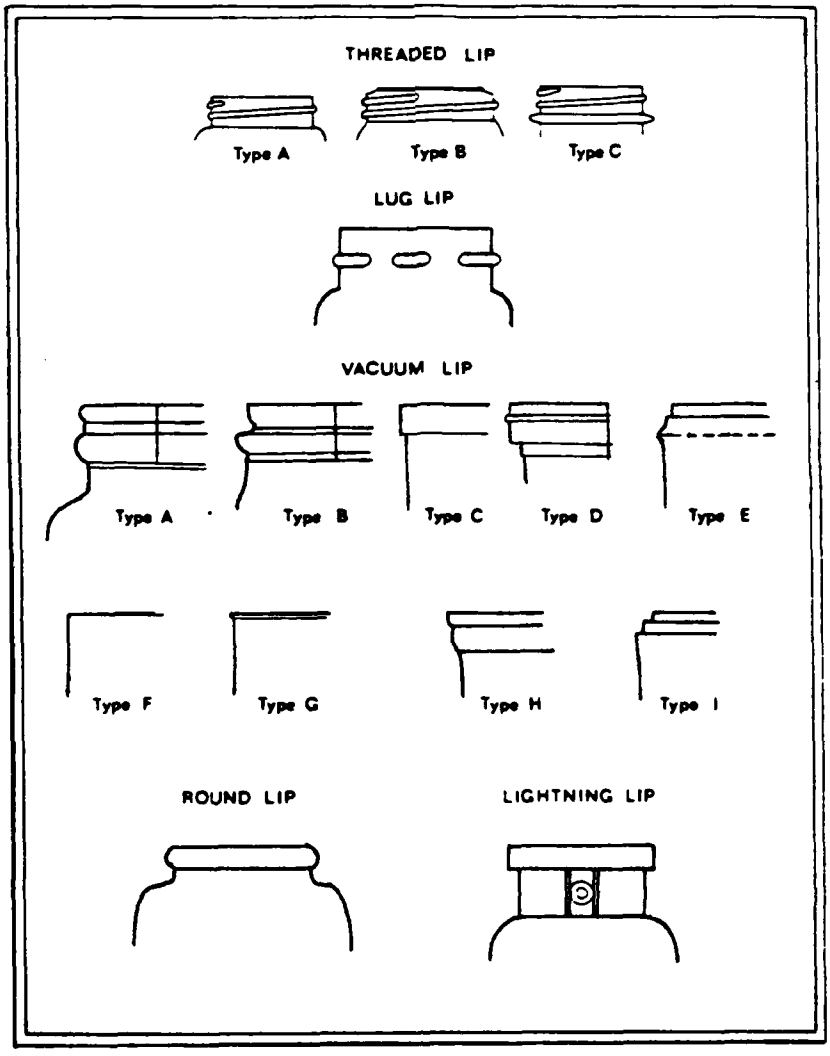


Figure 6.--Jar Rims.

Class A06: Jar Bases

Fragments of jars exhibiting marks of basal technology were put in this class. Fifteen jar bases were recovered and are described in the following categories based on shape while the types are based on technology: A06-01 Rounded square; A06-02 Round; A06-03 Rectangular. Two jar base embossings give evidence of a maker or user: A06-02-01R, a white glass base recovered from 22TS1113 and embossed "CREM..., DE ME....", and A06-02-02N a jar base from 22TS1105 bearing the Owens-Illinois mark indicating it was made in either 1956, 1967, or 1977 at Clarion, Penn. (Toulouse 1971:395). The latter must post-date the site's occupation.

Class A07: Fragments

This is the largest class because it contains an enormous amount of window glass from the mill site. The following categories are descriptive: A07-01 Flat glass; A07-06 Pressed glass; A07-02 Bottle glass, lettered; A07-03 Bottle glass, non-lettered; A07-05 Jar glass, lettered.

Category A07-01: Flat Glass by Margaret Langhorne Rothman

History

Flat glass is the category in which perfectly flat glass was placed. This glass was used for windows, mirrors, and safety glass. Karl G. Roenke (1978), in his study of 19th century flat glass, describes three processes of flat glass production: crown, cylinder, and plate.

The earliest flat glass in the United States, crown glass, was produced by blowing a mass of molten glass with a blow pipe, then attaching a metal rod or "punty" and breaking off the pipe. Removing the pipe left a hole in the glass. Using the punty, the glass was then spun in front of a fire to keep it maleable. The spinning caused the glass, and the hole, to flatten and enlarge, creating a circular sheet called a table. The table was cooled vertically, then cut into the required sizes. Much of the glass was wasted because of the circular shape and the hole in the center of the table. Crown glass was produced primarily in England into the latter half of the 19th century, while in Continental Europe, the cylinder method was used. By 1820, the cylinder process had been adopted in the United States and only one known factory was manufacturing crown glass.

Cylinder glass was the oldest known form of flat glass. In the 19th century, it was the predominant flat glass in the United States and Europe with the exception of England. The several variations in cylinder glass production all involve basically the same steps. A mass of molten glass was blown to form an elongated bulb, attached to a punty, and the blowing pipe broken off. With the help of the punty, the bulb was formed into a long cylinder. The cylinder was split longitudinally; originally after it had cooled, later while the glass was still hot. The latter reduced production time. It was then flattened with a rod or a wooden block on the end of a metal rod. Cylinder glass was of poorer quality than crown glass, but it was more economical to produce and more versatile. There was no waste due to the shape or a central hole. Larger panes of glass were feasible with the cylinder glass method.

The third process of flat glass production was plate glass. The procedure may date from as early as the Roman period, but the French are credited with its invention in 1688 (Roenke 1978:9). Plate glass was obtained by pouring molten glass onto a metal table, then spreading it evenly with the aid of a roller. The table had guides for thickness. Plate glass was only roughly even in thickness and was cloudy from contact with the table and the roller. Thus, it was called rough plate. This limited its use to objects or buildings which did not need crystal clear glass. A more finished product, polished plate, was obtained with a few extra but expensive steps. Its manufacture required costly machinery and a great deal of labor, restricting its use to luxury items like coaches and large mirrors.

Later the plate glass process developed into rolled plate. In 1870, the Chance Brothers of England invented a machine from which sheets of glass were formed by pouring molten glass through two rollers (Roenke 1978:11). Also in the latter half of the 19th century attempts were made to draw sheets of glass. The method was not successful until the early 20th century. Today, drawn sheet glass is the principal method of flat glass production.

The artifacts

To facilitate the analysis and description of the 13,106 flat glass fragments found at Bay Springs, a typology was devised with three types: mirror glass, window glass, and extremely thick flat glass. Each type was divided further into varieties based on thickness. The choice of thickness as a criterion for division was influenced by Karl G. Roenke's work in the Pacific Northwest and his hypothesis that window glass became thicker through the 19th century (Roenke 1978:116).

Mirror Glass

Mirror glass is flat glass with evidence of tarnishing or blackened areas. This tarnishing is the residue of a backing placed on the glass to give it its reflective quality. From the 14th century to the 19th century, the primary method of producing mirror glass was the "tin and mercury process" (Roenke 1978:11). In 1835, Justus von Liebing produced a method of silvering, which survives today. Only fragments of the latter were found at Bay Springs.

Mirror glass (Type 01), is divided into four varieties--A: less than 2 mm; B: 2.0-2.9 mm; C: 3.0-3.9 mm; and D: beveled edges. Only 7 mirror glass fragments were found at Bay Springs: two pieces, or 28.6%, came from 22TS1105; four or 57.1%, from 22TS1109; and one, or 14.3%, from the additional testing at 22TS1115. Mirror glass comprised only 0.05% of the flat glass recovered from Bay Springs.

Window Glass

The flat glass thinner than 5.1 mm and showing no evidence of silvering was either Type 02 unburned or Type 05 burned window glass. Both these were divided into ten varieties: Varieties A through E represent those fragments with regular straight-edged breakage (normal broken window glass), while Varieties F through J are those fragments with irregular, curvy or wavy edges--what we have termed "jigsaw" breakage. This irregularity probably was the result of an explosion and has been noted elsewhere (Frederick Gorman, personal communication); at Bay Springs this would have been during the factory fire. Varieties A/F are 1.0-1.9 mm thick, B/G 2.0-2.5 mm, C/H 2.6-2.9 mm, D/I 3.0-3.9 mm, and E/J 4.0-4.9 mm. There were 13,094 window glass fragments recovered at Bay Springs (Tables 6 and 7). Site 22TS1103D also had 5,379 amorphous globs of molten glass of varying sizes and weights. These are presumed to be window glass fragments, since few other kinds of glass were recovered there.

Of the 1,176 window glass fragments found at 22TS1103A, 885 were unburned and 291 were burned, 75.3% and 24.7% of the total, respectively, with 43.3% of the total Varieties A/F, 39.6% Varieties B/G, 15.1% of C/H: and 2.0% D/I. No fragments of either Varieties E or J were found. No burned window glass was found at 22TS1103B. Only 15 fragments of window glass came from this site, 21.0% Variety A, 73.7% Variety B, and 5.3% Variety C. Only one window glass fragment, Variety B, was recovered from 22TS1103C.

Table 6.--Distribution of Flat Glass.

22TS	1103A	1103B	1103C	1103D	1105	1108	1109	1111	1112	1113	1115	Total
A07-01-01A	-	-	-	-	-	-	4	-	-	-	1	5
-01B	-	-	-	-	2	-	-	-	-	-	-	2
-01C	-	-	-	-	-	-	-	-	-	-	-	-
-01D	-	-	-	-	-	-	-	-	-	-	-	-
subtotal	-	-	-	-	2	-	4	-	-	-	1	7
A07-01-02A	202	4	1	2416	424	27	44	1	2	44	110	3275
-02B	295	14	-	1222	434	14	46	2	-	9	46	2082
-02C	113	1	-	116	94	2	16	-	-	-	5	348
-02D	9	-	-	45	11	-	-	3	-	-	1	70
-02E	-	-	-	-	-	-	-	-	-	-	-	-
-02F	153	-	-	437	120	-	3	-	-	-	1	716
-02G	84	-	-	226	154	1	6	-	-	-	1	472
-02H	21	-	-	20	14	1	10	-	-	-	-	66
-02I	8	-	-	20	1	-	6	-	-	-	-	35
-02J	-	-	-	-	1	-	-	-	-	-	-	1
subtotal	885	19	1	4502	1253	45	131	6	2	53	164	7063
A07-01-03A	-	-	-	-	-	-	-	4	-	-	4	4
-03B	-	-	-	1	-	-	-	-	-	-	-	1
-03C	-	-	-	-	-	-	-	-	-	-	-	-
subtotal	-	-	-	1	-	-	-	4	-	-	4	5
A07-01-05A	73	-	-	1890	7	-	1	-	-	-	1	1972
-05B	47	-	-	2047	8	-	1	-	-	-	-	2103
-05C	14	-	-	536	1	-	2	-	-	-	-	553
-05D	3	-	-	126	-	1	-	-	-	-	-	129
-05E	-	-	-	-	-	-	-	-	-	-	-	-
-05F	81	-	-	461	4	-	-	-	-	-	-	546
-05G	40	-	-	511	8	-	-	-	-	-	-	559
-05H	29	-	-	113	1	-	-	-	-	-	-	143
-05I	4	-	-	20	2	-	-	-	-	-	-	26
-05J	-	-	-	-	-	-	-	-	-	-	-	-
subtotal	291	-	-	5704	31	-	4	-	-	-	1	6031
TOTAL	1176	19	1	10207	1286	45	139	10	2	53	170	13106

Table 7.--Distribution of Flat Glass by Percentage.

22TS	1103A	1103B	1103C	1103D	1105	1108	1109	1111	1112	1113	1115
A07-01-01A	-	-	-	-	-	-	2.9	-	-	-	0.6
-01B	-	-	-	-	0.2	-	-	-	-	-	-
-01C	-	-	-	-	-	-	-	-	-	-	-
-01D	-	-	-	-	-	-	-	-	-	-	-
subtotal	-	-	-	-	0.2	-	2.9	-	-	-	0.6
A07-01-02A/F	30.2	21.0	100	28.0	42.3	60.0	33.8	10.0	100.0	83.0	65.3
-02B/G	32.2	73.7	-	14.2	45.7	33.3	37.4	20.0	-	17.0	27.6
-02C/H	11.4	5.3	-	1.3	8.4	6.7	18.7	-	-	-	3.0
-02D/I	1.4	-	-	0.6	0.9	-	4.3	30.0	-	-	0.6
-02E/J	-	-	-	-	0.1	-	-	-	-	-	-
subtotal	75.2	100	100	44.1	97.4	100	94.2	60.0	100.0	100.0	96.5
A07-01-03A	-	-	-	-	-	-	-	40.0	-	-	2.4
-03B	-	-	-	*	-	-	-	-	-	-	-
-03C	-	-	-	-	-	-	-	-	-	-	-
subtotal	-	-	-	-	-	-	-	40.0	-	-	-
A07-01-05A/F	13.1	-	-	23.0	0.9	-	0.7	-	-	-	0.6
-05B/G	7.4	-	-	25.1	1.2	-	0.7	-	-	-	-
-05C/H	3.7	-	-	6.4	0.2	-	1.4	-	-	-	-
-05D/I	0.6	-	-	1.4	-	-	-	-	-	-	-
-05E/J	-	-	-	-	-	-	-	-	-	-	-
subtotal	24.8	-	-	55.9	2.4	-	2.8	-	-	-	-
TOTAL	100.0	100.0	100.0	100.0	100.1	100.0	99.9	100.0	100.0	100.0	100.1

*rounded to zero

The mill site, 22TS1103D, contained 10,206 fragments: 4,502 (44.1%) unburned and 5,704 (55.9%) burned. Varieties A/F represent 51.0%, Varieties B/G 39.2%; Varieties C/H 7.7%; Varieties D/I 2.1%. No glass of either Variety E or J was found. Looking at Tables 6 and 7, it is interesting that burned window glass is thicker, on the whole, than unburned glass. This could result from several causes: (1) the glass has physically changed as a result of heating, or (2) the frequency of the thicker burned glass was skewed by replacement of the earlier thinner panes by thicker ones later. Given an increase in window glass thickness through the 19th century, we would expect the burned glass from a site to represent a different population than the unburned glass. In this case, 23.0% of the burned glass was Variety A (1.0-1.9 mm) and 25.1% Variety B (2.0-2.5 mm), while 28.0% of the unburned glass was Variety A and 14.2% Variety B.

Thick Glass

Only five thick flat glass fragments were found at the Bay Springs sites. One came from 22TS1103D and four from the additional testing of 22TS1111. The four fragments from 22TS1111 were the only flat glass pieces found at that site.

Discussion

Karl G. Roenke (1978) hypothesized and seemed to confirm that flat glass thickened during the 19th century; thus, it is useful in site interpretation. The information from Bay Springs appears to substantiate this hypothesis; however, the dates assigned the various thicknesses are much too early for Bay Springs, following Roenke's (1978:116) data (Tables 8 and 9). Those sites with only a few fragments of glass have been omitted. Using the seriation and the other flat glass tables as guides, tentative statements can be made about the sites at Bay Springs (Figure 7).

Table 8. Window Thickness Data from Roenke (1978:116).

Date Range	Mode Thickness Inches	Mode Thickness mm*	Bay Springs Variety
1810-1825	0.055	1.75	A
1820-1835	0.055	1.75	A
1830-1840	0.045	1.50	A
1835-1845	0.045-0.055	1.50-1.75	A
1845-1855	0.065	2.00	B
1850-1865	0.075	2.30	B
1855-1885	0.085	2.75	C
1870-1900	0.095	3.00	D
1900-1915	0.105	3.30	D

* Converted from English measurements in Roenke (1978:116)

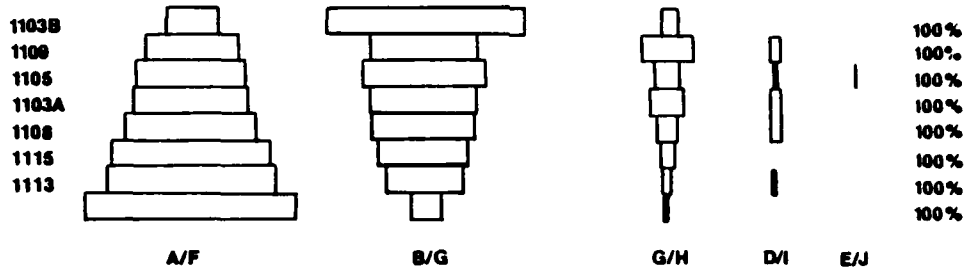


Figure 7.--Window Glass Percentages by Site and Variety.

Table 9. Hypothesized Dates Based Upon Window Glass Thickness

Bay Springs Site	Approximate Mode	Thickness Hypothesized Date	Probable Construction Date*
22TS1103A	A	1810-1845	1850s?
22TS1103B	B	1845-1865	1850s?
22TS1103D	A	1810-1845	1852
22TS1105	B	1815-1865	1870s?
22TS1108	A	1810-1845	
22TS1109	B	1845-1865	1860s?
22TS1113	A	1810-1845	
22TS1115	A	1810-1845	

* Dates based upon history, oral history, and artifactual materials.

The three subdivisions of 22TS1103 comprise the mill and two outlying structures. The fourth subdivision, 22TS1103C, has been omitted. According to the flat glass these three buildings appear to have been erected in 1850s or earlier. Site 22TS1103B seems to have been built after the other two and fell into disuse earlier or had fewer repairs than the others. Sites 22TS1103A and 22TS1103D had many windows.

The construction period assigned by oral history to the store (22TS1105) was the 1870s. The window glass from the site, however, places its construction in the period 1810 to 1865 but the higher percentage of glass thicker than 1.9 mm would indicate a range closer to 1865. Only one flat glass fragment was greater than 4mm thick. The fact remains, however, that 22TS1105 did have glass of the thicker varieties, indicating repairs and use of the store into the fourth quarter of the 19th century.

Site 22TS1108 was apparently one of the buildings used to house factory workers. Its window glass remains indicate a time period closely related to that of the mill complex. It either was not in use when the mill burned, or it had few repairs or no need of repairs by that time. Site 22TS1109 also housed the mill employees. The window glass indicates that it was constructed after 22TS1108, and was used longer or had more repairs.

Of the five sites in Commissary Hollow, only two, 22TS1113 and 22TS1115 had sufficient window glass for analysis. These two sites, both residences, appear to be the oldest of the eight being examined in the flat glass study. More than 75% of the window glass from 22TS1113 is Variety A. A very small percentage of its glass was Variety C, but its presence implies an occupation to ca. 1900, possibly a bit later. Over two-thirds of the flat glass from 22TS1115 was of Variety A. The structure possibly was built somewhat later than 22TS1113. The higher percentages of thicker varieties indicate longer occupancy at 22TS1115 compared to 22TS1113.

Karl G. Roenke emphasized (1978:117) that his dates were regional and need refinement. Using Roenke's tables, the dates are consistently early for the Bay Springs sites just as at Waverly Plantation (Adams 1980); however, the trend remains the same, just shifted later in time. Several explanations for the time discrepancy may be offered. One is the importing of window glass from England into the Pacific Northwest during the early and mid-19th century (Roenke 1978: 29-30). Apparently British glass was thinner than contemporary American made glass. Another explanation is the recycling of window glass. There are numerous oral references to recycling building materials in the Bay Springs area.

Seriation of Window Glass

Applying Roenke's age ranges of window glass thicknesses to the sites at Bay Springs, it has been possible to develop time schemes for the structures unearthed on these sites. Using the previous data, a window glass seriation can be constructed. Sites 22TS1103C, 22TS1111, 22TS1112, 22TS1114, and collection Circles A, B, and C have too small a representation to be useful in this seriation. On the basis of percentages of window glass varieties within a site, it can be assumed that site 22TS1113 is the oldest, followed by 22TS1115, 22TS1108, 22TS1103D, 22TS1103A, 22TS1103B, 22TS1105, with 22TS1109 the most recent.

No conclusions can be drawn from the five pieces of thicker flat glass (more than 5 mm), but their distribution does not change the order in which these eight sites have been placed. It would only suggest that 22TS1111 is the youngest site, rather than 22TS1109. The seven fragments of mirror glass were located at sites in which mirrors would have been a normal item.

The flat glass alone cannot be used to interpret a site. The assumptions made can be concluded only if the data is corroborated by the other artifacts found at Bay Springs, the history, and the oral history of that area.

Miscellaneous Glass Fragments

A07-02 - Bottle Glass, Lettered This category contains body fragments of bottles with embossed lettering. Embossing on bottles is not a significant temporal marker. The earliest embossed bottles were made in the 1700s and embossing is still used (Jones 1971:10). Embossing on panel bottles began in the late 1860s. The types for this category are based on the shape of the original bottle. Since many of the fragments were small and

no shape could be ascertained, a type was created for lettered fragments of unknown bottle shape. A total of 79 lettered bottle fragments was recovered from Bay Springs. These fragments represent at least eight bottles and probably more. Several of the bottles were identified. A07-02-01S, fragments of a Coca Cola bottle were found at 22TS1113. This bottle dates after 1916 when the traditional Coke bottle shape was developed (Toulouse 1971:445). A07-02-01MM, a bottle embossed "NU GRAPE" was recovered from 22TS1103C. A07-02-02LL, MM, QQ, RR, SS, five bottles were represented by fragments embossed, "S. MANSFIELD, DRUGGIST, MEMPHIS, TENN.". Two of the bottles came from 22TS1112, two from 22TS1103B, and one from 22TS1103A. A07-02-05MMMM, Fragments of a bottle embossed, "Jayne's Vermifuge, Philadelphia" were found at 22TS1113. This product was produced as early as 1863 (Baldwin 1973:273).

A07-03 Bottle or Jar Glass, Non-Lettered This large category contained 8,127 fragments of glass. Of that number, 2,685 pieces represented small pieces of unanalyzable glass while the remaining 5,442 pieces were burned glass from 22TS1103D which are unrecognizable as anything other than glass.

A07-05 Jar Glass Lettered Fragments A single fragment of blue-green canning jar was found at 22TS1111. There was not enough of the piece to determine what jar it came from.

A07-06 Pressed Glass Fragments The fragments in this category are probably from tableware vessels. They show evidence of having been pressed in a mold, but are too small to determine vessel shape. Types are based on the color of the glass. Although twenty-five fragments were recovered, no patterns were identified.

Class A08: Tableware

All glass vessels associated with serving food or decorative pieces were assigned to this class. Categories were established by vessel shape and, in some cases, by parts of vessels. Types were set-up by shape and technology. The tableware categories are: A08-02 Lids, A08-04 Unknown bases, A08-07 Unknown Vessels. A total of 24 fragments was recovered, representing probably 20 vessels. Only one pattern was identified, "Sawtooth" (Lee 1946:127), found at 22TS1103A. This pattern is not well dated.

Class A09: Lighting

All of the lighting related artifacts are representative of a system based on fossil fuels. No artifacts representing electrical lighting were recovered. A total of 376 artifacts was assigned to this class. Most of these came from the mill site. Of the total number, 343 pieces represent unclassifiable lamp chimney glass, A09-01. The other 33 pieces were categories A09-02 Shades, and A09-05 Lamp Bases. The categories are based primarily on function while the types are based on shape.

Class A10: Closures

This class was composed of glass artifacts used to seal or close other artifacts such as bottles and jars. Forty-three fragments representing 24 closures were represented. These fragments were separated into categories based on function and into type by shape: the categories were A10-01 Canning

Jar Lids; A10-02 Stoppers; A10-03 Cold Cream Jar Lids; A10-04 Unknown Closures. The category of canning jar lids contains two types of lid, the Boyd cap liner and the lightning cap. The Boyd cap liner was invented in 1869 (Toulouse 1977:109) and the lightning cap was invented in 1882 (Toulouse 1977:126). Cold cream jar lids are milk or opal glass box lids like those illustrated in the Whiteall, Tatum & Co. catalog (1880:25).

Class A11: Null

Class A12: Buttons

Glass buttons recovered at Bay Springs were not very informative. These were everyday buttons with many uses. Little information could be obtained on them for dating purposes as none had maker's marks. The 19 glass buttons were divided into three categories based on method of attachment. Common shirt buttons are shown in many of the old catalogs (Kresge 1913:74; Sears 1902:940; 1908:1004) advertised as agate buttons. Button categories were: A12-01-01 sew-through, common shirt, 4-hole; A12-02-01 twisted wire loop: and A12-03-01 fragments. All but one of the glass buttons were 4-hole shirt buttons. That turquoise colored single loop button was from 22TS1109.

Class A13: Other Glass Artifacts

This is a diverse class made-up of unique items. Those artifacts which were too unique to form their own class were lumped here. Two eyeglass lenses (A13-01) came from 22TS1103B and 22TS1109.

Class A14: Toys; Class A15: Electrical

No artifacts of these classes were recovered.

Class A16: Beads

A single tubular, faceted, deep-blue bead was found at 22TS1113.

Changing Glass Technology In The United States

Glassmaking technology changed rapidly during the 19th and early 20th centuries. Each change in technology left a telltale mark on the artifacts produced by that technology. The study of these artifacts will allow us to date the changes in technology more precisely. For example, we know that machine-made bottles began to be produced in the 1880s. This does not mean that free-blown or mold-blown bottle making immediately ceased. As late as 1917 a full 50% of the bottles produced in this country were mold-blown (Jones 1971:8). The process of replacement was very slow: the study of this process could provide a good dating tool for historical sites.

The changing technology of glassmaking and the artifacts produced by it fit all the requirements for study by seriation. The artifacts are numerous and widely distributed; the technologies have known beginning and sometimes ending dates and they all came from a uniform geographic area. With an increasingly efficient transportation network developing in the 19th century,

glassmakers had to compete in a national rather than a local market. It seems reasonable that those who did not keep up with the changing technologies became less able to compete and went out of business. The results of this process should be a battleship curve reflecting the beginning of the change, its popularity, and its decline and replacement.

In order to test these assumptions, data from seven sites Bay Springs were analyzed. Table 10 presents the sites and their historical dates.

Table 10. Bay Springs Sites

Site		Date
22TS1103A	Domestic/Mill Office	ca. 1850-1885
22TS1103D	Cotton Mill	ca. 1850-1885
22TS1105	Store	ca. 1880(?)-1979
22TS1109	Domestic Site	ca. 1850-1885
22TS1111	Domestic Site	20th century
22TS1113	Domestic (?)	ca. 1885- (?)
22TS1115	Domestic Site	ca. 1850-1885

We have already mentioned that replacement was a slow process, starting in the 1880s and continuing into the 1920s. Jones (1971:8) mentions that in 1905 most bottles were hand-made, in 1917, 50% of the bottles were made by machine, in 1922, 80% were machine-made and by 1924, 90% were machine-made. This should be reflected in the glass recovered on historical sites. Table 11 presents the data from Bay Springs. Data are taken from the classes Bottles, Bottle Bases, Bottlenecks, Jars, and Jar Bases. The class Jar Rims was not included because it was too fragmentary. The figures refer to Minimum Number of Individuals (MNI), not fragments.

Table 11. Glass Containers From Bay Springs

	Non-Machine		Machine	
Site	N	%	N	%
22TS1103A	29	96.7	1	3.3
22TS1103D	20	95.2	1	4.8
22TS1105	10	47.6	11	52.5
22TS1109	29	87.9	4	12.1
22TS1111	3	20.0	12	80.0
22TS1113	22	62.9	13	37.1
22TS1115	13	92.9	1	7.1

The percentages were used to portray graphically the slow change in bottle-making technology (Figure 8). One thing is immediately evident in this graph. The top three sites represent something different from the bottom four sites. The bottom four sites represent roughly the same time period of the 19th century while the top three sites represent various periods from then up to the present. The end date for the bottom four sites is related to the burning of the mill ca. 1885. They represent the period up to about 1895 when commerical machine bottle making was in its infancy. This provides an hypothesis to be tested in the future: "Sites which have an end date before 1895 will have less than 15% machine-made glass containers."

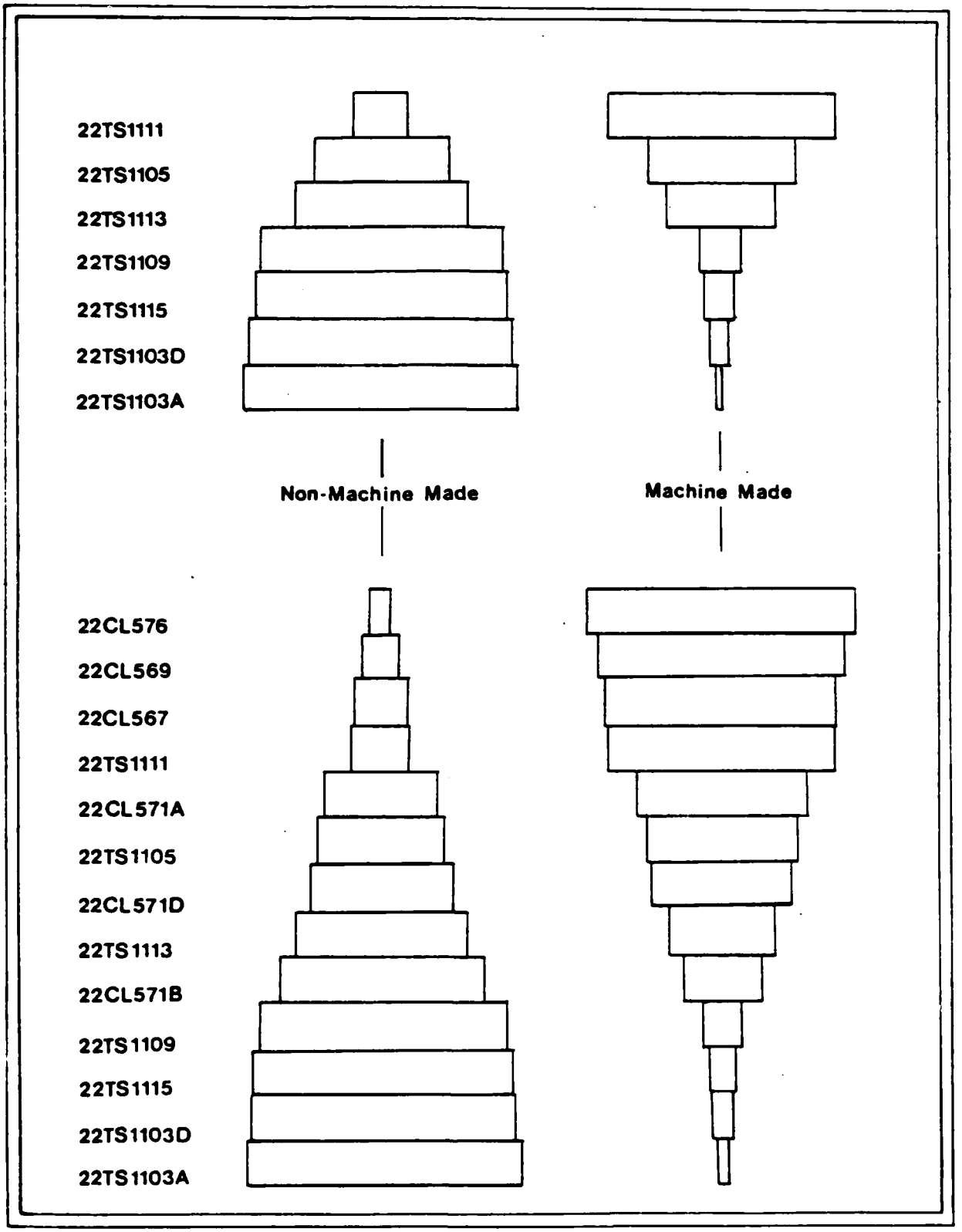


Figure 8.--Machine vs. Non-Machine Made Glass Containers.

By including data from other sites, these curves can be extended. Six sites were excavated at Waverly Plantation along the Tombigbee River (Adams 1980). These sites are primarily 20th century in nature and represent the upper end of the curve (Figure 8). If these sites are compared with the Bay Springs data, three distinct groups emerge (Table 12). This should be viewed as a working hypothesis not a proven fact. The curves and the dates need to be refined using very tightly dated sites. Nevertheless, this method provides a dating tool for late 19th and early 20th century sites. It will be particularly useful on those sites lacking historical documentation.

Table 12. Machine Bottle-Making Periods

Sites	Stage	Date	Machine %
22TS1111, 22CL567 22CL569, 22CL576	Full	ca. 1920-present	Over 75%
22CL571B, 22TS1113, 22CL571D, 22TS1105 22CL571A	Developmental	ca. 1895-ca. 1920	25%-75%
22TS1103A, 22TS1103D 22TS1115, 22TS1109	Initial	pre 1895	less than 25%

Conclusions

The glass artifacts from the sites have shown that changes did take place in glassmaking technology during the late 19th and early 20th centuries. This change was gradual, similar to most cultural changes. The value of this study lies not so much in documenting a change which was already known but rather in providing a dating tool for late period historical sites. The charts accompanying this study are not specific to Waverly, or Mississippi or even to the South. They represent changes in the national market and could, therefore be applied to sites anywhere in the country.

Studies of well-dated sites that were occupied for a short time may refine the relationships shown here, or may even date particular assemblages. This study provides a relative dating for the Bay Springs sites. Other sites may be compared to this sequence to assess their relative dates. Hopefully, a chart can be developed which will allow the relative placement of any site in relation to a known chronological sequence. The utility of this tool in the further analysis of historical materials would be tremendous.

CERAMIC ARTIFACTS FROM THE BAY SPRINGS MILL COMMUNITY: MATERIAL GROUPS B-E

by Albert F. Bartovics and William H. Adams

The Ceramic Typology

Ceramic artifacts have been studied more than most other kinds of artifacts. Hence, this ceramic typology has a greater foundation upon which to build an organizing framework. This essay presents the ceramics available to residents of Bay Springs from 1836 onward--those artifacts which could be recovered in the excavations. Some ceramic groups were not recovered. In the past, historical archaeologists would not have mentioned those items missing from an assemblage. However, creating null classifications has two main purposes. First, it informs others that the null category or type was considered and that all similar artifacts were rejected from that category or type. Second, it emphasizes that certain categories were missing from an assemblage. The latter assists in understanding sites in time and in purchasing patterns. Many reasons exist for why a given ceramic ware or decorative category does not appear in an archaeological assemblage; by seeking consistent negative information we can begin to establish a pattern, a redundancy. In this first part we present the available ceramics: in the next we present the frequency at Bay Springs. [The discussion of the ceramic typology is a revised version of the ceramic study from Daniels Village (Bartovics n.d.); the study of the Bay Springs ceramics was made by Adams; Bartovics examined the Bay Springs ceramics during his analysis of the industrial artifacts.]

Ceramic assemblages of the 19th and 20th centuries can be divided into four wares (see Gifford 1960: Rice 1976). Porcelain is generally characterized by a vitrified body resulting from very high firing temperatures, making it completely impermeable. Stoneware bodies are normally fused at moderately high temperatures making them less glass-like than porcelain but still quite impermeable to water. However, thicker stoneware types may be incompletely fired and thus absorb some moisture on a broken edge. Common earthenware is usually composed of inferior clays with no elaborate preparation and fired at temperatures which usually permit considerable absorption of water through unglazed surfaces (some later types do achieve a measure of impermeability). Refined earthenware clays are generally prepared more carefully than common earthenware clays in order to achieve more ambitious decorative effects; they are normally fired below or just to the point of impermeability.

Table 13 shows three initial levels of typological distinction. The first, discussed above, is the major ware (for example, Ware B, Porcelain), based upon the amount of clay preparation and firing temperature. Generally these have some functional significance: stonewares are often utilitarian vessels for storage and preparation of foods and other items, whereas refined earthenware and porcelain provide vessels for serving, eating, and drinking. All of this is highly dependent upon the time period under consideration. The second level of distinction is that of Class (for example, Class B01, Oriental Export): usually this separation is made on the basis of body (paste) and glaze. Thus, C02-07 would include the range of most American made slipglazed crocks, jugs, and other vessels, while E03-01 would include all plain white tableware of the 19th century.

Table 13. Ceramic typology

Ware/Material	Class	Category
B Porcelain	01 Oriental Export	01 Plain
	02 Hard paste	02 Relief
	03 Soft paste	03 Edgepainted
		04 Transferprint
		05 Decal
		06 Stencil
		07 Annular
		08 Sponge
		09 Handpainted
		10 Tinted glaze
C Stoneware	01 Saltglaze	01 White
		02 North American grey white
		03 Imported bottle
		04 Yellow
	02 Slipglaze	01 Bristol slip
		02 Albany slip
	03 Slipglaze/Saltglaze	01 Bristol slip
		02 Albany slip
	04 Alkaline glaze	
	05 Clear glaze	01 Modern
		02 Lead glaze
	06 Bisque	01 Black Basalt
	07 Miscellaneous	
	08 Unglazed	01 Tiles
D Common Earthenware		
	01 Redware	01 Unglazed
		02 Glazed
		03 Brick
	02 Yellow-ware	01 Common
		02 Rockingham glaze
		03 Rockingham green
	03 Marbles, clay	
	04 Pipes, clay	
	05 Nature American	
E Refined Earthenware		
	00 Not assignable	00 Not assignable
	01 Creamware	01 Plain
	02 Pearlware	02 Relief
	03 Pearlware/whiteware	03 Edgepainted
	04 Whiteware	04 Transferprint
	05 Delft	05 Decal
		06 Stencil
		07 Annular
		08 Sponge
		09 Handpainted
		10 Tinted glaze
		11 Luster

Wares and Classes

Ware B: Porcelain

B01 Oriental Export

Export porcelain, a class of early 19th century ware, includes varieties having handpainted decoration in both underglaze blue and overglaze orange, red, and gold (Noel Hume 1970:257-265; Hanson and Hsu 1975:117-119). The class combines Types 5 and 7 from South's (1972:85) typology. No Oriental export porcelain was recovered from Bay Springs.

B02 Hard Paste

The differences between hard and soft paste are not always easily discernable to the eyes, but generally hard paste porcelain has an abrupt, well defined boundary between the body and the glaze, while soft paste bodies merge into the glaze. In addition, the hard paste takes on a much more vitrified appearance in the edges, apparently due to higher firing temperatures. Decorative categories include plain, relief decoration, annular, and handpainted. Most porcelain from Bay Springs was hard paste (79.8%), the rest were soft paste (9.9%) or non-tableware (9.9%).

B03 Soft Paste

Soft paste glazes blend into the bodies, making them similar to vitrified earthenwares, with which they form nearly a continuum. All pieces from Bay Springs were plain.

B04 Non-tableware

Under this class of artifacts found at Bay Springs were marbles, dolls, and toys, buttons; primarily bisque, a few are glazed or handpainted.

Ware C: Stoneware

C01 Stoneware, Saltglaze

C01-01 White saltglaze stoneware provided an alternative to creamware. Type 01 is undecorated; Type 02 is decorated with incised lines filled with brown or cobalt blue; Type 03 has handpainting in red; Type 04 has overglaze polychrome handpainting in red, yellow, black, green, and blue (Hanson and Hsu 1975:121). None of the above was recovered at Bay Springs.

C01-02 North American saltglaze stoneware comprises domestically produced stoneware glazed with salt vapor as flux for the most common exterior surface (Noel Hume 1970:100-101; Osgood 1971), although the interior of most products and the exterior of some is coated with the distinctive brown Albany slipglaze (Osgood 1971:59). The body color varies from a steel gray to a soft buff, often both colors are present in the same vessel due to uneven firing. Decoration is generally limited to incised lines, or handpainted or stenciled decoration in underglaze colors, usually cobalt blue. Stencil decoration post-dates 1840 according to Ramsay (1947:140). Noel Hume (1970:100) and others (e.g. Guilland 1971:40-42)

indicate that a number of well-established stoneware potters existed in New England before the 19th century. Limited production continues today. No Bay Springs vessels were stenciled.

C01-03 Imported bottle saltglaze is a class of stoneware described by Noel Hume (1970:78-80) as a 19th century English product. The bottles are generally small (one pint or less) and saltglazed on the exterior. Some, however, have a smooth surface indicating some sort of slipglaze. The bodies appear to be more carefully prepared and more densely consolidated than North American saltglaze stoneware. One other variety of more substantial size included in this class has a surface treatment which appears to be a 19th century version of the older Fulham style brown saltglaze stoneware (Bemrose 1952:8; Hughes 1960:40-42; Noel Hume 1970:79-80). Only two specimens of this category were recovered at Bay Springs.

C01-04 Yellow saltglaze stoneware is another distinctive but very rare class of utilitarian stoneware. The orange peel effect on the surface of this yellow body is faint by comparison to other saltglaze types, but cannot be confused with the smooth glaze of a common yellow-ware discussed below. No examples of this category were noted at Bay Springs.

C02-01 Slipglaze

C02-01 Bristol slipglaze stoneware has a smooth surface and is named after the place in England where William Powell invented it in 1835 (Hughes 1960:43-44). Vessels of this type are commonly glazed by dipping the top in a brown slipglaze to its mid-line and its base to the same line in a creamy white slipglaze. Uniformly brown or white vessels are also represented, the latter often with a blue sponge-printed design or an overall blue tint. The source of this type is probably American (e.g., see Osgood 1971:122-123), but is apparently still associated with the name "Bristol" (Sears, Roebuck and Company 1902:798). Even though Hughes (1960:43) indicated an early date (1835) for English production, the type is distributed mainly in twentieth century strata at Daniels Village and at Silcott (Bartovics n.d.; Adams, Gaw, and Leonhardy 1975).

C02-02 Albany slipglaze stoneware has a smooth surface, ranging from nearly matte to lustruous and ranging in color from light brown and chestnut, to dark brown and black. Included within this category were vessels some might call "Michigan" slipglaze. Due to variations in clay source and firing temperature and placement in kiln the paste and glaze may vary tremendously. Such variation when combined with turning marks and vessel thickness can provide vessel count but apparently little else.

C03 Slipglaze/saltglaze

C03-01 Bristol slipglaze/saltglaze stoneware combines the two glazes on different parts of the same vessel.

C03-02 Albany slipglaze/saltglaze combines an Albany slip and saltglaze on the outside of the vessel.

C04 Alkaline glaze

Alkaline or ash glazes are characterized as having a mottled green appearance (Herskovitz 1978:110). The glaze often runs and vitrifies. Several specimens were found at Bay Springs.

C05 Clear glaze

C05-01 Modern clear glaze varieties of stoneware have a colorless glaze allowing the body color or underglaze decoration to show through. Only a few specimens were recovered from Bay Springs.

C05-02 Lead glaze varieties of stoneware were absent from Bay Springs.

C06 Bisque stoneware

No examples of bisque stoneware were noted in the Bay Springs assemblage.

C07 Miscellaneous stoneware

This class includes burned and otherwise unclassifiable fragments.

Ware D: Common Earthenware

D01 Redware

D01 Common redware forms, generally utilitarian, include milk pans, bowls, and storage jars. These may be covered on the interior with a clear lead glaze flecked with dark specks, with a white slip under a clear glaze, or with an exterior opaque, copper-green glaze. Redware is not usually used for ceramic dating in Colonial periods because of its continuous presence throughout the 17th and 18th centuries. It is useful, however, when dealing with the 19th century because it is replaced by other wares during that time. Only two vessel fragments were recovered from Bay Springs.

D02 Yellow-ware

D02-01 Some redware forms were eventually replaced by common yellow-ware having a clear glaze over a fairly yellow body. Thin vessels are often decorated with blue and white bands of slip, and occasionally with a "mocha" design in blue against a white panel. Vessels were found at Bay Springs with blue bands or with brown bands. American manufacturers are mentioned in the literature (e.g., Barber 1904:41-42 and ff.).

D02-02 Rockingham glaze: A different kind of yellow-ware is covered with a mottled glaze which varies from a few dark but irridescent streaks and blotches to a dark glaze with occasional light streaks. This type is called Rockingham glaze yellow-ware after a similar glaze invented in England during the late 18th century (Bemrose 1952:19). However, many specimens found on American sites are of domestic origin in view of the popularity of this ware with American manufacturers (Barber 1904:28, 32, 44, 58, 93, 105, 110, 143, 144, 148, and 161). A door knob and two vessels were found at Bay Springs.

D02-03 A distinctive varient of this ware, Rockingham/green glaze yellow-ware, combines Rockingham glaze on one surface and a light green glaze on the other. No specimens were noted for Bay Springs.

D03 Clay marbles

Clay marbles were made primarily in Germany and date from the 18th century until the mid-1930s (Randall 1971:103; 1979:9). These were found at half the Bay Springs sites (Appendix 4).

D04 Reed stem pipes

Short stemmed or reed stemmed pipes differ from earlier "kaolin" clay pipes by the lack of the long clay stem and by the greater varieties of clay used. These were found at site 22TS1103A especially, but also at 22TS1103D, 22TS1108, 22TS1109, and 22TS1113, the earliest sites.

Ware E: Refined Earthenware

E01 Creamware

Creamware was developed about 1762 by Josiah Wedgwood from a more deeply tinted style normally decorated with bright colored glaze effects (Hughes 1959:23; Noel Hume 1970:125, 1973:219). The body and glaze of creamware still contain traces of the same impurities (presumably iron oxide) which colored plain surfaces of the darker ware. By late 1775, however, successful efforts to limit the Cookworthy patent (1768) to porcelain allowed earthenware manufacturers to lighten ceramic bodies by adding better quality ingredients (Hughes 1959:23), and this gave rise to the lighter creamware observed archaeologically (Noel Hume 1970:126-128). The body of creamware is thin relative to the size of the vessel and is identified most readily by a distinctive yellow tint to the glaze which must be carefully distinguished from the off-white qualities of some pearlware and whiteware. No creamware was found at Bay Springs.

E02 Pearlware

Pearlware was developed from the lighter creamware about 1779, also in the hands of Josiah Wedgwood, by adding larger proportions of flint and white clay to the body and a small amount of cobalt oxide to the glaze (Hughes 1959:24; Noel Hume 1970:128, 1973:232). Plain pearlware sherds can be attributed to both completely uncolored vessels and those with only localized decoration, like painted edge styles. Pearlware is identified by the glaze treatment which varies from a faintly green hue associated with Wedgwood to a deep blue from the Leeds Pottery (Hughes 1959:24). Some authors (e.g., Hanson and Hsu 1971) apparently include very pale blue glaze on some whiteware which approaches a pearlware cast where the glaze gathers; the classification system used here does not.

E03 Pearlware/Whiteware

The distinction between pearlware and whiteware is currently being reconsidered by many historical archaeologists. The problem is a gradual change from 1780 to 1880 and later. At the beginning is pearlware, at the end is whiteware, between lies the disagreement. In part the problem is

that in small fragments the two are often indistinguishable. Pearlware is a soft bodied earthenware with a bluish glaze. However, the same can be found in whiteware. Some whiteware had a blue tint to the glaze. Some whitewares are underfired. The results appear too similar to distinguish with any certainty. Hence, Class E03, Pearlware/whiteware, is used here to refer to those ceramics from the 1820 period onward which would be classified by some researchers as pearlware and others as whiteware. These may have a bluish tint to the glaze or no tint on a generally soft or hard body. The pastes in "ironstones" and related wares vary between 4.6 and 6.0 on the Moh scale (Pilling n.d., cited in Ingersoll 1971:191) and can vary in the same vessel (South 1974:247-248). George Miller (1980:2-4) notes that the term "pearlware" is rarely mentioned in 19th century documents from the ceramic industry, although variations of "pearl" do appear in marks on whiteware specimens of the 1830s and 1840s.

E04 Whiteware

Whiteware refers to a series of potentially distinguishable varieties of felspathic earthenware including "stone china," "ironstone china," their contemporary imitations, and modern descendants. Certain authorities (e.g., Barber 1901:47-48, Noel Hume 1970:130-131; South 1972:85) distinguish between "ironstone" (usually classed with stonewares) and common whiteware (considered an earthenware), but others (e.g., Hughes 1959:47; Godden 1971:8; Wetherbee 1974:20) classify both within a broad class of white-bodied earthenware, based on improvements associated with William and John Turner (before 1800), Josiah Spode II (about 1805) and Charles James Mason (by 1813). These early products were decorated in imitation of more expensive Oriental and European porcelain. By about 1820 (Noel Hume 1970:130-131) poorer quality whiteware was marketed in competition with late creamware and pearlware. Glaze color varies considerably from a creamy tint descriptive of early Mason products (Hughes 1960:156; Godden 1971:21) and blue-gray tint of Spode's stone china (Hughes 1960:157) to the pure white and faintly blue "granite ware" produced in quantity after 1850 (Hughes 1960:176; Wetherbee 1974:19-20). Because no meaningful criteria could be applied to distinguish E03 from E04 all whiteware is classed here under E03.

Decorative Categories

The following categories are used to further describe the above classes of wares. Not all categories apply to every class, for example, we would not expect the decal transfer category to be found on a creamware vessel. However, for consistency, the range of possibilities is presented, even though many are null sets. Often a vessel may have more than one decorative treatment, for example a gold banded, handpainted transferprinted cup. In such cases the vessel is classified under the category having the most temporal significance. The decorative categories also had price differences affecting their selection and purchase.

George Miller has determined that four pricing levels existed for earthenware in the first half of the 19th century:

(lowest) 1. undecorated, cream colored (cc);
2. shell edge, sponge, banded, mocha, finger trailed slip;
3. handpainted;
4. transferprint.

By the late 1850s and through the 1870s, plain white ironstone largely replaced the transferprinted price level, and after this point the cost level differences diminish (Miller 1980:4-12).

Category 01 Plain glaze, plain body

Glaze may be white, off-white, or blueish.

Category 02 Plain glaze, relief decorated body

Relief decoration may take the form of incised lines, molded designs, sprigging (affixing a clay figure), embossing, or repousse (pushed out from the inside).

Category 03 Edgepainted

Blue and green edge decoration on pearlware and whiteware table service is very common. The rims are handpainted under the glaze, usually in conjunction with some form of incised or embossed relief. Noel Hume (1970:121, 1973:242) describes several pearlware varieties and mentions those of whiteware; other authorities (e.g., Hughes 1959:25) mention the style only in passing. A more lengthy but subjective discussion by Daniel W. Ingersoll (1971:203-206) agrees well with information obtained from the East dump at Daniels Village (Bartovics n.d.). The terminology used in the literature is a mess, especially the terms "feather-edge" and "shell edge." Noel Hume (1970:131) restricts feather-edge to creamware. The problem is that this style is an evolving mental template with considerable variation through time. The templates of the potter, merchant, buyer, and archaeologist need to be distinguished. The category Edgepainted may be an emic category, but the types will be etic.

Fine molded edge pearlware is distinguished by edge relief consisting of closely spaced (more than 1.3 per inch) line segments incised radially. A majority of examples are blue, but green ones exist. The most common form of molding on pearlware consists of radially embossed ribbing, either straight or curvilinear, often punctuated at regular intervals with a simple frond motif. These are segregated into common blue edge and common green edge types, and include two other simple forms for convenience: one variety in blue without molded relief but carefully painted to achieve a similar effect, and another in green with a beaded rim.

A distinctive class of elaborate edge pearlware exhibits more complex embossed patterns or foliage, blossoms and other motifs. The band of blue painting around the rim is normally about half as wide as the embossed relief. Although South (1972:85) specifies the period of manufacture to be 1800 to 1820, Noel Hume (1973:241) illustrates an example dated between 1815 and 1830.

Much of the blue edge decoration on whiteware vessels occurs with molding comparable to that of the common pearlware styles. Unlike the pearlware classes, however, varieties with little or no relief are distinguished from those with definite embossed patterns. The resulting common blue edge and reduced relief blue edge whiteware categories exhibit similar but distinguishable characteristics.

Category 04 Transferprinted Styles

Transferprinting on refined earthenware became popular during the third quarter of the 18th century and continued to the present. The earliest commerical success appears to have been overglaze transferprinted creamware, usually in black (Little 1969:16).

Rusty-brown overglaze transferprinted pearlware with hand applied color (Williams-Wood 1972:44) has no date range assigned. Overglaze printing was out of fashion on earthenware during most of the 19th century until revived for use on inexpensive whiteware.

The earliest underglaze transferprinting occurs in cobalt blue from about 1780, primarily on pearlware but occasionally on creamware (Little 1969:15; Noel Hume 1973:249). Early style blue transferprinted pearlware is characterized by coarse engraving which lacks the technique of stippling10Little 1969:18). Shortly after 1800 improved transfer paper was introduced which permitted the use of common line and stipple engraving for decorating pottery (Hughes 1960:127; Little 1969:19).

The vast majority of 19th century underglaze printing consists of line and stipple engraving. Although little attempt has been made to distinguish different transfer media or engraving techniques for the middle 19th century, differentiation according to color is possible (Collard 1967:113-147; Hughes 1960:129-131; Laidacker 1951:ix; Turner 1907:94). Early non-blue transferprinted whiteware includes sepia, pink, purple, maroon, green, and black monochromes as well as a few examples in two such colors combined on the same vessel. Most authorities (e.g.; Hughes 1960:129; Little 1969:17; Turner 1907:94) date the introduction of these colors in underglaze printing after about 1825, although some in brown and perhaps black are known to have been made between 1810 and 1820.

Pale blue transferprinted whiteware, flowing color transferprinted whiteware in blue (Blake 1971), mulberry, and purple, and printed whiteware from the later 19th century are characterized by simplified engravings (fewer and finer lines with reduced use of shading), several distinctive colors (light gray, blue-green, and turquoise), and return to overglaze printing often with some hand coloring. Related technological changes have yet to be systematically documented from technical literature on ceramic manufacture (e.g., Chandler 1968; Rhodes 1957). The principal transferprinted motifs on later whiteware consist of floral sprays and geometric patterns (Altman and Altman 1969:156-163; Ingersoll 1971:208; Wakefield 1962:35); those topographical scenes which do occur are more simple than previous styles. Later style transferprinted whiteware includes all variations except the flowing color prints combined with previously described earlier styles and the reproductions, metallic transferprints, and polychrome decal transfers discussed below.

Reproduction transferprinted whiteware includes the very popular facsimiles of early 19th century patterns and was introduced shortly before 1900 as the originals began to be collected as antiques. As with many other reproductions, however, these are distinguishable by the late whiteware body and glaze as well as by the quality of the blue color (Laidaker 1951:xiii; Turner 1907:87). Other colors are more difficult to characterize unless they are among the later hues described above.

As early as 1835, a process for transferprinting in gold was patented in Great Britain (Hughes 1960:130), but gold and silver (probably platinum) colored prints did not appear at Daniels Village until the early 20th century (Bartovics n.d.). These must not be confused with either the metallic luster or the gold/silver banded styles described below. Gold/silver transferprinted whiteware occurs in very delicate floral sprays and geometric patterns generally characteristic of later style printing.

Category 05 Polychrome Decal Transferprinted

A distinctive style of polychrome transferprint is very common throughout most of the twentieth century. The process was apparently patented in 1852 (Williams-Wood 1972:48) and became commercially successful by 1863 (Ingersoll 1971:208). The design is printed on paper coated with a film in the manner of a decal transfer (Gatchell 1944:6). Although the technique is commonly used for most modern transferprinting, it is difficult to identify as a monochrome. On the other hand, polychrome prints in two or more colors with excellent registration due to the decal process are far more readily identifiable. The only other transferprinted vessels in more than one color were obviously done with separate, non-registered transfers for each hue.

Category 06 Stencil

This decorative category is a variation of handpainting and has been classified as such by some authors (cf. Price 1979:20-21). The repetitious designs and the puddling of the ink within each pattern are characteristic.

Category 07 Annular Banded Handpainted Polychrome

This category consists of vessels with several handpainted annular bands. When handpainting is combined with transferprinting and sponge printing, the fragments are classified with the appropriate transfer or sponge printed styles for analytical purposes. Painting in metallic media are discussed under miscellaneous decoration below.

Category 08 Sponge Decorated

Two sponge decorated styles have been identified on earthenware, sponge printed whiteware and Whieldon style cream-colored earthenware. Sponge printed whiteware, sometimes called spatterware (Greaser and Greaser 1973), includes at least three variants based on the nature and extent of the printing. An amorphous pattern is produced by a repeated printing using an unmodified sponge-like applicator; handpainted or transferprinted scenes can have foliage or clouds added by printing with a small bit of applicator in appropriate colors (Noel Hume 1973:241); or the sponge can have designs cut into the printing surface in order to produce a repetitive motif. "Stamping frequently occurs in combination with sponging and handpainting, and the decorated zone is often bounded by thin painted lines above and/or below" (Price 1979:20). Price (1979:20) gives a site occurrence date of late 1840s and early 1850s in the Ozark area for stamped decorated whitewares.

Category 09 Handpainted

Handpainted topographical blue pearlware consists of a non-floral subject on pearlware in underglaze blue. The earliest is a Chinese house design (Noel Hume 1970:129), while later varieties include insects, animals, and birds.

Floral handpainted blue decoration occurs on both pearlware and whiteware. The class also includes miscellaneous non-topographical motifs like handpainted bands which often accompany floral motifs.

Handpainting in colors other than blue is also quite common, usually as a polychrome variety. Unlike the blue styles, however, pearlware and whiteware are more easily distinguished since certain colors are apparently confined to one or the other type. Definite examples of floral handpainted polychrome pearlware are characterized by dark brown, tan, sage green, orange, and yellow as well as blue. Infrequent non-blue monochromes are included in this class for convenience. The earlier one used softer pastel hues (1795-1815), the later (1815-1835) used bright colors. Price (1979:21) further distinguishes these into: "1) overall bluish glaze tint with earthen-colored fineline decoration, and 2) overall white glaze tint with brightly colored fineline, 'sprig,' and broadline decoration . . . ." Price (1979:21) dated these as 1795-ca 1830 for the earthen hues and 1830-1860 or later for the brighter hues but this probably reflects time lag, whereas Noel Hume (1970) gave manufacture dates. We should also remember that some handpainting of ceramics was done by the homemaker:

> "The proprietors of potteries are accustomed to furnish vases, urns, and other pieces of ornamental shapes, in the state of bisquit, to ladies who exercise their taste and ingenuity in embellishing them by painting and gilding. Being then returned to the manufacturer, the glaze is applied, the baking is finished in the gloss oven, and the gilding is burnished . . ." (Lardner 1832:64).

Category 10 Tinted Glaze

Two styles of colored glaze decoration on refined earthenware are tinted glaze white earthenware and green glaze cream-bodied earthenware. Green glaze cream-bodied earthenware is an 18th century style. Tinted glaze white earthenware occurs only in the 20th century contexts. Similar ware with the body tinted to make glaze chips less obvious (Altman and Altman 1969:30) was included in this category. Examples from Bay Springs include light brown, blue, green, pink, yellow. Also included here are multicolored British majolica. The glaze may exhibit only a slight colored cast in which the body shows through or it may be a dark glaze covering all.

The Bay Springs Ceramics

This section examines the ceramic artifacts found at Bay Springs sites. The preceding essay presented the typology for ware classes and categories. This examines the vessel forms (the types in our classification) and their decoration. The focus is on: (1) comparison of wares; (2) non-vessel ceramics; (3) decorative categories; (4) vessel form; (5) form vs. decoration; (6) ceramic dating.

Porcelain

The porcelain vessels are presented with the earthenware to compare decorative style and vessel form. Porcelain vessels are less common at Bay Springs than at other late 19th and early 20th century sites. The ratio of porcelain to refined earthenware vessels at Bay Springs ranged from 1:3.3 at 22TS1109 to 1:41.5 at 22TS1113 (Table 14). These ratios are generally smaller than those at the late 19th century site at Fort Bowie (55:182 sherds: Herskovitz 1978:109) and early 20th century sites at Silcott (averaging 1:7.6; Adams 1977a:65). At Waverly, these ratios ranged from 1:3.7 at 22CL571A (ca. 1890-1942) to 1:10 at 22CL569 (ca. 1900-1969) (Adams 1980:516). We may hypothesize that porcelain/earthenware ratios on rural domestic sites will reflect occupation periods: for the 1830s to the 1880s we might expect the ratio to range roughly from 1:20 to 1:10 and from the 1880s to 1930s from 1:10 to 1:3. Further work is obviously needed to ascertain this trend and place it within perspectives like production, popularity, and status.

Table 14. Ceramic Ware Frequency by Fragment and MNI

	1103A	1103B	1103C	1103D	1105	1108	1109	1111	1112	1113	1114	1115	Total
Vessel Fragments													
Porcelain	2	-	-	-	7	-	13	19	-	3	2	9	55
Stoneware	44	2	-	49	10	10	54	4	2	50	1	51	277
Com. Earthenware	22	3	-	-	1	1	6	1	-	9	2	32	77
Ref. Earthenware	307	9	37	94	84	82	544	216	53	631	71	508	2636
Subtotal	375	14	37	143	102	93	617	240	55	693	76	600	3045
Non-Vessel Fragments													
Porcelain	-	-	-	-	1	-	-	-	-	2	1	3	7
Com. Earthenware	13	-	-	2	-	-	8	-	-	1	-	-	24
MNI Vessels													
Porcelain	2	-	-	-	1	-	6	3	-	2	1	3	18
Stoneware	4	1	-	4	3	4	13	1	1	12	1	10	54
Com. Earthenware	3	3	-	-	1	1	2	1	-	4	2	3	20
Ref. Earthenware	20	-	1	12	9	7	20	52	7	83	13	47	271
Subtotal	29	4	1	16	14	12	41	57	8	101	17	63	363
Vessel Fragments													
Porcelain	.5	-	-	-	6.9	-	2.1	7.9	-	.4	2.6	1.5	1.8
Stoneware	11.7	14.3	-	34.3	9.8	10.8	8.8	1.7	3.6	7.2	1.3	8.5	9.1
Com. Earthenware	5.9	21.4	-	-	1.0	1.1	1.0	.4	-	1.3	2.6	5.3	2.5
Ref. Earthenware	81.9	64.3	100.0	65.7	82.3	88.1	88.1	90.0	96.4	91.9	93.5	84.7	86.6
Subtotal	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MNI Vessels													
Porcelain	6.9	-	-	-	7.1	-	14.6	5.3	-	2.0	5.9	4.8	5.0
Stoneware	13.8	25.0	-	25.0	21.4	33.3	31.7	1.8	12.5	11.9	5.9	15.9	14.9
Com. Earthenware	10.3	75.0	-	-	7.1	8.3	4.9	1.8	-	4.0	11.8	4.8	5.5
Ref. Earthenware	69.0	-	100.0	75.0	64.4	58.4	48.8	91.1	87.5	82.1	76.4	74.5	74.6
Subtotal	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Leaving aside the 31 non-vessel fragments, like dolls and marbles, porcelain accounted for 1.8% of the ceramic fragments and 5.0% of the ceramic vessels (MNI) (Table 14). For MNI vessels, we found that tableware averaged 6.0% of the combined earthenware and porcelain totals, ranging from 0.0% to 23.1%. The minimum number of individual vessels (MNI) was determined by tabulating the number of vessel rims and bases by decorative category; for example, two handpainted cup bases plus three embossed cup rims were counted as five vessels, while two handpainted cup bases plus three handpainted cup rims would be counted as only three vessels unless the particular pattern was different.

The porcelain exhibited much less decorative diversity than earthenware. For porcelain at Bay Springs, the sample size of 18 limits what can be said (Table 15). Plain porcelain was the most common (66.6%), followed by relief, annular, and handpainted, each 11.1%. Of the porcelain vessels, 38.9% were cups, 33.3% saucers, 11.1% small bowls, 5.6% large bowls, 5.6% miscellaneous vessels, and 5.6% various plates. In contrast with the earthenware, it would appear that porcelain cups and saucers were purchased together.

A small number of non-vessel porcelain artifacts was recovered (Table 14). A porcelain marble was found at 22TS1113. Mark Randall (1979:13) felt that the porcelain marbles were probably made in Germany, but gave no dates other than production during the entire 19th century and into the 20th century. Dolls were present only at 22TS1115.

Common Earthenware

Remarkably few artifacts were made from common or coarse earthenware (24 non-vessel fragments, 77 vessel fragments, 20 vessel MNI; Table 14). Common earthenware artifacts included door knobs, smoking pipes, playing marbles, or prehistoric ceramics.

Clay marbles, according to Randall (1971:103; 1979:9) date from at least the early 18th century until the mid 1930s and possibly until the 1960s. Since the clay marble can be made at home by children it has limited utility for dating. Although made primarily in Germany, clay marbles were manufactured in the United States from 1884 to 1918, when cheaper machine-made glass marbles largely replaced them. They are listed in the 1923 Sears, Roebuck Co. catalog.

The clay pipes were short stemmed, reed stemmed, or elbow pipes, as they are variously called. In these there is a short stem attached to the bowl. No long stemmed pipes were recovered. The paste varies from a gray to buff to brown, and the clay is molded into many designs: cross-hatching, swirls, flutes, rings, ribs, and effigy faces. They are characteristic of the mid 19th century, but no specific date has been assigned. They are similar to the ones illustrated by Humphrey (1969:24), but the Bay Springs specimens had no maker's marks.

One grit tempered sherd of prehistoric pottery was found at the mill (22TS1103D).

Table 15. Sample Frequency by Site for Decoration and Vessel Form.

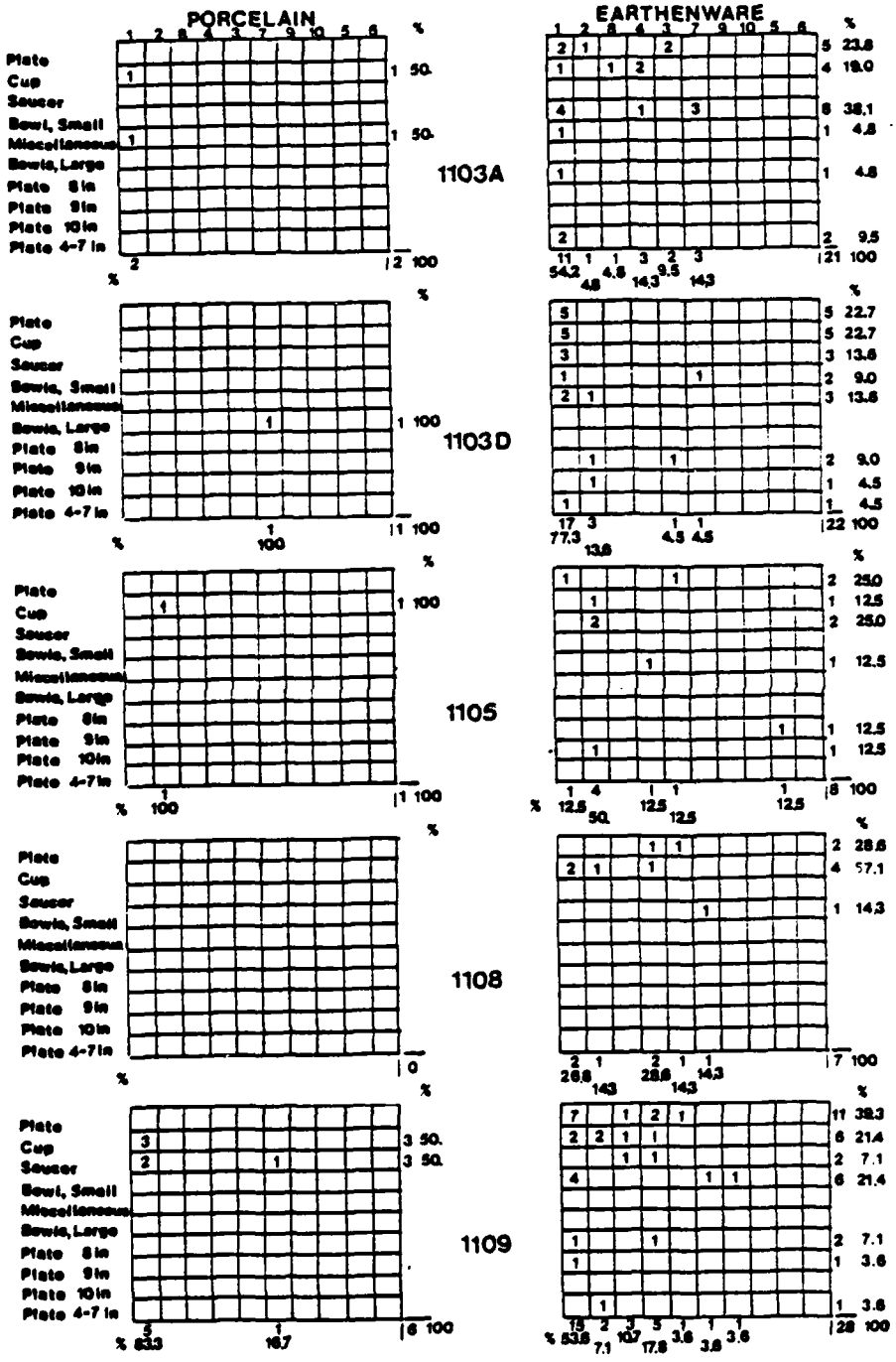
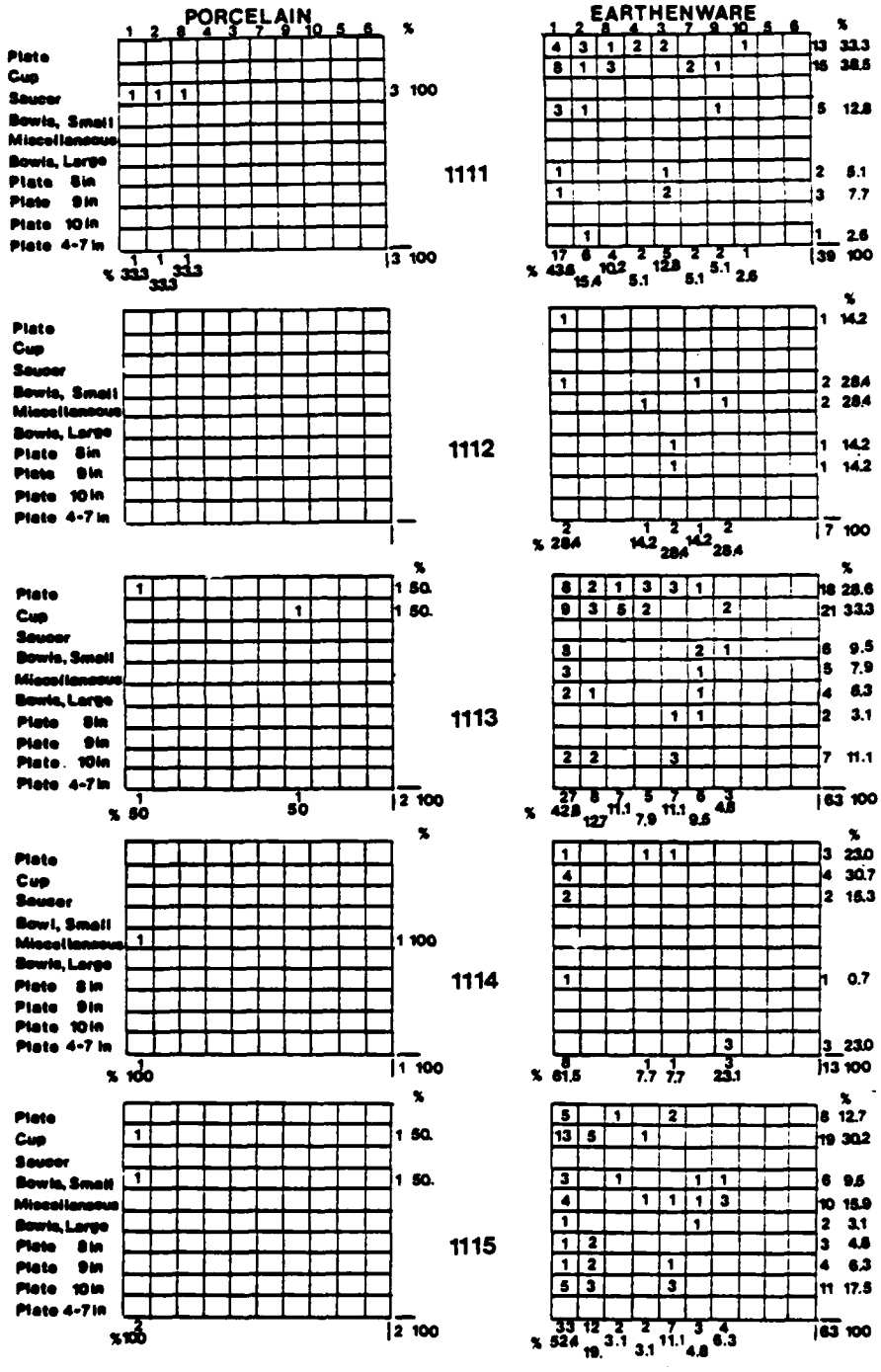


Table 15. (continued).



Stoneware

Stoneware was relatively common at each of the sites representing 9.1% of the vessel fragments and 14.9% of the vessel MNI (Table 14). Of 54 stoneware vessels (MNI), few could be assigned a definite form: one lid, two jugs, six crocks, two bottles, and 42 vessels which were either crocks, jugs, or churns. The jugs are cylindrical, while the crocks tend to be more globular.

Saltglazed vessels comprised 50.5% of the stoneware fragments: half had plain interiors (N=75; 27.1% of fragments) or brown slip interiors (N=65; 23.5% of fragments) (Table 16). According to Watkins (1950:31) the production of saltglazed vessels (with an interior slip, CO1-02) dates from 1790-1860, although Ramsay (1947:140) gave an earlier date of 1775. Bartovics (n.d.) assigns an occurrence date of 1826-1905 to these vessels.

Only 2.2% (N=6) of the stoneware fragments had a white exterior slip, while 36.8% (N=102) had a brown slip exterior (Table 16). Albany slipglazed exterior stoneware, CO2-02, was made from 1830 (Ramsay 1947:144) and predominated from the late 1850s to the late 1880s (Watkins 1950:31), when white slip presumably replaced it in popularity. By contrast, for the post-1890s sites at Waverly Plantation, 42.0% were Albany brown slip exterior, while 23.2% were Bristol (white) slip, reflecting the increase in white slip.

Analysis of the glaze distribution by site (Table 16) reveals saltglazed vessels to be slightly more prevalent at the earlier sites. This is in contrast to the tenant farmer sites at Waverly, where saltglazing appeared more common later, suggesting two peaks in production or popularity (Adams 1980:523). Alkaline glaze (CO4) was absent from most sites represented by 5.6% at 22TS1109, 10.0% at 22TS1113, and 15.7% at 22TS1115. For the Waverly sites we suggested that alkaline glaze should be a good indicator of pre-1910 or even earlier occupation: at Bay Springs we suspect that it dates from the 1860s onward.

Table 16. Distribution of Stoneware Fragments by Exterior Treatment.

Site	Salt		White Slip		Brown Slip		Alkaline		Other		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
1103A	42	95.4	-	-	-	-	-	-	2	4.6	44	100.0
1103B	1	50.0	-	-	-	-	-	-	1	50.0	2	100.0
1103C	-	-	-	-	-	-	-	-	-	-	-	-
1103D	9	18.4	1	2.0	37	75.5	-	-	2	4.1	49	100.0
1105	3	30.0	5	50.0	2	20.0	-	-	-	-	10	100.0
1108	2	20.0	-	-	8	80.0	-	-	-	-	10	100.0
1109	25	46.3	-	-	26	48.1	3	5.6	-	-	54	100.0
1111	4	100.0	-	-	-	-	-	-	-	-	4	100.0
1112	-	-	-	-	2	100.0	-	-	-	-	2	100.0
1113	25	50.0	-	-	12	24.0	5	10.0	13	4.7	50	100.0
1114	1	50.0	-	-	1	100.0	-	-	-	-	1	100.0
1103	29	41.2	-	-	14	27.4	8	15.7	-	-	51	100.0
Total	140		6		102		16		13		277	
Average	50.5%		2.2%		36.8%		5.8%		4.7%		100.0%	

Earthenware

In order to ascertain the stylistic variation by site and by vessel, we created three matrices. The first compares vessel form and decorative style at each site (Table 15). Each of the decorative categories is designated at the top of the matrix. The second rearranges the same information by decorative style and the third by vessel form (Tables 17, 18). In Table 17 the circled numbers in the center of the page denote the decorative categories for each of the blocks. In Table 18, the decorative categories are shown on the right hand side of the matrix. The first presents the data for porcelain vessels, while the other two are concerned only with earthenware. Each of these matrices is based on minimal vessel count rather than sherd count. Although the data are presented for each site, we will limit our discussion to those sites with a sample size of 13 or more earthenware vessels.

Category 01 Plain White Earthenware

Of the seven sites with sufficient sample size, plain white earthenware vessels predominate, ranging from 42.8% to 77.3% of earthenware vessels, and having a mean of 51.2% (N=133/270) for all 10 sites (Figures 9, 10: Table 15). The only site significantly above the mean is Structure D, the mill, with 77.3% (Table 15). Since this was not a domestic site, we should expect some differences. Evidently these vessels were used at the mill by the mill workers during lunch. Of the plain vessels, 33.1% were cups, 3.8% saucers, 14.3% small bowls, 2.2% large bowls, 7.5% miscellaneous vessels, and 39.1% various plates (Table 17).

Category 02 Relief Decorated Earthenware

The next most frequent style of earthenware is plain white with relief decorations. About 13.5% of the earthenware vessels fall into this type, ranging from 0.0% to 19.0% by site. Of the relief decorated vessels, 37.1% were cups, 5.7% saucers, 2.9% small bowls, 2.9% large bowls, 7.5% miscellaneous vessels, and 41.3% various plates (Tables 15, 17, 18). This relative frequency is quite similar to that for plain white vessels.

Category 03 Edgepainted

Edgepainted earthenware represents the third most common decorative style, 10.4% of the earthenware vessels. By site, their frequency ranged from 3.6% to 12.8%. Of the edge decorated vessels, 0.0% were cups, 0.0% saucers, 0.0% small bowls, 0.0% large bowls, 3.7% miscellaneous vessels, and 96.7% various plates (Tables 15, 17).

Category 04 Transferprinted Earthenware

The fourth most frequent earthenware vessels are those with transferprinted designs, 8.1% of the earthenware. By site these ranged from 7.7% to 17.8%, deleting the mill. Of the transferprinted vessels, 33.3% were cups, 4.8% saucers, 4.8% small bowls, 0.0% large bowls, 14.3% miscellaneous vessels, and 42.9% various plates (Tables 15, 17).

Table 17. Comparison by Decorative Categories.

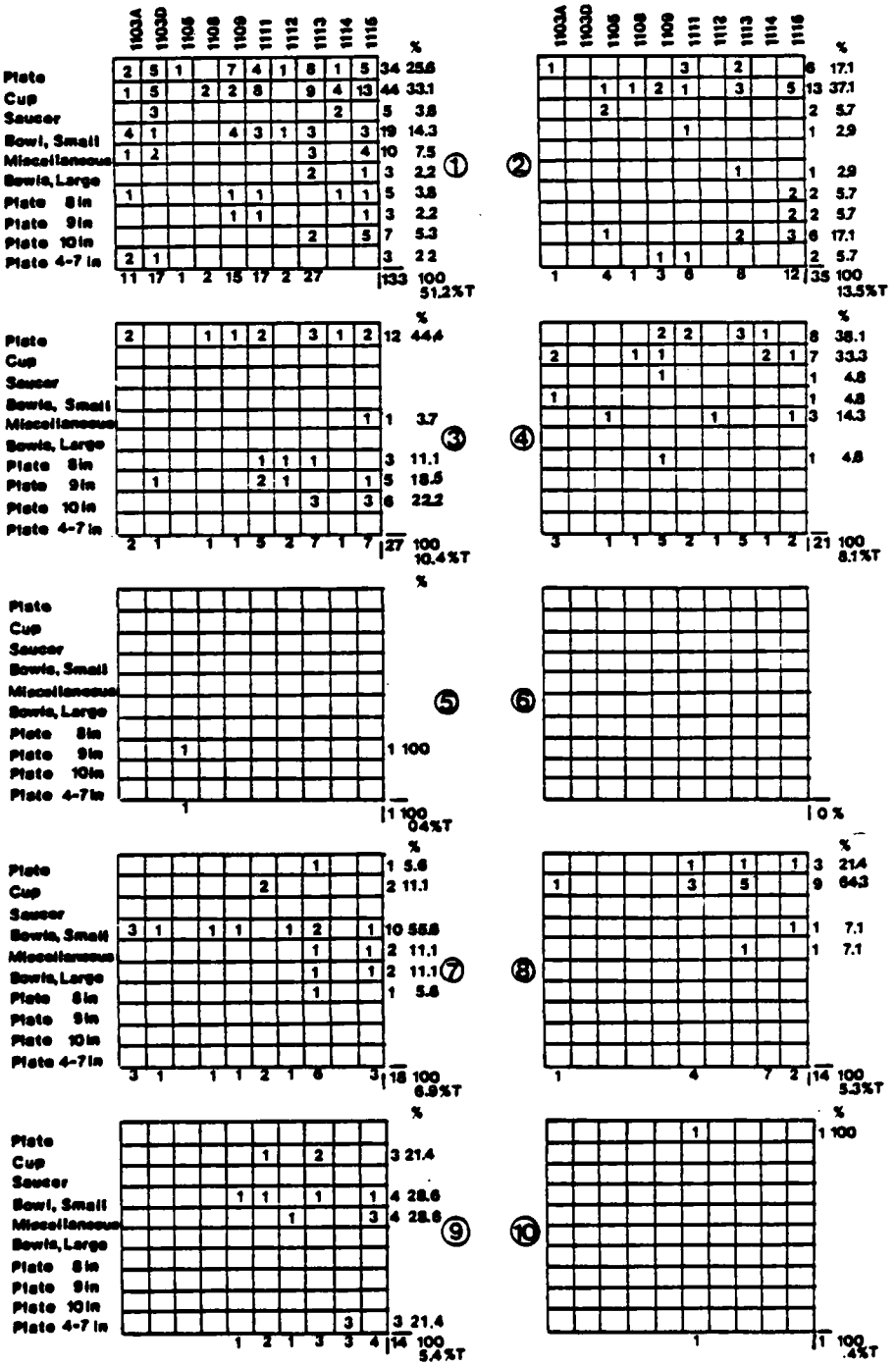
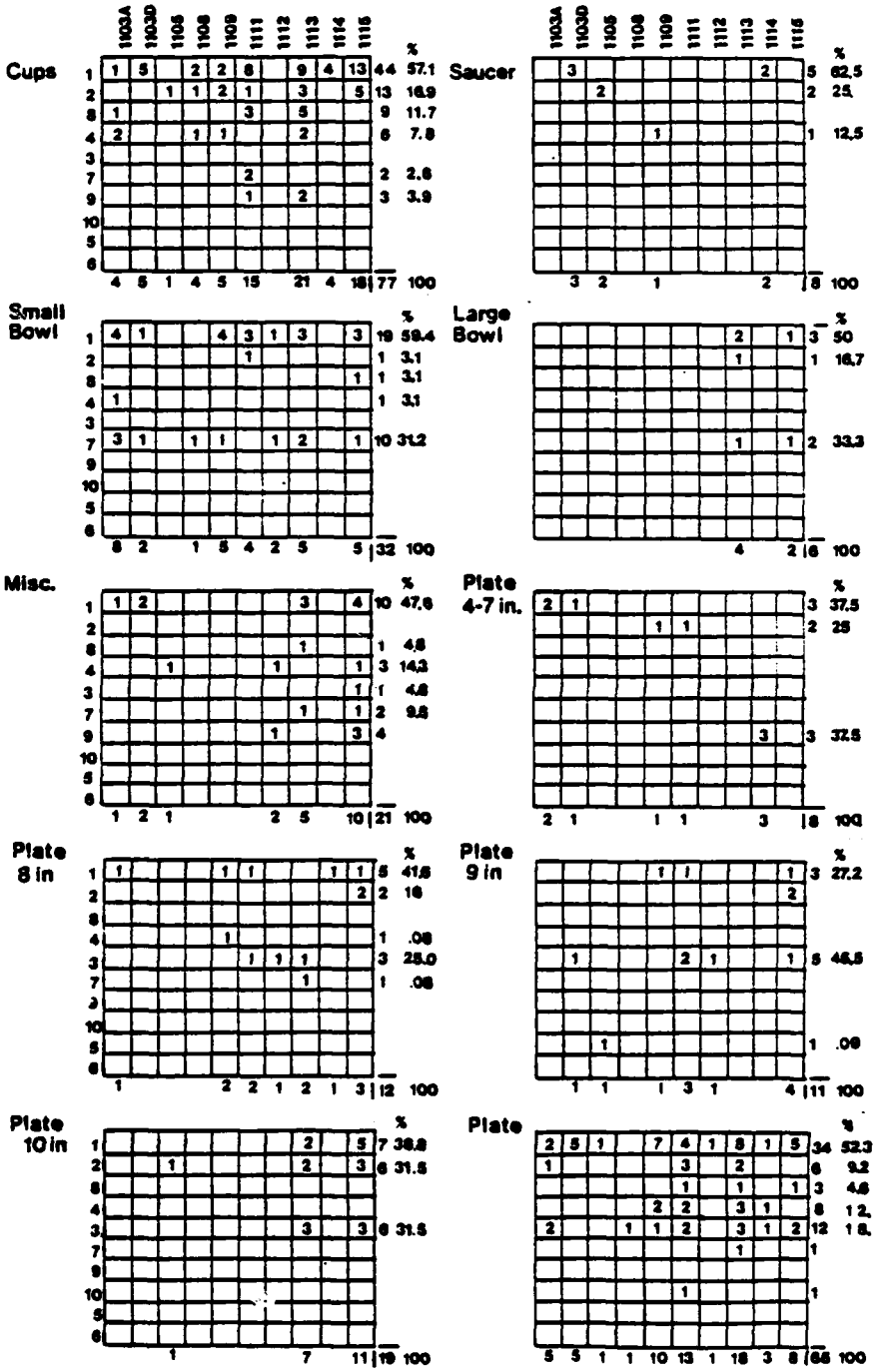


Table 18. Comparison by Vessel Form.



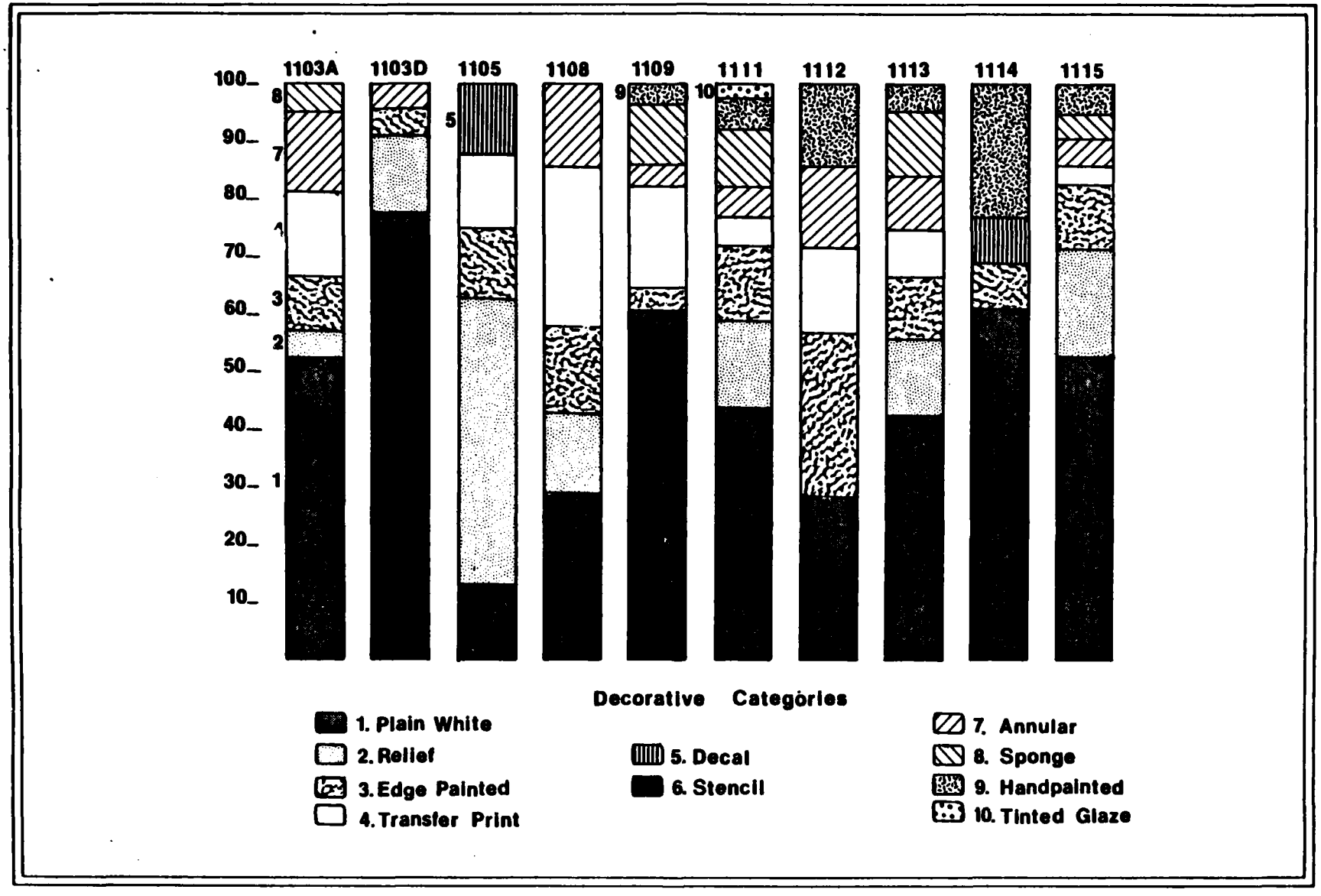


Figure 9.--Cumulative Graph of Percentage of Decorative Categories for Ceramic Assemblages from the Domestic Sites.

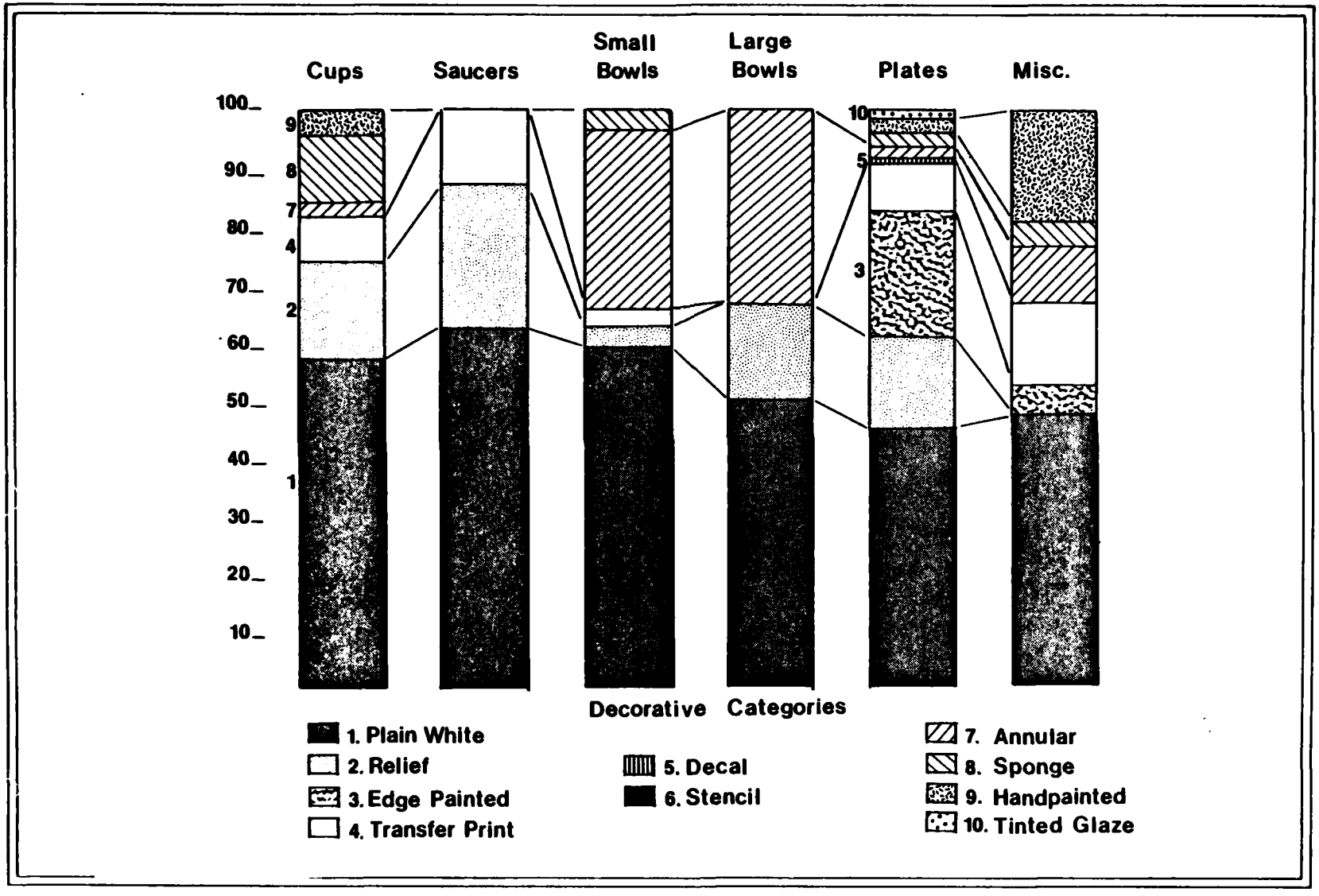


Figure 10.--Percentage of Vessel Decoration for Earthenware.

Category 05 Decal Transferprinted

Only one specimen of decal transferprinted earthenware was found, a 9 inch plate at the store, so only 0.4% of the earthenware fall into this type.

Category 06 Stencil Decorated

No stencil decorated vessels were found at Bay Springs sites.

Category 07 Annular Decorated

The fifth most common style at Bay Springs was annular decorated earthenware, 6.9% of earthenware vessels, ranging from 0.0% to 14.3% at each site. Of the annular decorated vessels, 11.1% were cups, 0.0% saucers, 55.6% small bowls, 11.1% large bowls, 11.1% miscellaneous vessels, and 11.2% various plates (Tables 15, 17).

Category 08 Sponge Decorated

Sponge decorated earthenware represents 5.3% of the earthenware at Bay Springs; site frequencies ranged from 3.8% to 11.1%. Of the sponge decorated vessels, 64.3% were cups, 0.0% saucers, 7.1% small bowls, 0.0% large bowls, 7.1% miscellaneous vessels, and 21.4% various plates (Tables 17, 18).

Category 09 Handpainted

Handpainted earthenware was slightly more frequent than sponge decorated. Of the earthenware vessels, 5.4% were sponge decorated; site frequencies ranged from 3.6% to 23.1%, although the latter site had a small sample, and most domestic sites were close to the mean. Of the handpainted vessels, 21.4% were cups, 0.0% saucers, 28.6% small bowls, 0.0% large bowls, 28.6% miscellaneous vessels, and 21.4% various plates (Tables 17,18).

Category 10 Tinted Glaze

Only one specimen of tinted glaze earthenware was recovered, from the Monroe Gilley House, 22TS1111, a 20th century site. This represents 0.4% of the earthenware vessels.

Summary of Decorative Categories

Plain, relief, and transferprint share similar frequencies in vessel form, while the other decorative styles are much more specific to vessel form. Edge painted vessels are nearly always plates (96.3%). Annular decoration predominates on small bowls (55.6%) and large bowls (11.6%). Sponge decorated vessels are predominantly cups (64.3%), while handpainting is found about the same frequency in each vessel form. By comparison, at the four Waverly domestic sites, 48.8% of all porcelain and earthenware vessels were plain, 14.1% relief decorated, 8.9% decal transferprinted, 7.9% transferprinted, 7.6% edge painted, and 13.7% other categories (Adams 1980:527).

Vessel Form

The decorative style provided the distinction on the category level. For the type level the vessel form was used:

Type	Vessel form	Type	Vessel Form
-00	not assignable	-07	saucer rim
-01	cup rim	-08	saucer body
-02	cup body	-09	saucer base
-03	cup base	-10	plate rim
-04	bowl rim	-11	plate body
-05	bowl body	-12	plate base
-06	bowl base	-13	misc. vessel

Most of the Bay Springs ceramics were so badly fragmented and scattered in the yards that little mending and physical reconstruction was possible. However, by measuring the curvature of the rim and base, many vessel forms and sizes could, nevertheless, be determined. In addition, a minimum number of individual vessels (MNI) could be determined using size and other attributes. These MNI figures are minimums; more vessels could and would have been present in the assemblage. The use of MNI of ceramic vessels has been infrequent in the literature; however, vessel count seems to be a more accurate portrayal of the past than the usual method of counting only the fragments. We have done both here (Table 19).

Table 15 presented the frequency of occurrence for each porcelain and earthenware vessel form by site. A total of 278 vessels (MNI) was recovered from the four domestic sites. By combining porcelain and earthenware vessels, we see that 30.2% are cups, 5.7% saucers, 11.9% small bowls, 2.2% large serving bowls, 42.2% plates, and 8.0% miscellaneous vessels. Of these, 6.2% are porcelain vessels and 93.8% are earthenware (Table 18). However, using sherd count, these figures would be 2.0% porcelain and 98.0% earthenware (Table 14).

Table 19. Distribution by Vessel Form for Earthenware Fragments.

Site	Cup	Saucer	Bowl	Plate	Misc.	Total
22TS1103A	11	-	37	119	4	171
22TS1103B	-	2	-	-	-	2
22TS1103D	8	4	3	16	8	39
22TS1105	-	3	-	24	3	30
22TS1108	8	-	4	12	4	28
22TS1109	10	12	7	148	1	178
22TS1111	12	24	19	57	-	112
22TS1112	3	-	1	-	11	1
22TS1113	65	47	12	103	7	234
22TS1114	5	2	7	35	-	49
22TS1115	33	46	19	94	15	207
Total	155	140	109	608	53	1065
Percent	14.6	13.1	10.2	57.1	5.0	100.0

Comparisons with data from a historical source and five other historical sites reveals how the proportion of vessel forms differs (Table 20: Figure 11). These five sites are: Silcott, Washington, a small farming community in the southeastern part of the state: five sites dated to the 1880-1930 period (Adams 1977a; Adams, Gaw, and Leonhardy 1975; Gaw 1975); Fort Walla Walla, a military post in southeastern Washington, assemblage dated 1900-1910, containing material from both black and white regiments (Riordan 1978, n.d.); Custer Road Dump, Michigan, military dump dating 1876-1896; the material included here is only the USQMD plain whiteware (Brose 1967); Villier Site, Kentucky, a farmer's house dating 1880s-1930s (Smith 1979); Waverly Plantation, Mississippi, black tenant farmer sites dating ca. 1890-1940 (Adams 1980). In addition, the Sears Roebuck catalog (1902:788) was consulted to acquire data on ceramic sets. The 56-piece and the 80-piece sets are compared by frequencies for the vessel forms examined here to provide the percentage of each form had sets been purchased.

Cups at Bay Springs ranged from 21.7% to 36.6% of the ceramic assemblage, with an average of 30.2%. This is most similar to the Villier data, but the range is comparable to each site being compared.

Saucers at Bay Springs ranged from 0.0% to 17.6% with an average of 5.7%. This is most comparable to the black units at Fort Walla Walla and is much lower than all others except Custer Road.

Small bowls at Bay Springs ranged from 0.0% to 34.7%, averaging 11.9%. The most similar assemblages are the Sears sets. Small bowls are comparatively less frequent at Bay Springs than most sites being compared.

Large serving bowls ranged from 0.0% to 6.3% with the average 2.2%. Compared with the Sears catalog (1902:788) this figure is slightly lower than for the sets (2.5%, 3.6%). Large bowls at the other sites were classified under the miscellaneous category.

Table 20. Comparison of Bay Springs Sites with Other Data.

	Sears 56	Sears 80	Silcott	Villier	Custer	Waverly	Walla Walla Black	Walla Walla White
cups	10.7%	15.0%	27.9%	30.0%	11.0%	21.4%	17.0%	27.4%
saucers	10.7	15.0	15.7	23.3	-	21.7	6.0	12.7
bowls, small	10.7	15.0	21.5	10.0	46.0	10.7	44.0	15.8
bowls, large	3.6	2.5	*	*	*	4.3	*	*
plate, 6 inch	10.7	15.0	-	-	-	-	-	-
plate, 7 inch	10.7	15.0	-	-	-	1.7	-	-
plate, 8 inch	10.7	-	-	-	-	5.3	-	-
plate, 9 inch	10.7	15.0	-	-	-	5.0	-	-
plate, 10 inch	-	-	-	-	-	5.7	-	-
plate, unspec	-	-	26.7	33.3	28.0	15.1	20.0	27.7
misc.	21.5	7.5	8.1	3.3	15.0	9.1	8.0	16.3
	100.0	100.0	99.9	99.9	100.0	100.0	100.0	100.1

*included in miscellaneous vessels.

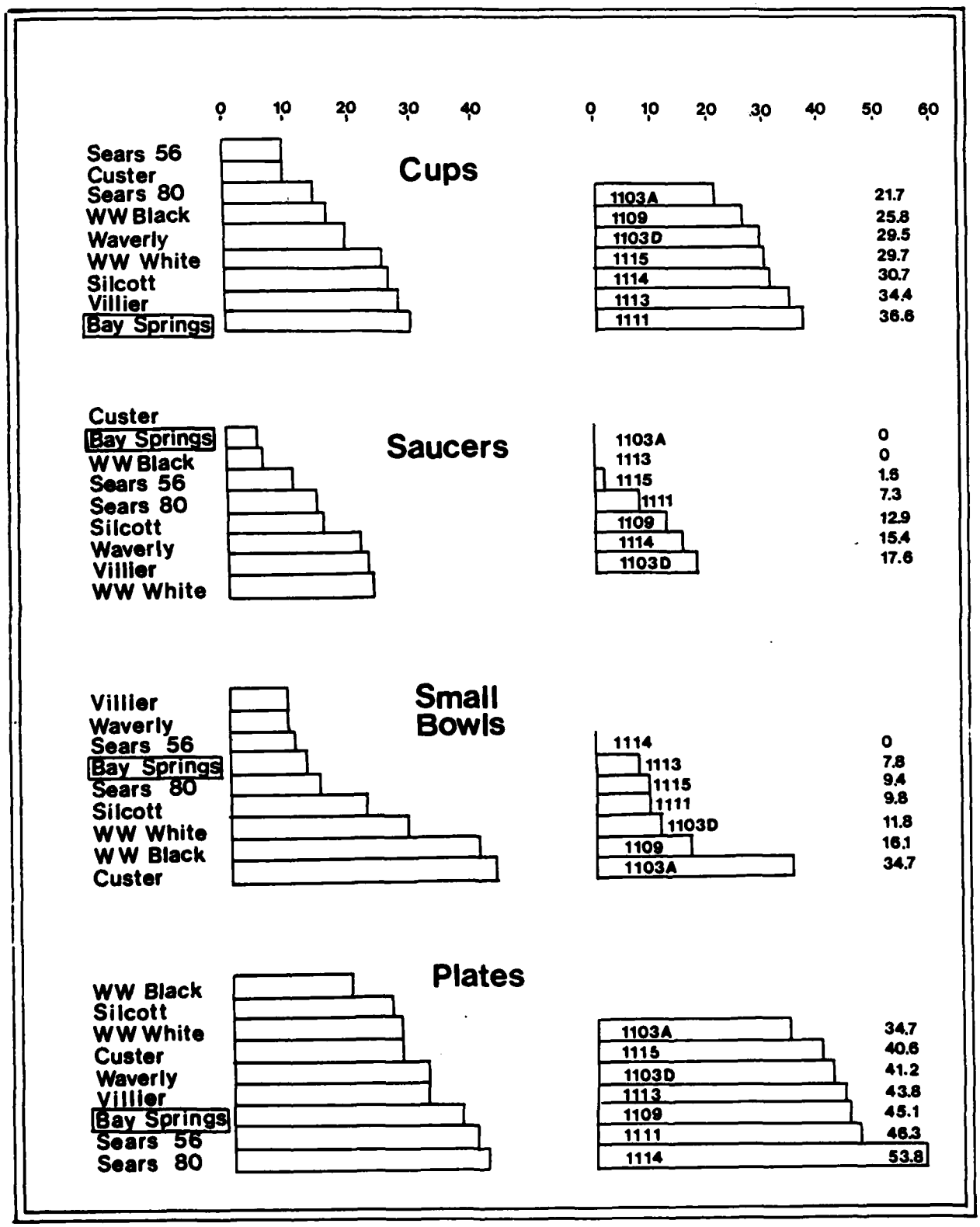


Figure 11.--Frequency by Vessel Form for Bay Springs and Other Sites.

Plates ranged from 34.7 to 53.8%, averaging 38.5%. The difference between the Bay Springs sites was not great, except 22TS1114. Compared to the other data, Bay Springs sites appeared to be similar in usage of plates.

Miscellaneous vessels ranged from 00.0% to 28.5%, averaging 7.6%. Since this category included non-tableware vessels like washing pitchers and chamber pots it is difficult to compare with other sites.

Ceramic Dating

Ceramics are used more for dating sites than are probably any other class of artifacts. Mostly this is a result of their durability and the amount of study given them. Dating methods for the ceramics from a site include: (1) maker's mark; (2) decorative style: (3) decorative elements (patterns); (4) ware. In addition, the kind of date must be considered. At present the literature contains many different opinions on dates, often divergent. Some ceramic dates are those of manufacture for a particular ware, style, pattern, or mark (eg., Godden 1964; Hughes 1960; Lehner 1978), others are for their occurrence archaeologically (eg. Price 1979; Bartovics n.d.), while most are a mixture of manufacture dates, occurrence dates, and opinion (eg., South 1972). To complicate matters, one frequently cited source is quite misleading. Ramsay's 1947 work arbitrarily gives a terminal date of 1900 for all ceramics, since he was only studying the 19th century! Further complicating the matter has been the assumption that ceramics arrived at the consumer's pantry soon after manufacture. A considerable difference may exist between the the manufacture date and artifact entering the archaeological context. At Silcott, the ceramics had a "lifespan" 22 years longer in the system than did the bottles (Adams and Gaw 1977), while at Fort Walla Walla, the ceramics had a time lag of 18 years and the bottles 4.5 years (Riordan n.d.). On the basis of these sites we would suggest that ceramics would tend to date 20 to 30 years earlier than the archaeological context, particularly in rural areas and among the poor.

Mark Dates

Few ceramic vessels unearthed at Bay Springs contained makers' marks and many of those were too incomplete to identify. The following sites and date ranges for the marked specimens are not particularly useful, but are they only ones available: 22TS1103C, 1839-1932; 22TS1108, 1841-1860; 22TS1109, 1834-1851; 22TS1111, 1891-1900+; 22TS1115, 1839-1932, 1851-1890, 1891-1900+.

Pattern Dates

Another useful means of dating certain ceramic vessels is the decorative pattern used. Several patterns were identified (Table 21).

Table 21. Pattern Dates

Typology	Pattern	Date	Site	N	Reference
E03-04-00L	Epirus	--	1113	1	Williams 1978:258
E03-04-00M	Missouri	1860-1871	1113	1	Williams 1978:340
E03-04-01C	Missouri	1860-1871	1113	1	Williams 1978:340
E03-04-09C	Union	1842-1867	1113	1	Williams 1978:439
E03-04-00U	Union	1842-1867	1109	2	Williams 1978:439

Table 21 continued

E03-04-00S	Ontario Lake Scene	1845-1853	1109	2	Williams 1978:353
E03-04-00R	Abbey	1851-1866	1105	1	Williams 1978:174
E03-04-01E	Abbey	1851-1866	1103A	1	Williams 1978:174
E03-04-07E	Priory	1853-1862	1109	1	Williams 1978:382

Decorative Style Dates

Table 22 provides dates on various decorative categories. The date ranges given are from Bartovics' study of Daniels Village. Those dates are 2-6 years later than those of South (1972:85) for initial dates to place them in the next five year incremental period. Thus, if South gave 1827, Bartovics assigned that to the 1831-1835 increment. By doing this Bartovics has dimininished the amount of time lag for the ceramics, something which South had also done. Thus the dates assigned here are perhaps a decade later than the actual manufacture date and are much closer to the actual use dates.

In order to better understand the dates, the following discussion will present several different methods, based upon South's (1972) median dating technique and that of Adams and Gaw (1977) for mean range dating. South's formula is simply the derivation of a weighted average or mean for the midpoint or median date for a ceramic date range (South 1972). Table 22 presents the calculation of this formula; the South method is shown in column Xf--this is the fragment weighted mean of median dates. Columns If and Tf are the fragment weighted means of the initial and terminal dates. The next four columns present the same approach but apply it to the vessel count (MNI) instead of the fragment count. This method should be more accurate, since it eliminates bias incurred by the vagaries of fragmentation. It will of course have a smaller sample number, but one more representative of the sample population. For the weighted averages, as much as 10 years or more have been added to the ranges stated, in order to minimize time lag. Thus, the dates given are later than the actual manufacture date.

In any case, we are able to derive a group of mean dates from the sites using various methods, but what do these numbers mean? Because of the aforementioned problems, as well as many others which we cannot discuss here (such as variations in the production and demand curves, economic booms and slumps in the producer's economy and the buyer's economy, transportation improvements, distribution, taste and other selective factors, idiosyncrasy, and curational ability and inability) we must regard with a certain amount of caution the dating of objects with a long lifespan. Such numbers derived from various formulas are not really dates, but merely first approximations of dates. They are <u>not</u> facts, but like the sherds themselves, artifacts which need interpretation.

Table 22. Ceramic Formula Dating.

Site: 22TS1103A

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	6	11118	10956	11280	2	3706	3652	3760
-04 Transferprint											
medium blue	1821	1875	1848	4	7392	7284	7500	1	1833	1821	1875
early non-blue	1826	1875	1850.5	3	5551.5	5478	5625	1	1848	1826	1875
-07 Annular											
monochrome	1831	1900	1865.5	27	50368.5	49437	51300	3	5596.5	5493	5700
-08 Sponge	1836	1870	1853	5	9265	9180	9350	3	5559	5508	5610
Total				45	83695	82335	85055	10	18542.5	18300	18820
Average				--	1859.9	1829.7	1890.1	--	1854.2	1830.0	1882.0

Site: 22TS1103D

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	5	9265	9130	9400	1	1853	1826	1880
-04 Transferprint											
medium blue	1821	1875	1848	1	1850.5	1826	1875	1	1850.5	1826	1875
-07 Annular											
monochrome	1831	1900	1865.5	4	7462	7324	7600	2	3731	3662	3800
banded polychrome	1831	1860	1845.5	1	1845.5	1831	1860	1	1845.5	1831	1860
-08 Sponge	1836	1870	1853	8	14824	14688	14960	1	1853	1836	1870
Total				19	35247	34809	35695	6	11133	10981	11285
Average				--	1855.1	1832.0	1878.7	--	1855.5	1830.2	1880.8

Site: 22TS1105

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	2	3706	3652	3760	2	3706	3652	3760
common green	1826	1830	1828	1	1828	1826	1830	1	1828	1826	1830
-04 Transferprint											
pale blue	1831	1865	1848	1	1848	1831	1865	1	1848	1831	1865
-05 Decal, polychrome	1901	1950	1925.5	5	9627.5	9505	9750	1	1925.5	1901	1950
-08 Sponge	1836	1870	1853	1	1853	1836	1870	1	1853	1836	1870
-10 Tinted glaze	1911	1970	1940.5	2	3881	3822	3940	2	3881	3822	3940
Total				12	22743.5	22484	23015	8	15049.5	14868	15215
Average				--	1895.3	1873.7	1917.9	--	1881.2	1858.5	1901.9

Site: 22TS1108

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	4	7412	7304	7520	2	3706	3652	3760
-04 Transferprint											
early non-blue	1826	1875	1850.5	7	12953.5	12782	13125	5	9252.5	9130	9375
pale blue	1831	1865	1848	1	1848	1831	1865	1	1848	1831	1865
flowing color	1841	1900	1870.5	1	1870.5	1841	1900	1	1870.5	1841	1900
-07 Annular											
monochrome	1831	1900	1865.5	4	7462	7324	7600	2	3731	3662	3800
banded polychrome	1831	1860	1845.5	1	1845.5	1831	1860	1	1845.5	1831	1860
-09 Handpainted											
floral polychrome	1826	1870	1848	1	1848	1826	1870	1	1848	1826	1870
Total				19	35239.5	34739	35740	13	24101.5	23773	24430
Average				--	1854.7	1828.4	1881.0	--	1854.0	1828.7	1879.2

Site: 22TS1109

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	12	22236	21912	22560	2	3706	3652	3760
reduced relief blue	1836	1880	1858	1	1858	1836	1880	1	1858	1836	1880
-04 Transferprint											
dark blue	1816	1850	1833	9	16497	16344	16650	3	5499	5448	5550
medium blue	1821	1875	1848	12	22176	21852	22500	3	5544	5463	5625
early non-blue	1826	1875	1850.5	26	48113	47476	48750	9	16654	16434	16875
pale blue	1831	1865	1848	7	12936	12817	13055	3	5544	5493	5595
flowing color	1841	1900	1870.5	1	1870.5	1841	1900	1	1870.5	1841	1900
later style	1856	1915	1885.5	1	1885.5	1856	1915	1	1885.5	1856	1915
-07 Annular											
monochrome	1831	1900	1865.5	2	3731	3662	3800	2	3731	3662	3800
banded polychrome	1831	1860	1845.5	1	1845.5	1831	1860	1	1845.5	1831	1860
-08 Sponge	1836	1870	1853	21	38913	38556	39270	8	14824	14688	14960
-09 Handpainted											
floral polychrome	1826	1870	1848	1	1848	1826	1870	1	1848	1826	1870
Total				96	173909.5	171809	176010	55	64809.5	64030	65625
Average				--	1850.1	1827.8	1872.4	--	1851.7	1829.4	1875.0

Table 22. (Continued).

Site: 22TS1111

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	1	1853	1826	1880	1	1853	1826	1880
-04 Transferprint											
early non-blue	1826	1875	1850.5	5	9252.5	9130	9375	1	1850.5	1826	1875
-08 Sponge	1836	1870	1853	9	16677	16524	16830	7	12971	12852	13090
-09 Handpainted											
floral polychrome	1826	1870	1848	12	22176	21912	22440	1	1848	1826	1870
-10 Tinted glaze	1911	1970	1940.5	2	3881	3822	3940	2	3881	3822	3940
Total				29	53839.5	53214	54465	12	22403.5	22152	22655
Average				--	1856.5	1835.0	1878.1	--	1867.0	1846.0	1887.9

Site: 22TS1112

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	4	7412	7304	7520	3	5559	5478	5640
reduced relief blue	1836	1880	1858	1	1858	1836	1880	1	1858	1836	1880
-04 Transferprint											
medium blue	1821	1875	1848	1	1848	1821	1875	1	1848	1821	1875
early non-blue	1826	1875	1850.5	1	1850.5	1826	1875	1	1850.5	1826	1875
-07 Annular											
monochrome	1831	1900	1865.5	2	3731	3662	3800	2	3731	3662	3800
-08 Sponge	1836	1870	1853	2	3706	3672	3740	2	3706	3672	3740
Total				11	20405.5	20121	20690	10	18552.5	18295	18810
Average				--	1855.0	1829.2	1880.9	--	1855.2	1829.5	1881.0

Site: 22TS1113

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	13	24089	23738	24440	9	16677	16434	16920
common green	1826	1830	1828	1	1828	1826	1830	1	1828	1826	1830
-04 Transferprint											
medium blue	1821	1875	1848	6	11088	10926	11250	5	9240	9105	9375
early non-blue	1826	1875	1850.5	12	22206	21912	22500	5	9252.5	9130	9375
pale blue	1831	1865	1848	4	7392	7324	7460	3	5544	5493	5595
flowing color	1841	1900	1870.5	3	5611.5	5523	5700	2	3741	3682	3800
later style	1856	1915	1885.5	1	1885.5	1856	1915	1	1885.5	1856	1915
-07 Annular											
monochrome	1831	1900	1865.5	13	24251.5	23803	24700	4	7462	7324	7600
banded polychrome	1831	1860	1845.5	4	7382	7324	7440	3	5536.5	5493	5580
-08 Sponge	1836	1870	1853	45	83385	82620	84150	19	35207	34884	35530
-09 Handpainted											
floral polychrome	1826	1870	1848	22	40656	40172	41140	5	9240	9130	9350
Total				124	229774.5	227024	232525	57	105613.5	104357	106870
Average				--	1853.0	1830.8	1875.2	--	1852.9	1830.8	1874.9

Site: 22TS1114

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	4	7412	7304	7520	3	5559	5478	5640
-04 Transferprint											
dark blue	1816	1850	1833	1	1833	1816	1850	1	1833	1816	1850
medium blue	1821	1875	1848	1	1848	1821	1875	1	1848	1821	1875
early non-blue	1826	1875	1850.5	7	12953.5	12782	13125	3	5551.5	5478	5625
flowing color	1841	1900	1870.5	1	1870.5	1841	1900	1	1870.5	1841	1900
later style	1856	1915	1885.5	2	3771	3712	3830	1	1885.5	1856	1915
-07 Annular											
monochrome	1831	1900	1865.5	1	1865.5	1831	1900	1	1865.5	1831	1900
banded polychrome	1831	1860	1845.5	8	14764	14648	14880	2	3691	3662	3720
-08 Sponge	1836	1870	1853	1	1853	1836	1870	1	1853	1836	1870
-09 Handpainted											
floral polychrome	1826	1870	1848	4	7392	7304	7480	3	5544	5478	5610
Total				30	55562.5	54895	56230	17	31501	31097	31905
Average				--	1852.1	1829.8	1874.3	--	1853.0	1829.2	1876.8

Site: 22TS1115

E03 Whiteware	I	T	X	f	xf	If	Tf	v	Xv	Iv	Tv
-03 Edge Painted											
common blue	1826	1880	1853	22	40766	40172	41360	8	14824	14608	15040
-04 Transferprint											
medium blue	1821	1875	1848	1	1848	1821	1875	1	1848	1821	1875
flowing color	1841	1900	1870.5	1	1870.5	1841	1900	1	1870.5	1841	1900
-07 Annular											
monochrome	1831	1900	1865.5	22	41041	40282	41800	4	7462	7324	7600
banded polychrome	1831	1860	1845.5	2	3691	3662	3720	1	1845.5	1831	1860
-08 Sponge	1836	1870	1853	11	20383	20196	20570	4	7412	7344	7480
-09 Handpainted											
floral polychrome	1826	1870	1848	10	18480	18260	18700	5	9240	9130	9350
floral blue	1816	1865	1840.5	5	9202.5	9080	9325	1	1840.5	1816	1865
Total				74	137282	135314	139250	25	46342.5	45715	46970
Average				--	1855.2	1828.6	1881.8	--	1853.7	1828.6	1878.8

METAL AND MISCELLANEOUS ARTIFACTS

by Steven D. Smith

The metal artifacts from Bay Springs (Material F) were divided into 19 different classes of artifacts (Table 23): these divisions were based primarily on broad functional assignments. Artifacts listed under this material type include items of iron or steel, copper, brass, and tin. A total of 17,687 separate metal artifacts were recovered from the Bay Springs excavations, 40.9% of the total number of artifacts (Table 1). These artifacts represent a wide range of manufactured objects from the second half of the 19th century to the present.

A hierarchical typology based on morphology or material type, used in describing glass or ceramics, was not practical with the metal artifacts. Instead it seemed most useful and convenient to arrange artifacts primarily by functional criteria. Thus, the Bay Springs metal typology is in fact, a catalog. Classes were devised to include a broad range of artifacts the use of which results in a common human activity. Categories generally define groups of artifacts with a similar function, while types attempt to distinguish like items. Varieties describe and measure significant attributes of the same type. At the variety level artifacts are separated by metal alloy. Iron or steel materials were in the great majority and unless otherwise noted in the artifact description, metal artifacts may be assumed to be of this composition. Many types in this catalog are self-evident by their common nomenclature and therefore are not individually discussed in this section. Such items are listed in the artifact descriptions. Company names mentioned in this section are those for which we were able to locate information of interest for dating or distributional analysis. Others, for which we could find no information, are listed in the artifact descriptions.

As previously mentioned, the catalog presented here was also used for the cataloging of artifacts from Waverly Plantation. Table 23 presents the class and category distinctions for all metal artifacts at both excavations. However the following will discuss only those artifacts from Bay Springs. Thus, some classes and many categories listed in Table 23 are not further mentioned in this chapter. Interested readers are referred to the Waverly Report for discussion of those classes and categories.

The Nail Typology

by Margaret Langhorne Rothman and Karen Jo Walker

Prior to the 19th century, nails were handwrought. Due to slow process of handmaking each nail they were always scarce. The manufacture of plate or machine cut nails began in America in 1775 by Jeremiah Wilkinson of Cumberland, Rhode Island (Fontana and Greenleaf 1962:44). Many patented machines which cut nails from rectangular sheets of iron appeared in the early 19th century. These early machines were hand operated, the nails headed with a hammer as a separate step. Flooring brads were first introduced around 1800 and were cut, heads included, from an iron plate (Nelson 1968:6).

Table 23. Class and Category Distinctions for Metal Artifacts

F01 Fasteners

(see table 24)

F02 Adornment and Personal
- 01 pocket knives
- 02 watch parts
- 03 jewelry
- 04 purse tabs
- 05 umbrella parts
- 06 smoking paraphrenalia
- 07 cases

F03 Kitchen Equipment
- 01 handles
- 02 cauldrons
- 03 lids
- 04 enamelware parts and containers
- 05 griddles
- 06 Iron kettles
- 07 Buckets and tubs
- 08 barrel hoops

F04 Tableware and Utensils
- 01 spoons
- 02 forks
- 03 knives
- 04 handles
- 05 corkscrews
- 06 can openers
- 07 graters

F05 Coins and Tokens
- 01 tax tokens
- 02 pennies
- 03 nickels
- 04 dimes
- 05 quarters
- 06 half dollars
- 07 dollars
- 08 misc. tokens

F06 Weapons and ammunition
- 01 10 gauge cases
- 02 12 gauge cases
- 03 16 guage cases
- 04 .22 cal. cases
- 05 .30 cal. cases
- 06 .32 cal. cases
- 07 .38 cal. cases
- 08 .44 cal. cases
- 09 .45 cal. cases
- 10 primers

F06 continued
- 11 .410 cases
- 12 lead balls
- 13 bayonets
- 14 .20 gauge cases
- 15 hand gun grips

F07 Tools
- 00 fragments
- 01 wrenches
- 02 files
- 03 trowels
- 04 chisels
- 05 chains
- 06 axes and hatchets
- 07 saws
- 08 pliers
- 09 gimlets
- 10 awls
- 11 hooks
- 12 putty knives
- 13 drill bits
- 14 shovels
- 15 clamps
- 16 screw drivers
- 17 magnets
- 18 hammers
- 19 crow bars
- 20 rivertors
- 21 pulleys
- 22 tongs
- 23 cranks
- 24 mauls
- 25 swages
- 26 wedges
- 27 scythes
- 28 levers

F08 Door Hardware
- 01 padlocks, hinged
- 02 rimlock, striker plates
- 03 latches
- 04 keys
- 05 rimlock, cases
- 06 rimlock, plates
- 07 padlock, turn shackle
- 08 lock, escutcheon
- 09 rimlock, bolts

Table 23. Metal Artifacts Classes and Categories continued

F09 Clothing Hardware
- 01 buttons
- 02 snaps
- 03 clips
- 04 buckles
- 05 slides
- 06 grommets
- 07 misc. fasteners
- 08 misc. clothing hardware

F10 Tin Cans
- 01 can keys
- 02 crimped end cans, seam unknown
- 03 crimped end, lock seam
- 04 molded or stamped can
- 05 bail sockets
- 06 seam fragments
- 07 flat end can, soldered seams
- 08 flip top aluminum beverage can
- 09 tubes
- 10 flat end can, lock seam
- 11 flat end can, seam unknown
- 12 tin foil packages

F11 Automotive and wagon hardware
- 01 springs and suspension
- 02 wheels, tires, braking
- 03 body parts, automotive
- 04 engine parts
- 05 steering
- 06 transmission
- 07 license plates
- 08 electrical
- 09 wagon body parts
- 10 misc. automotive

F12 Recreation and Sports
- 01 camping
- 02 fishing
- 03 music
- 04 bicycles

F13 Horse Equipment
- 01 harness
- 02 shoes
- 03 bits
- 04 combs and grooming
- 05 stirrups

F14 Agricultural tools
- 00 fragments
- 01 hoes
- 02 cow bells
- 03 plow and machinery parts
- 04 rakes

F15 Wire
- 01 barbed
- 02 baling
- 03 misc. wire

F16 Lighting and electrical
- 01 lamps and parts
- 02 shade holders
- 03 bulb sockets and bases
- 04 flashlight parts
- 05 fuses
- 06 tubes

F17 Unidentified metal

F18 Toys

F19 Plumbing

F20 Closures
- 01 round friction caps
- 02 rectangular friction caps
- 03 threaded
- 04 dispensing
- 05 stoppers
- 06 oval friction caps
- 07 rhomboid friction caps
- 08 flip tops
- 09 pour spouts
- 10 cut can tops
- 11 vacuum seal caps
- 12 bottle seals

F21 Household Cleaning equipment

Table 23. Metal Artifacts Classes and Categories continued

F22 Industrial
- 01 boiler parts
- 02 spindles and spinning parts
- 03 gearing
- 04 rollers
- 05 pulleys
- 06 carding machine parts
- 07 power transmission parts
- 08 machine framing parts
- 09 lubrication mechanisms
- 10 weights and weight holders
- 11 roving cans
- 12 general support pieces, cotton machinery
- 13 baling bands, cotton
- 14 unidentified industrial

F23 Grooming and Clothing Care
- 01 scissors
- 02 pins, needles
- 03 combs
- 04 irons
- 05 needle threader
- 06 thimbles
- 07 shaving
- 08 clothes pins
- 09 coat hangers
- 10 cosmetics
- 11 barrettes
- 12 washboards
- 13 button hooks

F24 Stove Parts
- 01 burner fragments
- 02 burner plates
- 03 lifters
- 04 frame fragments
- 05 stove pipes
- 06 dutch ovens
- 07 flues
- 08 grates
- 09 leg fragments

F25 Misc. Hardware
- 01 nuts
- 02 washers
- 03 springs
- 04 pins
- 05 gears
- 06 rings
- 07 turnbuckles
- 08 roller bearings and retainers
- 09 pipes and fittings

F26 Household furnishings
- 01 castors
- 02 handles
- 03 hooks
- 04 bed furniture
- 05 drapery furnishings
- 06 ornamental
- 07 screening
- 08 hinges
- 09 wall hardware

After 1825 water and steam powered machines automatically headed the nails. This greatly increased nail production and allowed for some exportation of American made nails. Most of the cut nail types were perfected by the late 1830s and have changed very little since then. The period from 1850-1888 is considered as the hey-day of the American cut-nail industry (Fontana and Greenleaf 1962:46).

Although wire nails had been produced early in the 19th century in France, various economic and political barriers kept them from spreading rapidly to the United States. Initially, wire cut nails were manufactured in smaller sizes for the construction of boxes, pocketbook frames, etc. (Nelson 1968:10). Builders preferred cut nails for their greater holding ability. In 1879, the H. P. Nail Company of Cleveland, Ohio, became one of the first American naileries to successfully produce wire nails from non-imported wire steel (Bessemer). Wire nails were quickly adopted and by 1895 three-fourths of the total American nail production were of wire types. For most purposes, wire nails had replaced the machine cut types by the turn of the century. However, even today it is still possible to find machine cut nails. For instance, the Tremont Nail Company of Wareham, Massachusetts, still commercially produces machine cut nails for reconstruction and renovations.

Class F01 Fasteners

Artifacts in this class include nails, spikes, tacks, screws, bolts, staples, and machine rivets. Categories F01-00 through F01-07 consist of nails and are discussed separately. The typology is presented in Table 24. Three main sources provided the basis for the following typology: Nelson (1962), Fontana and Greenleaf (1962), and the Tremont Nail Company Pamphet (n.d.). Our typology was developed for analysis of any historic site. However, it is incomplete since we have not encountered all documented nail categories and types. Some categories and types mentioned below were not specifically located at Bay Springs these have been noted where appropriate. Each category represents a different technological phase in the development of the nail industry. These phases have been briefly outlined above and will be detailed below. Table 24 presents nail Categories 00 to 07, for Class F01, Fasteners.

The initial step in the process of indentifying nail types was to delineate nail attributes (i.e., characteristics reflecting the mode of manufacture and often the intended function). We examined three basic features: head, shank, and point. Attributes were not always evident because of fragmentation, corrosion, and/or wear. The most important attributes were: head size, shape, reinforcement, and design; shank bevel, taper, cross-section and shear; and point shape, facets, and cross-section.

Nail measurement and classification into varieties (size) included the head in the overall length measurement. Fontana and Greenleaf (1962:55) stated that the head length was not included in length measurements assigned to various pennyweights. Thus, some of the Bay Springs nails have been

placed in the next higher size. This amount should not be significant since a nail even slightly exceeding 1 1/4 in would have been classified as a 1 1/2 in nail. Comparisons with other sites can be made by using the population curve as a whole, allowing for upward skewing. Internal consistency has not been affected. Table 25 presents the varieties used for all fasteners except the following cases: spikes, redesigned nails, miscellaneous nails, and unknown nails. Variety A was set aside for those nails which could be typed yet were unmeasurable due to fragmentation or extreme corrosion.

Table 24. Fastener Categories and Types.

F01-00 Unidentifiable nails
F01-01 Hand wrought nails
F01-02 Early machine-cut nails, handmade heads
F01-03 Machine-cut sprigs & brads
- -01 early (1805-1820)
- -02 L-head
- -03 T-head

F01-04 Early machine-headed nails
F01-05 Modern machine-cut nails and spikes
- -00 Unidentifiable
- -01 Flooring (casing), masonry
- -02 common, common siding, box
- -03 cut spikes (rd head)
- -04 cut spikes (sq head)
- -05 finishing, fine finishing
- -06 cut spikes (indet. head)
- -07 hinge
- -08 sq head spikes, plain
- -09 headless, blunted spikes
- -10 common rosehead spike
- -11 wrought head nail
- -12 unknown, misc. nail
- -13 railroad spike
- -14 redesigned nail

F01-06 Wire nails and spikes
- -00 unidentified
- -01 flooring, brads, finishing
- -02 common
- -03 roofing
- -04 gutter spikes
- -05 misc. and unknown spikes
- -06 misc. and unknown nails

F01-07 Tacks
- -01 machine headed wire
- -02 upholstery tacks

F01-08 Bolts
- -00 unidentified bolts
- -01 carriage bolt
- -02 machine bolt, hex headed
- -10 U-bolt
- -11 eye bolt
- -12 tap bolt
- -13 carriage bolt, end tapered
- -14 carriage bolt, U-shaped head

F01-09 Staples
- -01 fence
- -02 wide
- -03 framing

F01-10 Screws
- -00 indeterminant
- -01 flat head wood
- -02 eye screw
- -03 round head
- -04 machine screw, countersunk

F01-11 Rivets/Stud
- -01 flat head
- -02 conical head
- -03 wrought

F01-12 Cotter Key

F01-00 Unidentifiable nails. These corroded metal artifacts were recognized as nails but analysis could not be conducted any further.

F01-01 Handwrought Nails. Throughout the 17th, 18th, and 19th centuries handwrought nails were made from cutting nail-rods or nail-splits of a specified size from a metal plate. These malleable rods were then drawn to a point by hammering and headed in a vise with a hammer (Fontana and Greenleaf 1962:52). In general, handwrought nails are recognizable by their lack of uniformity in all features and the lack of shear marks caused by machine manufacture. There were no handwrought nails excavated at Bay Springs.

F01-02 Early machine cut nails, heads handmade. Nails in this category "were made from rectangular strips of iron plate and tapered to a point by a single cut across the plate. The thickness and height of the plate determined the thickness and length of the nail" (Fontana and Greenleaf 1962:52). The nails were cut by a hand-operated blade and later headed in a vise. The time period for this category was ca. 1790 to the mid-1820s (Nelson 1968:6). The direction of the shear marks indicates the technology

used in manufacture. Very early cut nails (1800-1810) were hand turned, creating "burrs" on opposite sides (Nelson 1968:9). No nails of this category were noted in the Bay Springs assemblage.

Table 25. Nail Varieties by Length

Variety	English Inches	Metric mm	Pennyweight
A	-	-	-
B	1	25	2d
C	1 1/4	32	3d
D	1 1/2	38	4d
E	1 5/8	42	4 1/2d
F	1 3/4	45	5d
G	2	51	6d
H	2 1/4	57	7d
I	2 1/2	64	8d
J	2 3/4	70	9d
K	3	76	10d
L	3 1/4	83	12d
M	3 1/2	89	16d
N	3 3/4	95	-
O	4	102	20d
P	4 1/4	107	-
Q	4 1/2	114	30d
R	4 3/4	121	-
S	5	127	40d
T	5 1/4	134	-
U	5 1/2	140	50d
V	5 3/4	146	-
W	6	152	60d
X	6 1/4	159	-
Y	6 1/2	165	-
Z	6 3/4	172	-
AA	7	178	-

F01-03 Machine cut sprigs and brads. Three types of sprigs and brads were examined in this category. The early machine cut spigs and brads had "L" or "T" notches and curved corners. The shanks had normal beveling and tapering. The point corners were curved. These nails were common from ca. 1805 to ca. 1820. Later perfected L- and T-headed brads are recognizable by their sharply cut corners, a beveled and tapered shank, and sharply cut points. These brads were rectangular in cross-section. There were only two T-headed brads excavated at Bay Springs.

F01-04 Early machine headed cut nails. These nails would have been produced by water-powered cutting machines which automatically headed the nail. Nelson (1962:7) places these nails in the period from around 1815 to the late 1830s and describes them as "distinguished by their irregular heads which vary in size and shape, usually eccentric to shank." The heads as well as nail lengths and widths generally became more uniform later in the period. In addition, "nails generally have a rather distinct rounded shank, caused by a wide heading clamp" (Nelson 1968:7). No nails of this category were recovered at Bay Springs, although we would have expected some to have been there since settlement began in 1836.

F01-05 "Modern" machine cut nails and spikes. Besides the list of types noted by Nelson (1962:7), several other types were added to this category. Unfortunately, precise dating of the types was not possible other than to note that they belong to a time frame from the 1830s to the present. While some of these nails were made with a specific function in mind, for example flooring nails (Type 01), others like the common cut nail (Type 02) were made for versatility. The plate from which these nails were made was flipped automatically, creating burrs on the same side of the shank, as in hand turned machine cut nails. Among the Bay Springs collection 12 types were distinguished and are discussed below (Figure 12).

Type 00 Machine Cut Nails, Unidentifiable. Corrosion and fragmentation prevented further analysis of these specimens.

Type 01 Flooring or Casing Nails. The heads of these nails were small, rectangular with an immediate tapering of the beveled shank (allowing nails to be driven flush). The points were rectangular in cross-section.

Type 02 Common Cut Nails. Heads of these nails were square or rectangular with a beveled and tapering shank. Points were rectangular in cross-section.

Type 03 Cut Spikes, Domed. Heads were domed with square reinforcing around the dome. The shank was beveled and tapered. The points were rectangular in cross-section.

Type 04 Cut Spikes, Boat. The heads were squared and also had square reinforcing. The shanks were beveled and tapered. The points were rectangular in cross-section.

Type 06 Unidentifiable Cut Spikes. These could not be further classified due to corrosion.

Type 07 Hinge Nails. The heads have two concave opposite sides. The shanks were beveled and tapered. The points were rectangular in cross-section.

Type 08 Square Headed Spike. These spikes have a thick, plain, square head with a square shank not tapered. Only a fragment of this type came from Bay Springs.

Type 09 "Headless" Blunted Spike. "Heads" of this type are defined by a flaring of the shank. The shanks were square with no taper. Points were four faceted but blunt. This type was not represented at Bay Springs.

Type 10 Common Rosehead Spike. The head of this type of spike was square expanding toward the base of the head to form a truncated pyramid. The shanks were square in cross-section with no taper. The points were chisel shaped. No rosehead spikes were found at Bay Springs.

Type 11 Wrought Head Nail. These nails had irregular, oval faceted heads with a beveled and tapered shank. The points were rectangular in cross-section. None was recovered at Bay Springs.

Type 12 Miscellaneous and Unknown Machine Cut Nails. These nails are those with unique and/or unknown attributes. They are described below: Variety A: This is a machine cut nail with a round head. There were three from Bay Springs. Variety B: This nail has a very thin shank and a rectangular, thin head; it is 3 1/8 in in length. Variety C: This nail has a very thin shank and a slightly one-sided, very small head. It is fragmented. Variety D: This is a machine cut nail with a collar approximately 1/2 in below the top of the head. The shank becomes much thinner beginning approximately 1/4 in from point. There are two of these nails in the Bay Spring collection. They may be "duplex" nails, which are made for temporary use and are easily extracted. Variety E: This is an irregular nail with a very small, rounded head. The shank flares rather than tapers. Variety F: This nail may be a spring. Its head is aligned with the shank on one side. It is 1 1/4 in long. Variety L: The head of this nail is broken. The shank is common and unbeveled. It has a small point with a rectangular cross-section. Variety N: This nail has a broken head. The shank twists under the head, then becomes straight and tapered.

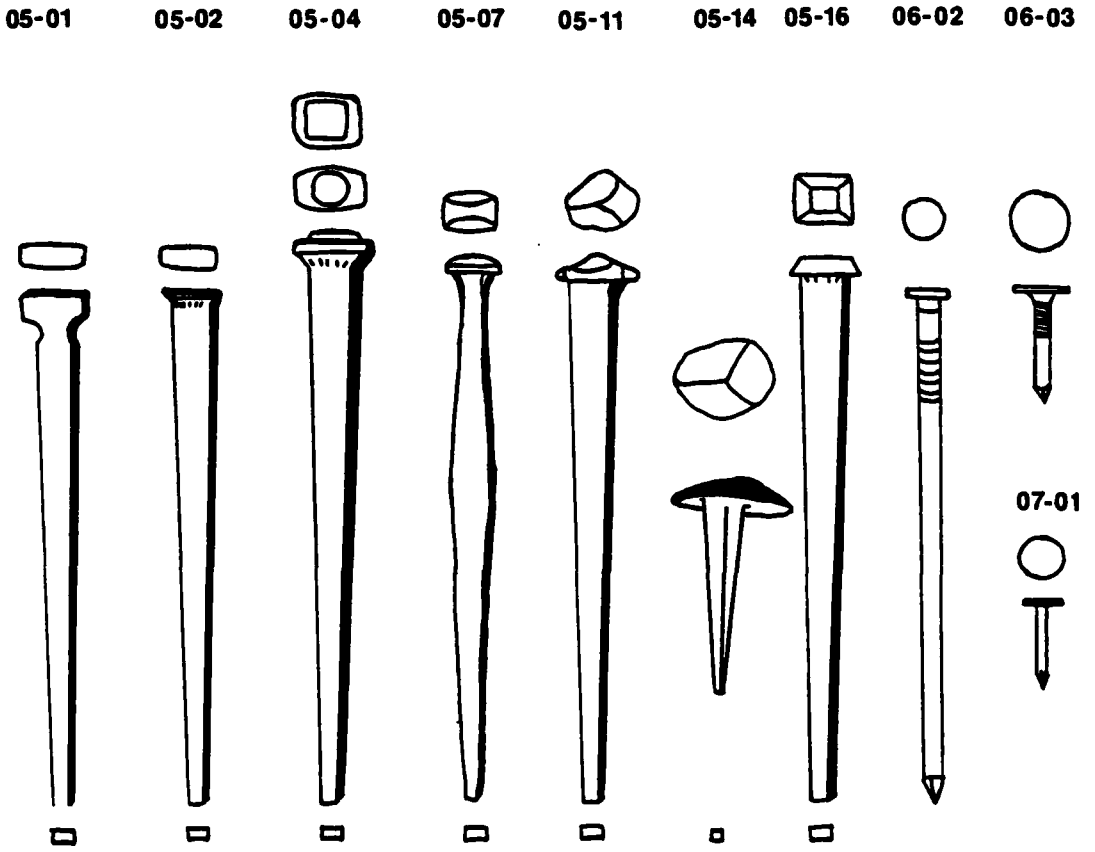


Figure 12.--Nail Types from Bay Springs.

Type 13 Rail spikes. The one railroad track spike recovered has a elongated, oval head, slightly off-center. The shank is square in cross-section with no taper. The point is chisel-shaped.

Type 14 Redesigned nail. These nails have been modified by hammering. The exact reason for this modification is unknown, perhaps the larger types were useful as chisels. (The heads have been hammered, battered, and are irregular.) The shanks are three faceted and tapered, curving upward toward the point. Variety A has the square blunt point of a machine cut nail. Variety B has had the point hammered into a chisel shape. Variety C has a broken point. Variety D has a broken head but the shank is the same as either A or B.

Type 15 Miscellaneous and unidentified spikes. These spikes are those with unique or unidentifiable attributes. This type was not represented in the Bay Springs assemblage.

Type 16 Rosehead nail. These nails have square heads which flare toward the base of the head, forming a truncated pyramid. The shank is beveled and tapered. The point is rectangular in cross-section. Only three rosehead nails were recovered at Bay Springs.

F01-06 Modern Wire Nails and Spikes. Wire nails are not easily dateable to a specific time period although the earliest ones are readily distinguished from later wire nails by their bulbous heads which are eccentric to the shank (Nelson 1962:11). Nelson has placed their beginning date ca. 1850s and they are in common use today. "These nails are usually manufactured from steel wire, which is held in gripper dies and headed (producing gripper marks on shanks); then wire is advanced and sheared to length with cutter die; and wire stock is then advanced to repeat the operation" (Nelson 1962:7).

Type 00 Unidentifiable Wire Nail. Fragmented or corroded wire nails.

Type 01 Flooring Brad. These nails have a small and bulbous head. The shanks contain gripper marks and have a four faceted point.

Type 02 Common Wire Nail. The heads of these nails are flat and round. The shanks are round and contain gripper marks. The points are four faceted. They vary from 2d to 20d nails, above which length they are considered spikes.

Type 03 Roofing Nails. The heads of this type from Bay Springs are covered with lead coating; apparently these were early roofing nails. Later, roofing nails had a much larger shank and were flat and round. These shanks have gripper marks; points were four faceted.

Type 04 Gutter Spikes. These nails had the same attributes noted on the common wire nails though they were much larger. Their length begins at 4 1/4 in.

Type 05 Miscellaneous and Unknown Spikes. This type of spike includes those with unique attributes. None was found at Bay Springs.

Type 06 Miscellaneous Wire Nails. This type was used as catchall for unique traits. This type was represented in the Bay Springs assemblage.

F01-07 Tacks. Tacks were the first fasteners to be cut from sheets of metal rather than hand wrought. In 1775, Jeremiah Wilkinson devised the method of cutting tacks, which was later used for cutting nails. Tacks come in square and round shank forms.

Type 01 Machine Cut, Round Head. These tacks have a thin, round, flat head and a squared shank with a non-faceted point. They come in two Varieties: A less than 5/8 in long, and B tacks 5/8 in or longer.

Type 02 Upholstery Tacks. These tacks have a stamped, concave, hollow head with a wire cut shank and a chiseled point. No tacks with round shanks were found at Bay Springs.

F01-08 Bolts. This category of fastener was analyzed separately from the nails as were screws, staples and rivets. These fasteners well illustrate the diversity of material culture during the late 19th and early 20th centuries. Within this category, several types were not encountered at Bay Springs. These will be noted below. Bolts are distinguished from screws in this typology by the lack of a slotted head for screwing the fastener with a screwdriver. Many of the bolts described below are recognized by several common names. Our nomenclature was determined by an assortment of old and new department and hardware catalogues, dictionaries, and impromptu "committee" decisions. Varieties have been defined by lengths, with the exception of unidentified bolts. Type numbers not found at Bay Springs were: 03, 04, 05, 06, 07, 10, 11, 12, 13, 14.

Type 00 Unidentified Bolts. This type includes all bolts which have unknown functions. They were distinguished for the most part by a specialized head which served an unidentified function.

Type 01 Carriage Bolts. These bolts are defined by a round conical head which has a square neck directly beneath it. The threads do not extend completely to this neck, usually stopping at approximately mid-length and leaving a smooth, round shank to the neck.

Type 02 Machine Bolts. Machine bolts have a square head with a smooth shank to the threads. The threads extend upward no further than mid-length.

Type 08 Machine bolt, round head. With the exception of a round head, this bolt resembles Type 02.

Type 09 Machine bolt, hexagonal head. This bolt resembles Type 02, with the exception of the hexagonal head.

Type 15 Machine Bolt, Small Square Head. This bolt has a small square head parallel to the shank and a slightly concave area directly below the head. Threads extend the full length of the shank.

Type 16 Reworked Bolt. Bolts of this type have been repaired for reuse. They have a square head that has been formed by attaching a nut and hammering the broken end of the bolt to fuse the nut.

Type 17 Redesigned Bolt. This type has been reforged for a use as a tool of another type.

Type 18 Machine Bolt, Square Head, Tapered End. This bolt has the same shape as Type 02, but its end tapers to a point. The end is not threaded and threads extended more than mid-length on the shank.

F01-09 Staples. Two types of staples are identified from Bay Springs. Fence staples (Type 01) were for attaching wire to fenceposts. Wide staples (Type 02) were multipurpose fasteners. Fencing and wide staples are U-shaped.

F01-10 Screws. Screws are defined here as fasteners with a slotted head and continuous helical ribbing. All except the machine screw, discussed below, have tapered ends. Types 02 and 04 found at Waverly were not found at Bay Springs.

Type 00 Unidentified Screws. This catagory includes screws which were used for an unknown purpose. Most screws at Bay Springs were unidentifiable.

Type 01 Woodscrew, Countersunk Head, Flat. These screws have a tapering head and are generally used in wood. The shank is tapered to the end.

Type 03 Woodscrew, Round Head Screws. These screws have a round conical head and a tapering shank and are also used in wood.

Type 05 Machine Set Screw. This screw is slotted only in the center of the flat countersunk head. The threads extend more than mid-length.

F01-11 Rivets. These fasteners are headed pins with no threading. They have many functions. For example they may be used to secure a wooden handle to a shovel socket arm. Some may have been used to secure leather. Bay Springs rivets were round, flat (Type 01), and round, conical (Type 02) headed. One rivet from Bay Springs may have been handwrought (Type 03).

F01-12 Cotter Key. These fasteners resemble hair pins with circular heads. They are used to secure screws, nuts, bolts, and pins. One cotter key was recovered from Bay Springs.

The Nails

Of the 15,568 nails recovered from the sites at Bay Springs, machine cut nails comprised 98.2% of the total and wire-cut 1.8% (Tables 26, 27). Site 22TS1103A had 18.3%; 22TS1103B, 2.7%; 22TS1103C, 0.1%; 22TS1103D, 63.9%; 22TS1105, 3.4%; 22TS1108, 2.0%; and 22TS1109, 6.7%. The surface collection at Sites 22TS1111 had 0%; 22TS1112, 0%; 22TS1113, 0.4%; 22TS1114, 0%; and 22TS1115, 0.7%. The additional testing at these sites revealed 0.2%, 0%, 0.6%, 0%, and 1% respectively. Of the total, 14,712 were cut nails. The majority, 65.1%, were recovered from 22TS1103D, the mill site. By far, most cut nails were common cut nails, Type 02, at 68.6%.

Table 26.--Distribution of Nails by Site

22TS Nails	1103A	1103B	1103C	1103D	1105	1108	1109	1111	1112	1113	1114	1115	TOTAL
F01-00-00	10	17	-	275	178	26	3	-	-	55	-	5	569
F01-03-03	1	-	-	2	-	-	-	-	-	-	-	-	3
subtotal	11	17	-	178	178	26	3	-	-	55	-	5	572
F01-05-00	599	178	5	2,153	75	31	213	19	1	31	-	110	3,416*
-01	12	2	-	769	-	-	4	-	-	-	-	2	789
-02	2,105	211	14	6,936	129	216	757	3	1	32	-	133	10,095*
-03	3	1	-	48	-	-	6	-	-	-	-	1	59
-04	28	14	-	106	1	1	4	-	-	5	-	-	159
-05	10	-	-	71	-	-	1	-	-	-	-	-	82
-06	20	2	-	14	6	1	10	-	-	1	1	2	57
-07	-	-	-	1	-	-	3	-	-	-	-	-	4
-08	2	-	-	-	-	-	-	-	-	-	-	-	2
-09	-	-	-	-	-	-	-	-	-	-	-	-	-
-10	-	-	-	-	-	-	-	-	-	-	-	-	-
-11	-	-	-	-	-	-	-	-	-	-	-	-	-
-12	1	-	-	10	-	-	-	-	-	-	-	-	11
-13	-	-	-	1	-	-	-	-	-	-	-	-	1
-14	23	-	1	2	3	-	5	-	-	-	-	-	34
-15	-	-	-	-	-	-	-	-	-	-	-	-	-
-16	-	-	-	1	-	-	-	-	1	1	-	-	3
subtotal	2,803	408	20	9,669	214	249	1,003	22	3	70	1	248	14,712*
F01-06-00	-	1	-	-	49	-	-	-	-	4	-	-	54
-01	-	-	-	-	-	-	-	-	-	-	-	-	-
-02	45	2	-	-	98	-	40	6	-	15	-	-	206
-03	-	-	-	-	9	-	-	-	-	-	-	-	9
-04	-	-	-	-	14	-	4	-	-	-	-	-	19*
-05	-	-	-	-	-	-	-	-	-	-	-	-	-
-06	-	-	-	-	-	-	-	-	-	-	-	-	-
subtotal	45	3	-	-	170	-	44	6	-	19	-	-	248*
TOTAL	2,859	428	20	9,946	562	275	1,050	28	3	144	1	253	15,572*

* These totals include three nails from Circle A. One nail is F01-05-00, another is F01-05-02, and the last is F01-06-04.

Table 27.--Distribution of Machine Cut Nail length by Site

	1103A	1103B	1103C	1103D	1105	1108	1109	1111	1112	1113	1114	1115
F01-05-01A	-	2	-	137	-	-	1	-	-	-	-	-
-01B	-	-	-	-	-	-	-	-	-	-	-	-
-01C	-	-	-	-	-	-	-	-	-	-	-	-
-01D	2	-	-	10	-	-	-	-	-	-	-	-
-01E	-	-	-	1	-	-	-	-	-	-	-	-
-01F	-	-	-	-	-	-	-	-	-	-	-	-
-01G	-	-	-	5	-	-	-	-	-	-	-	-
-01H	-	-	-	6	-	-	-	-	-	-	-	-
-01I	-	-	-	56	-	-	-	-	-	-	-	-
-01J	4	-	-	97	-	-	-	-	-	-	-	1
-01K	3	-	-	188	-	-	1	-	-	-	-	-
-01L	3	-	-	266	-	-	2	-	-	-	-	1
-01M	-	-	-	3	-	-	-	-	-	-	-	-
-01N	-	-	-	-	-	-	-	-	-	-	-	-
-01O	-	-	-	-	-	-	-	-	-	-	-	-
-01P	-	-	-	-	-	-	-	-	-	-	-	-
F01-05-02A	784	96	11	2141	73	100	453	1	1	18	-	87
-02B	13	-	-	3	1	-	23	-	-	-	-	-
-02C	108	2	-	15	1	-	6	-	-	-	-	-
-02D	221	-	-	831	17	2	35	-	-	-	-	4
-02E	-	4	-	-	-	-	-	-	-	-	-	-
-02F	155	-	-	154	-	2	19	-	-	-	-	3
-02G	208	12	2	713	3	92	93	-	-	4	-	9
-02H	90	12	-	136	4	5	42	2	-	-	-	7
-02I	217	12	-	664	6	3	21	-	-	3	-	6
-02J	148	6	-	125	6	-	18	-	-	1	-	3
-02K	152	42	1	1303	11	10	37	-	-	3	-	8
-02L	48	19	-	328	3	-	9	-	-	-	-	2
-02M	1	2	-	58	1	-	1	-	-	1	-	3
-02N	-	-	-	6	-	2	-	-	-	-	-	-
-02O	-	-	-	15	2	-	-	-	-	1	-	1
-02P	-	-	-	1	1	-	-	-	-	-	-	-
TOTAL	2117	209	14	7262	129	216	761	3	1	31	0	135

Types 01, 02, and 05 were examined by variety (size) (Table 28). Each of the three types includes a large percentage of unmeasurable nails, especially in Type 02. Nevertheless, certain varieties were more common. In Type 01, nails 2 3/4 in, 3 in, and 3 1/4 in were most popular. Since the nails were measured inclusive of head, it is possible that the 3 in nail was the most commonly used of this type. The 1 1/2 in, 2 in, and 3 in common cut nails were also most common. The most common finishing nails were 2 in, 2 1/4 in, and 1 1/2 in long (Table 28).

Table 28. Size Variation for Machine Cut and Wire Nails by Per Cent

	Machine Cut Nails				Wire Nails
	05-01	05-02	05-05		06-02
A	17.1	37.3	19.5	A	25.7
B	-	0.4	-	B	6.3
C	-	1.3	1.2	C	-
D	1.5	11.0	24.4	D	0.5
E	0.1	-	-	E	-
F	-	3.3	4.9	F	1.0
G	0.6	11.3	23.2	G	6.8
H	0.8	2.6	24.4	H	10.7
I	7.1	9.2	1.2	I	16.0
J	12.9	3.0	-	J	6.8
K	24.3	15.5	1.2	K	12.1
L	34.5	4.1	-	L	6.3
M	0.4	0.6	-	M	2.9
N	-	0.1	-	N	1.0
O	-	0.2	-	O	3.9
P	-	0.0	-	P	0.0
	99.9	99.9	100.0		100.0

There were 287 wire nails recovered at the Bay Springs sites. The majority came from 22TS1105 (47.7%), Site 22TS1103A had 15.7%; 22TS1109 15.3%; 22TS1108 11.2%; 22TS1113, 6.6%; 22TS1111, 2.1%; 22TS11103B, 1.0%; and Circle A, 0.4% of the total wire nails. Most are common wire nails, usually 2 in or 3 in. One-fourth of these were unmeasurable due to corrosion or breakage.

Intrasite comparison of machine cut and wire nails can be made. Sites 22TS1103C, 22TS1112, 22TS1114 can be eliminated since they have too few nails on which to base anv conclusions. Three sites, 22TS1103D, 22TS1108, and 22TS1115 have no wire-cut nails but they do have a small percentage of indeterminate nails. Table 29 compares machine cut, wire, and indeterminate nails for the eight pertinent sites.

On the basis of nail types, it is possible to order these sites in terms of probable age. Site 22TS1115 is the oldest, followed by 22TS1103A, 22TS1103D, 22TS1103B, 22TS1109, 22TS1108, then 22TS1113, with 22TS1105 the latest. Sites 22TS1113 and 22TS1105 both have large percentages of indeterminate nails; however, they also have higher percentages of wire nails than other sites. Based on production figures of wire cut nails

(U. S. Census of Manufaturers 1880-1950), all sites but three probably date before the mid-1880s since wire nail production then represented only a slight percentage of total nail production. Site 22TS1105, 22TS1111 and 22TS1113 were probably occupied or built in the 1890s as they contain a larger number of wire cut nails.

Table 29 Machine Cut vs Wire Nails by Site

Site	Machine-Cut	Wire-Cut	Indeterminate
22TS1115	98.0	0	2.0
22TS1103A	97.2	0	2.8
22TS1103D	98.0	1.6	0.4
22TS1103B	95.3	0.7	4.0
22TS1109	95.5	4.2	0.3
22TS1108	90.5	0	9.5
22TS1113	48.6	13.2	38.2
22TS1105	40.5	25.9	38.6

Other Fasteners

Several categories other than nails and spikes were included in the class of fasteners. They include tacks, bolts, staples, screws, rivets, and cotter keys, a total of 506 artifacts. Of the 506 fasteners, 59.7% are tacks, 21.1% screws, 15.8% bolts, rivets 2.2%, staples 1.0%, and cotter keys make up 0.2%.

Class F02: Adornment and Personal

Metal artifacts in this class include those items normally found on an individual, in a pocket, or in hand as a personal possession, excluding clothing. F02-03 Jewelry was represented by three pins and brooches, all from 22TS1109. One pin had a ceramic center which probably had a painted design orginally, but had dissappeared.

Class F03: Kitchen Equipment & Cleaning

Artifacts in this class include those items and fragments of containers for food preparation or household cleaning. These artifacts were constructed of cast iron, enamelware, or galvanized metal. At Bay Springs only two categories were seen. F03-01 Handles--a solid, oval tub handle (22TS1103A) and a wire bucket bail (22TS1109) were recovered. F03-02 Cauldron--A single cast iron cauldron lid was recovered from 22TS1114.

Class F04: Tableware & Utensils

Flatware and cutlery items, handles, can openers, and various food preparation tools are delineated in this class. F04-02 Forks was represented at Bay Springs by a single two-tined table fork with wood sides on the handle was recovered from 22TS1109. Also, F04-04 Handles--A solid handle, probably from a knife was recovered from 22TS1108.

Class F05: Coins & Tokens

This class encompass metal coinage, state tax tokens, and political tokens. All coinage was from United States mints. F05-02 Indian Head Pennies were minted between 1860 to 1909; the single example, dated 1907, recovered from 22TS1105 was minted in Philadelphia. F05-03 Shield Nickels were from the mill site and dated 1867, 1869, and 1872.

Class F06: Ammunition and Weapons

All sporting guns, military weapons, and ammunition were classed here. A wide range of shotgun, pistol, and rifle ammunition was represented. Most of the ammunition reflects post-abandonment hunting at the sites.

F06-02 Shotgun Case, 12 gauge. Eight cases of this gauge were recovered. Six were short case with paper or plastic sides, and two were medium case with paper sides. Headstamps varied. Three bore a combined Remington-U.M.C. headstamp dating between 1910-1934 (Dietz 1980). One came from the mill site while the other two came from 22TS1105. Two cases, both from 22TS1111, bore the Remington headstamp and date after 1934. The Western Cartridge Co. was represented by two cases, one from 22TS1113, and one from 22TS1115. This company was founded in 1898 and became part of Olin Industries in 1944 (Logan 1959:201). Finally, one 12 gauge case from the Peters Cartridge Co. dates 1887-1934 (Dietz 1980).

F06-03 Shotgun Case, 16 gauge. Two short and one medium case 16 gauge shotgun shells were recovered. A case from 22TS1105 bore the U.M.C. Co. headstamp and dates 1867-1910. The case from 22TS1111 was from the Western Cartridge Co. 1887-1944, and the case from 22TS1115 was a Remington, 1910-1934.

F06-04 Rifle Cartridge, .22 caliber. A single, long case, .22 caliber case with no headstamp was recovered at 22TS1105.

F06-06 Pistol Cartridge .32 caliber. Three long case .32 caliber were recovered, one from 22TS1103D, and two from 22TS1105. The latter bore the Western S & W headstamp dating 1898-1944. The one recovered at the mill had a Remington-U.M.C. headstamp and dates 1910-1934.

F06-12 Lead Ball. A ball, 9mm in diameter was recovered from the mill site. This is roughly a .36 caliber ball.

F06-13 Bayonet. A blade fragment from a bayonet was recovered from 22TS1115.

F06-14 Shotgun Case, .20 gauge. Site 22TS1115 yielded a short case, .20 gauge shotgun shell. It bore the Remington-U.M.C. headstamp and dates 1910-1934.

F06-15 Pistol Grip. The hollow handle of a small pistol was recovered from the mill site.

Class F07: Metal Tools

A rather diverse collection of tools was recovered at Bay Springs. Because many of the categories were represented by only one artifact some categories are discussed in conjunction with others.

F07-01 Wrenches. Three kinds of wrenches were found, S-shaped crescent, angled crescent, and socket wrenches. All five of them were from the mill site.

F07-02 Files. Ten files were recovered, all from the mill site: six common mill files, one tapered end file, and three rat tail files.

F07-07 Saw. A fragment of a cross-cut saw with four cutting teeth to each clearing tooth was found at 22TS1113.

F07-11 Hooks. A possible hook was recovered from 22TS1103A. It was a bent metal bar, tapered on one end and shaped as a shallow U.

F07-21, 27, and 28. Three miscellaneous tools were also recovered at Bay Springs: a pulley from 22TS1109, a scythe from 22TS1103C, and a crank from 22TS1105.

Class F08: Door Hardware

This class contains three artifacts used in building, hanging, and locking doors. A total of 22 artifacts was classed here.

F08-01 Hinges. Thirteen hinges were discovered. They were divided into butt hinges, pintle hinges, and hasp bars. Butt hinges were loose jointed without a removable pin. These were widely distributed with five at 22TS1103D, three at 22TS1103B, one at 22TS1103A, and one at 22TS1113. Pintle hinges have a spike or bolt driven into the wood to support the hinge; two were recovered, one each from 22TS1103B and 22TS1103D. The hasp bar was found at 22TS1108.

F08-02 Locks. Included in this category are six rim lock parts and a padlock key. Rim locks are fastened to the door and have a striker or cup attached to the frame. The padlock key was found at 22TS1105. The rim lock parts came from 22TS1103A (2), 22TS1103B, 22TS1102D, and 22TS1108.

F08-03 Latches. Three latch fragments were found, two from 22TS1109 and one from 22TS1113.

Class F09: Clothing Hardware

This class of metal artifacts includes all items which would be associated with clothing. Buttons, rivets, buckles, slides, and belt ends are discussed below.

Category F09-01 includes buttons and rivets. South (1964) has defined 32 button types found on colonial and mid-19th century sites in America. Button types found at Bay Springs are for the most part later than those though a great deal of stylistic change has not occurred. Bay Springs buttons were constructed of iron, brass, white metal, or copper.

Four piece rivet buttons are typically found on overalls as bib attachments. A single example of this type, marked Shamrock Brand, was found at 22TS1109. Three piece rivet buttons are found on jeans as reinforcement. Four were recovered at 22TS1103D. Sanders' type buttons are three piece buttons with a "eye" loop for attachment. The loop is soldered to a flat piece of metal which acts as a base for another separate piece to be crimped over it. This final piece can easily be stamped with a design and it is perhaps for this reason that it is a popular style for military buttons (Johnson 1948:13). This was the most common metal button type. Two of them came from 22TS1109, one of which was a U.S. Military button dating 1855-1884 (Brinckerhoff 1972:5). Other Sanders' buttons came from 22TS1103B, and 22TS1115. Miscellaneous button types included four hole and two hole sew through and three piece rivet buttons.

Three artifacts have also been categorized here, a silver plated brass suspender buckle plate (22TS1109), an iron slide (22TS1109), and a brass heel plate (22TS1103B).

Class F10: Tin Cans and Containers

This class of artifacts includes all iron and tin plated containers and their various sealing devices. The early development of the tin can has been examined by Fontana and Greenleaf (1962) who provided a framework for the following overview of tin can history.

Although numerous methods of perserving food were tried the first widely popular canning method was the hole-in-the-top can first patented in 1810 in England (Fontana and Greenleaf 1962:68). This type of can had a hole left in the top of the can through which the food was forced and then cooked in the can. The small pin-hole allowing gases to escape was soldered close as a last step. The actual can was cut by hand (Fontana and Greenleaf 1962:68; Clark 1977:14). Various improvements throughout the 19th century were made in production of the can which became a completely automated process by the 1880s. The hole-in-the-top can continued as late as the 1920s (Clark 1977:18). A diagnostic attribute of the completely automated hole-in-the-top can was:

> "the notching of the four corners of the body blank so that the ends of the body were locked together before soldering the seam. This prevented the edges from coming apart when the ends were affixed. The notching above is not to be confused with the locked seam side which is not hermetic and is suitable for dry foods only" (Fontana and Greenleaf 1962:70).

The open top or sanitary can was first seen on grocery shelves around 1902. This type of can was double seamed requiring no solder but was sealed instead by a rubber compound (Clark 1977:18). Experimentation on this style of can had begun as early as 1888 (Fontana and Greenleaf 1962:73). An important date in tin can manufacturing is 1901. At that time the American Can Company was formed which merged 125 independent factories from 60 different companies (Clark 1977:31). Other companies, resisting this kind of pressure produced cans with the words "Not made by a trust." Table 30 provides a series of notable dates in the development of tin containers. The letter in parentheses corresponds to references noted below.

Table 30. Tin Can Chronology

1810	Nicholas Appert publishes a paper on the preservation of food in containers. August de Heine and Peter Durand patent tin plate canisters. They were first produced in 1813 for British Army and Navy (J). Fontana places this at 1811 (F).
1837-39	William Underwood adopts tin containers in place of glass. His packing business began in 1839 (F). Jones places it earlier, in 1837 (J). Seafoods like salmon and oysters began to be canned in New York.
1848	Issac Winslow begins packing corn--patents his process in 1862 (F).
1853-56	Gail Borden cans his famous condensed milk. Jones places the first canned milk in 1853. Clark states it was issued in 1856 (J; C).
1856	Bessemer steel invented. By the 1860s tin cans began to be made with steel instead of iron (J; C).
1862	Double seam cans first used (J).
1867	George W. Dunbar experiments with packing shrimp (F).
1868	David Butterfield & Harry Hibbard begin canning vegetables. Also "tagger top" can invented in England (J). "Tagger top" refers to a sealing device, either foil or tin plate, which must be pierced to obtain the contents of the can. This then can be resealed with a cap. Kerosene cans are a good example (F).
1870s	Single color lithography successfully applied to metal. Multiple color lithography not commercially used until 1890s (C).
1875	Libby Canning Co. starts making two pound tapered tin can for corned beef (J).
1876	First canned boneless ham with familiar oval shape patented. Sarding canning starts in Maine by J. Wolf (J).
1880s	Beginning of automated tin can making in the form of side-seam soldering machines. From this time until around 1900 side-seams are notched on corners to hold can together before soldering.
1884	Sardine can with depressed top enables manufacturers to by-pass the separate step in which gases had to be vented (F).
1885	Evaporated milk first produced by Helvetia Milk Condensing Co. This is the hole-in-the-top can used today.
1890	Lacquer coated cans appear. Key-opening device for meat cans first used (J). The Edwin Norton Co. of Chicago developed key method of rolling a scored strip in 1895 (F). In 1906 Bjelland and Gromestadt (Europe) patent a key-strip opener for a double seamed can (F).

Table 30. Tin Can Chronology continued

1898	American Tinplate formed. Cobb Preserving Company introduces first fully automated canning (C).
1900	Modern day open top can invented (J). By 1920s hole-in-top cans have been replaced by this can except for evaporated and condensed milk (C). Also, first steel barrel and modern lock seams on cans began to be used (J). Tindeco (Tin Decorating Company, Baltimore, Maryland) formed (C).
1901	American Can Company and Heekin Can Company formed (C).
1904	G. W. Cobb forms Sanitary Can Co. (F); sardine cans begin to be made by automatic machinery; Edwin Norton founds Continental Can Co. (C).
1905	Incorporation of Continental Can Company (F).
1906	Modern paint can with resealable lid invented (J).
1907-09	First canned tuna (F). Clark and Jones place it at 1909.
1908	American Can Co. "absorbs" Sanitary Can Co. (J).
1932	Oil cans first used (J).
1935	Beer first sold in cans, both flat top and cone shaped. Krueger's Special Beer first, followed in same year by Pabst and Schlitz (C).
1930s	Electric tin plating begins mid-1930s. During World War II silver was sometimes used.
1947	Aerosol can invented during World War II, markets for public in 1947 (J).
1959	Coors introduces aluminum beer can in 7 oz size; 11 oz aluminum can experimented by Primo Beer, both marketed for one year (D).
1962	Beer cans with lift tabs introduced by Alcoa (D).
1963	12 oz aluminum beer can introduced by Hamm's (D).
1965	Finger-ring tabs introduced, replace lift tabs (D).

(J) Jones 1976; (F) Fontana and Greenleaf 1962 : (C) Clark 1977; (D) Dolphin 1977.

Twenty-one fragments fall into this category, 18 being the common round sanitary cans. Other cans represented were oval sanitary can ends, a hole-in-the-top round can end, and an unknown round can. F10-03 Lock Seam Cans--Four sanitary lock seam cans were found. Two unknown fragments came from 22TS1103A, a plain round can from 22TS1109, and a recent Texaco Motor Oil can from 22TS1113. F10-07 Soldered Seam Can--A single soldered seam, hole-in-the-top can came from the mill site. It had one flat end and one crimped end. F10-08 Aluminum Flip-Top Cans--Three of these very recent beverage cans were found, two at 22TS1111 and one at 22TS1112. F10-13 Barrel Hoops--Four examples of barrel hoops were found at Bay Springs. All were iron bands riveted into a hoop. Two occurred at 22TS1103B and one each at 22TS1111 and 22TS1115.

Class F11: Automotive and Wagon Parts

F11-09 Wagon Hardware. Two wagon box staples were recovered at Bay Springs. These were pounded into the wood of the wagon box and served many purposes. One staple was found at each of the sites 22TS1103A and 22TS1103B.

Class F13: Horse Equipment

F13-02 Horse and Mule Shoes. Eight horse and three mule shoes were recovered at Bay Springs. Horse shoes are rounded near the toe and quarters while mule shoes are more rectangular and their arms are nearly parallel to each other. Five of the eight horse shoes came from the mill site, two from 22TS1108 and one from 22TS1113.

Class F14: Agricultural Tools

This class of artifacts is separated from the general tool class because of their specialized function as tools for working the ground, both as gardening and commercial activities. A single hoe (Category F14-01) was found at Site 22TS1115.

Class F15: Wire

This class included barbed wire and bailing wire. The barbed wire type was a modern common twist pattern. Single strands of wire were composed of copper or iron. A large amount of bailing wire was found at 22TS1103A.

Class F16: Lighting

F16-01 Kerosene Lamp Parts. A wick lifter attached to a burner cover was found at 22TS1112. No other metal parts were found.

Class F20: Closures

This class of metal artifact defines those items which closed or sealed metal or glass containers. Such devices are obviously closely tied to the development of the containers they seal and therefore the reader is referred to the previous section concerning tin containers and to the section concerning glass development, especially that particular section on canning jars. Additional information of special interest will be included in this discussion.

F20-01 Friction Caps. These caps fit snugly to the top of a container and are held on by friction. In most cases they are reuseable. One round friction cap was found at 22TS1109. In addition 14 crown caps were found at Bay Springs and date after 1892.

F20-03 Threaded caps were divided into continuous threaded caps and canning jar caps. The continuous threaded cap grew out of the industrialization occurring in America after World War I. The need was soon recognized for standardizing the dimensions of glass containers and metal caps. Prior to this time, screw caps had not been extensively used in the closure industry except for Mason type canning jars, olive jars, some specialty bottles, and lug type seals (Lief 1965:27). In 1924 the glass manufacturers gave "formal approval" to standardization specifications (Lief 1965:27). After this, the continuous threaded cap immediately became popular, and so began the decline of cork closures. The lug method of sealing began with the Amerseal cap in 1906 and though this replaceable cap was popular with housewives, the glass finish was difficult to make and therefore it was not popular with the glass manufacturers (Lief 1965:22). The lug style finish has interrupted threads which engage indentations in the side of a metal cap. Lug caps became popular later with the industry in the 1950s, especially vacuumized food products. They could be opened with a single quarter turn and because the top seal was a plastisol compound, it was easy to adapt to steam vacuuming. This provided the industry with a high-speed capping technique (Lief 1965:40-41). The two piece canning jar cap (a threaded ring with a separate glass or metal cap) was an invention of Lewis R. Boyd in 1869. The previous all zinc cap gave a metallic taste to the food contents. Boyd's new seal allowed a glass and later a metal top on that portion of the cap that came in contact with the food (Toulouse 1977:92).

F20-12 Foil Bottle Seals. A single example was found at 22TS1109. No design or brand name was evident.

Class F22: Industrial

Artifacts which are part of an industrial function are listed in this class. Naturally, the mill site dominates this class with 1,336 of 1,690 artifacts.

F22-02-01 - Bobbin Drives served the function of winding the yarn onto the bobbin. They could be used in roving frames, drawing frames, and spinning frames. A total of 114 bobbin drives were recovered.

F22-02-02 - Plain Spindles were used on most of the machines at the mill. We recovered 113 plain spindles representing ten varieties.

F22-02-03 - Contoured Spindles served an unknown function. We do not know why they are shaped as they were. Thirteen spindles were recovered and divided into nine varieties.

F22-02-04 - Bobbin Seat Bushings were washer-like artifacts which supported the bobbin drives and allowed them to spin on an oiled surface. Because of their function, they wore out quickly. We found 135 bushings at the site and recognized 31 varieties. Since varieties are based on measurements, many of these varieties were probably caused by wear.

F22-02-05 - Flyer Fragments fed the yarn to the bobbin. They sat on top of the bobbin and spun around, feeding out yarn. Only two fragments seem to be parts of flyers.

F22-02-06 - Thread Guides were bent wire hooks to aid in keeping threads separate on spinning frames. Thirteen of these artifacts were recovered and separated into two varieties.

F22-02-07 - Cap Spinner Tops represent the top part of the cap spinner used on Danforth Cap Frames. Seven examples of one variety were found at the mill.

F22-02-08 - Cap Spinner bases formed the base of the cap spinner. These metal rings were probably attached to the cap tops by a cheaper metal which has not survived. Four rings, all of one variety were recovered.

F22-03-01 - Solid Spur Gears provided the basic power transmitting system in all machines. Every powered machine at the mill had its gear train. Forty-one solid spur gears were recovered. These were divided into 23 varieties.

F22-03-02 - Hollow Spur Gears represent the basic power system of the mill. The difference between hollow and solid gears does not appear to be related to function but rather economy. Hollow gears are larger than solid gears. In order to conserve on the use of metal and to keep the price down, these gears were made hollow. A total of eight gears were recovered. These were divided into six varieties.

F22-03-03 - Open Spur Gears have open spaces and are supported by internal arms. They serve the same function as the other spur gears but, as mentioned above, they are larger than solid spur gears. All of the gears of this type are fragmented. A total of eight fragments was recovered and classed into five varieties.

F22-03-04 - Beveled Gears changed the direction of power transmission. Like spur gears, they could be used in any number of machines. Four examples of these gears were found and they represent three varieties.

F22-03-05 - Beveled Gears With Necks served the same function of changing the direction of power transmission. They differ from the other beveled gears in that they have a collar or neck below the gear for attachment. The specific purpose of this collar is unknown. Fifteen gears of this type have been divided into nine varieties.

F22-03-06 - Cam Gears were used to create a periodic movement, back and forth or up and down. They have not been identified to a specific machine because this motion would be used in many types of machines. Only two were recovered and they represented different gears.

F22-04-01 - Cap Rolls were small rollers used to provide a twist to the yarn during the drawing process. They are generally used throughout the processes and can be found on all of the machines. We recovered 32 cap rolls which are divided into five varieties.

F22-04-02 - Top Rolls, Double Boss occur on drawing and roving frames between banks of cap rollers. These are used to impart the greatest amount of twist to the yarn. Double Boss indicates that two threads cross the bearing surface (boss) at one time. Six examples of this type were recovered and represent four varieties.

F22-04-03 - Top Roll, Double Fluted was the same as the one above except for the addition of flutes to the boss. These grip the yarn better and allow faster drawing. One such roller was recovered.

F22-04-04 - Top Roll, Single Boss was the same as F22-04-02 except that it has a smaller "boss" (bearing surface) and can only accommodate a single strand of yarn. The same amount of yarn can be transmitted across the roller because the number of bosses is doubled.

F22-04-05 - Roll Stand was used to support the cap rolls in the drawing process. The only example of the type is a 120 roll stand. The angle of the stand determines the amount of tension on the yarn and consequently the strength, twist, and structure of the yarn.

F22-04-06 - Cap Roll, Double Boss, unlike the other cap rolls recovered, this one could accommodate two strands of yarn across the boss. Two examples and two varieties were recovered.

F22-04-07 - Cap Bars were moveable bars with sockets in them. They were used to hold weight on top of the cap rollers. We recovered 18 fragments of these bars and divided them into three varieties.

F22-04-08 - Roller Bearings were used to hold the larger rollers in place. They were also weighted. Two artifacts of the same variety were recorded.

F22-05-01 - Hollow Pulley, Crowned transmitted power by moving belts, taking the impluse from the machine shaft and transmitting it to the gear train. A "crowned" pulley has a bearing surface higher in the middle and sloping to the sides. This provides more traction for the belt. Three fragments of hollow, crowned pulleys were recovered. They were divided into three varieties.

F22-05-02 - Hollow Pulley, Flat have flat bearing surfaces. Seven examples were recovered, but they represent only five varieties.

F22-05-03 - Open Pulley, Crowned these pulleys serve the same function but are larger and have open areas. Two fragments representing two varieties were recovered.

F22-05-04 - Pulley Surface Fragments are bearing surface fragments from a number of different kinds of pulleys. In all, 27 fragments were recovered and separated into 19 varieties.

F22-05-05 - Open Pulley Arm Fragments represent the interior of open pulleys. Twenty fragments were recovered and represent 17 varieties.

F22-05-06 - Pulley Hubs were the point of attachment for any pulley, the center. The power is transmitted to the machine though this point. Six unattached pulley hubs were located.

F22-05-07 - Idler Pulley was a specific kind of pulley which is used to slow down the motion being transmitted. One example of this kind of pulley was recovered.

F22-05-08 - Belt Rivets went around the pulleys, were made of leather and riveted together with copper rivets. We recovered seven of these in four sizes.

F22-05-09 - Open Pulley (Double Step) Only one specimen of this type was found.

F22-06-01 - Bonnet Side Fragments The carding machine had a hinged top which allowed access to the carding drum. This hinged top is called a "bonnet." Twenty-six bonnet side fragments were recovered and separated into ten varieties. Many of the side fragments included a company name.

F22-06-02 - Carding Staples were set into leather belts and were used to card the cotton. Forty-eight clumps of staples were recovered. Each of these clumps represents hundreds of staples.

F22-06-03 - Bonnet Top Fragments represent the top, curving part of the bonnet. Five fragments in two varieties were recovered. No embossing occurs on these fragments.

F22-06-04 - Drum Support This stand would support the drum of the carding machine. Only one was found.

F22-07-01 - Line Shaft Hanger was a support for the main power shaft which brought power from the source to the mill; only two fragments were found.

F22-07-02 - Jack Shaft Hanger Jack shafts received power from the line shaft and transmitted it to the machine shafts. Three fragments, all unique, were recovered.

F22-07-03 - Line Shaft Cap Bearings were placed over the line shaft to insure that it did not move from its hanger and aid in lubrication.

F22-07-04 - Line Shaft Fragment was a fragment of the line shaft bringing power through the mill.

F22-07-05 - Machine Shaft Bearings were supports for the machine shafts that brought the power from the jack shaft to the machine itself. Nineteen bearings were found. These represent 15 diverse varieties.

F22-07-06 - Machine Shaft Fragments were parts of the machine shafts mentioned above. Seven unique fragments were recovered.

F22-07-07 - Drive Chains were an alternative to pulleys or shafts. They also served to transmit power. Two fragments of a drive chain were located.

F22-07-08 - Jack Shaft was intermediate in the transmission of power, between the line shaft and the machine shaft. One fragment was recovered.

F22-08-00 - Unassignable Machine Frame Parts were the 52 frame parts too burned or broken to be further identified.

F22-08-01 - I Bars were general purpose framing parts with an I-shaped cross-section. They could be attached to any machine. A total of 25 was found and sorted into four varieties based on size. Some bars have attachments or specialized ends (e.g. foot pads).

F22-08-02 - V Bars were frame parts which exhibit a V-shaped cross-section. A total of 31 bars was found. These came in 11 sizes or varieties.

F22-08-03 - H Bars were frame parts with the cross-section of a lower case "h". We located eight examples and they are separated into five varieties.

F22-08-04 - L Bars were framing parts with an L-shaped cross-section. Thirty-eight bars were found and we divided them into 13 varieties on the basis of size.

F22-08-05 - Asymmetrical T-Bars were T-shaped but the top of the "T" was shifted to one side. Four of this type were found.

F22-08-06 - Flat Bars were flat framing pieces. Twenty-two were recovered in 15 sizes.

F22-08-07 - X Bars were frame parts with X-shaped cross-sections. Only one such bar was found.

F22-08-08 - T-Bars have a cross-section shaped like a regular "T." Two bars of the same size were found.

F22-09-01 - Oilers represent devices for keeping the machinery lubricated. All machines at the mill should have had oilers. Eight examples of two varieties were found.

F22-10-01 - Weights were large objects used to weight down rollers and drums. All machines using equipment like rollers would have weights. Four weights were found at Bay Springs.

F22-10-02 - Stirrups were one form of weight support. They were attached to the weight and could be hung on the end of rollers. Six stirrups were recovered representing three sizes.

F22-10-03 - C-shaped Weight Holders were another kind of weight support. These were C-shaped bars with a wire attachment in the center of the C. The bar sat on top of rollers and a weight was hung from the wire attachment, thus applying pressure to the rollers. A single example was recovered.

F22-10-04 - Saddle-bar Weight Holders are still another type of weight support. We recovered five of these, which are divided into three varieties.

F22-11-00 - Roving Can Side Fragments --After carding, the yarn was wound into a large tin can called a roving can. This can was then transferred to the roving frame where the yarn was first given a twist. A total of 334 fragments of roving can sides was excavated.

F22-11-01 - Roving Can Rim was the top or bottom part of the roving can, made of thicker iron. One example was found.

F22-12-01 - T Shaped Support, Adjustable--This and the following types account for the many attachments necessary to tie machines to the floor or to other machines. This type is T-shaped and adjustable. Only one was found.

F22-12-02 - L Shaped Support, Non-Adjustable--Six examples of this type were found representing three varieties.

F22-12-03 - Angled Support, Adjustable--Six examples of this type were recovered and were separated into two varieties.

F22-12-04 - L- Shaped Support, Adjustable--We recovered ten examples of this support piece and separated them into six varieties.

F22-12-05 - Curved Support, Adjustable--A single artifact of this type was found.

F22-12-06 - General Support Piece, Flat--Three specimens of two varieties were recovered.

F22-12-07 - Rocker Arm--This supported various machine parts that were in repetitive up and down motion. A single artifact of this type was found.

F22-13-01 - Cotton Bale Bands--One hundred-ten band fragments were recovered. Five varieties are present.

Class F23: Grooming & Clothing Care

This class of artifacts includes items for making or repairing clothing, and items for personal hygiene and appearance. Included here were a scissors handle from 22TS1103A and a straight pin from 22TS1109.

Class F24: The Stove Parts

Thirteen fragments of cast iron stoves were recovered. Ten came from the mill site, one from 22TS1113 and two from 22TS1115.

Class F25: Miscellaneous Hardware

Among most historic site artifact assemblages are a wide assortment of construction hardware items that are difficult to assign to a particular class. This class is designed to group such items.

F25-01 Threaded Square and Hexagonal Nuts. These were the most common types of nuts recovered at Bay Springs. Also, there was a special purpose nut for which we were unable to identify an exact function. It had an extension on one side of a square nut, perhaps to aid in tightening the nut.

F25-02 Round Washers. These came in a variety of sizes from 13 mm to 46 mm across; none were locking washers.

Class F26: Furniture & Household Furnishings

Only two artifacts were associated with furniture or household furnishings. A large iron tack, probably the base to a piece of furniture, was found at 22TS1103A and a drapery hook was found at 22TS1112.

Miscellaneous Materials

G: Plastic. Forty fragments of plastic were recovered at Bay Springs but only one represented an identifiable artifact. The others were small unidentifiable pieces of plastic. The artifact was a comb tooth found at 22TS1103A.

I: Bone Artifact. A single bone button was recovered from 22TS1115 and it had five holes.

K: Leather. Three fragments of unknown shoe leather, one from 22TS1103A and two from 22TS1114, were recovered.

M: Cloth. A fragment of a cotton web belt was found at 22TS1111.

O: Rubber. One unknown rubber fragment and a black, four hole sew through button were found at 22TS1109.

Appendix 2. Artifact Illustrations

Glass Artifacts (Page 375)

A)	A01-37-01A	Warner's Safe Cure, oval bottle
B)	A01-36-01A	hexagonal bottle
C)	A01-35-01A	bevelled rectangular bottle
D)	A02-03-01B	Union oval bottle base
E)	A02-05-06K	round bottle base
F)	A01-34-01A	Drake's square bottle
G)	A06-02-03M	round jar base
H)	A02-35-01A	squared oval bottle base
I)	A02-12-02P	bevelled rectangular bottle base
J)	A07-02-02NN	lettered fragment, "SPICE"
K)	A03-08-13A	square cork lip, applied, bottle
L)	A05-04-03B	round patent, applied, jar
M)	A03-02-15A	cone patent lip, applied, bottle
N)	A03-08-01CC	tapered cork lip, applied, bottle
O)	A03-08-01V	tapered cork lip, applied, bottle

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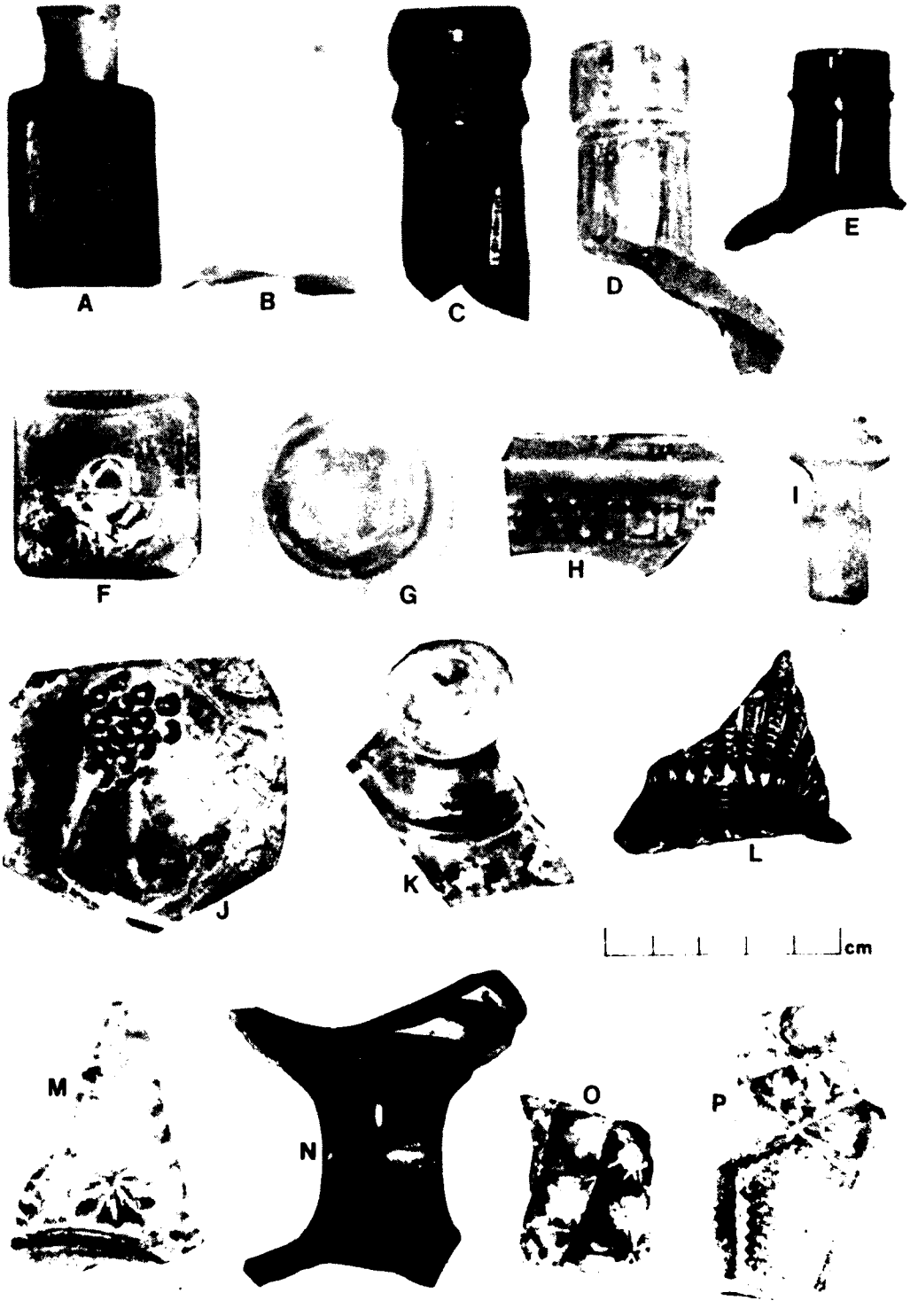
Glass Artifacts (Page 377)

A)	A01-12-05A	Dr. Sage's Catarrh Remedy
B)	A03-02-14B	round patent lip, applied, bottle
C)	A03-08-10B	round cork lip, applied, bottle
D)	A03-08-01Z	tapered cork lip, applied, bottle
E)	A03-09-02A	lug lip, machine made, bottle
F)	A02-08-03A	French square bottle base
G)	A08-04-01H	pressed glass base
H)	A07-02-02W	lettered fragment, "WILD..."
I)	A10-02-02D	glass stopper
J)	A07-06-02A	pressed glass fragment
K)	A08-02-01D	pressed glass lid
L)	A08-04-02M	pressed glass base
M)	A07-06-02B	pressed glass fragment
N)	A08-04-01G	pressed glass stem
O)	A08-06-01Z	pressed glass fragment, Sawtooth pattern
P)	A07-06-01D	pressed gla. fragment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A)	B02-01-13F	porcelain handle ?
B)	B04-09-100Q	porcelain doll head
C)	E03-09-13C	handpainted teapot lid
D)	E03-09-01B	handpainted cup rim
E)	B04-09-100R	porcelain doll base
F)	E03-03-00G	edge painted fragment
G)	E03-09-10F	handpainted plate rim
H)	E03-09-00A	handpainted fragment
I)	E03-03-12A	edge painted plate
J)	E03-08-01G	sponge spatter cup rim
K)	E03-08-01F	sponge painted cup rim
L)	E03-03-10CC	edge painted plate
M)	E03-04-10K	transferprint plate rim
N)	E03-04-00L	transferprint fragment, "Epirius"
O)	E03-04-13F	transferprint pitcher base
P)	E03-04-12D	transferprint plate base
Q)	E03-04-01C	transferprint cup, "Missouri"

AD-A127 149 BAY SPRINGS MILL: HISTORICAL ARCHAEOLOGY OF A RURAL MISSISSIPPI COTTON MI.. (U) RESOURCE ANALYSTS INC BLOOMINGTON IN W H ADAMS ET AL. 30 JUN 81 RAI-1427 5/5

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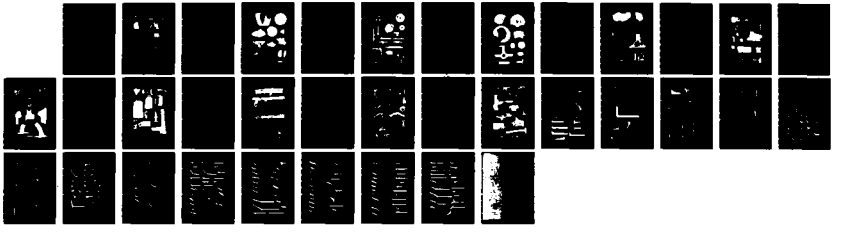

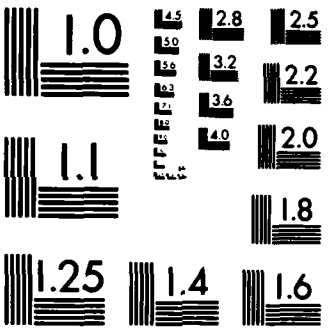

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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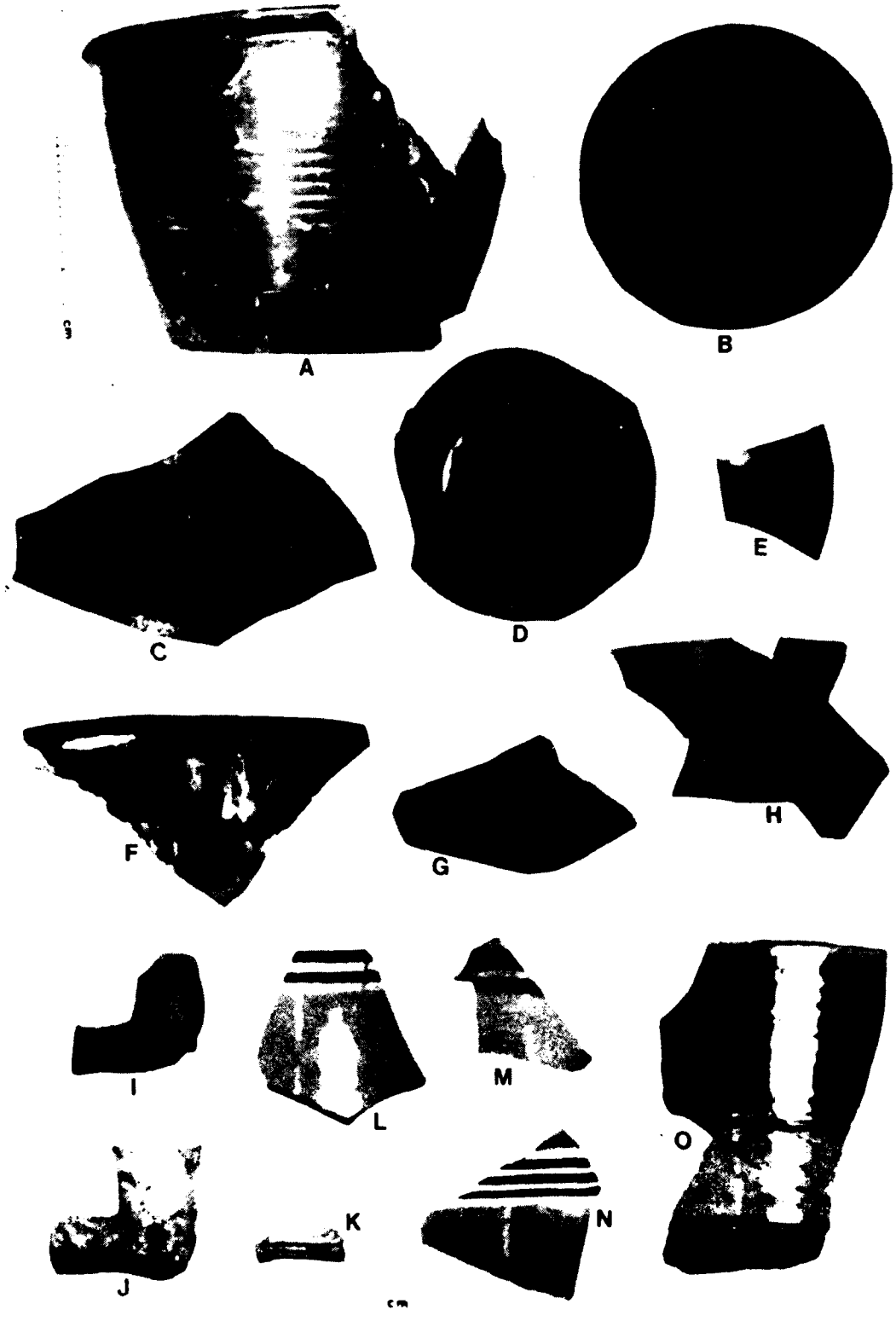
Stoneware and Earthenware Vessels (Page 381)

A)	C02-02-06A	stoneware crock
B)	C01-03-01A	stoneware bottle base
C)	C01-02-00A	stoneware crock handle
D)	C02-02-07M	blue tinted Bristol slipped stoneware vase
E)	E03-07-00E	annular earthenware fragment
F)	D02-01-00C	Rockingham glazed earthenware
G)	D02-03-13B	Rockingham glazed base
H)	E03-07-04D	annular earthenware bowl
I)	D04-01-01I	glazed figural pipe
J)	D04-01-01G	unglazed short stem pipe
K)	D04-01-02J	glazed pipe stem
L)	E03-07-04B	annular earthenware bowl
M)	D02-01-13F	annular stoneware fragment
N)	E03-07-00E	annular earthenware fragment
O)	E03-07-04I	annular earthenware bowl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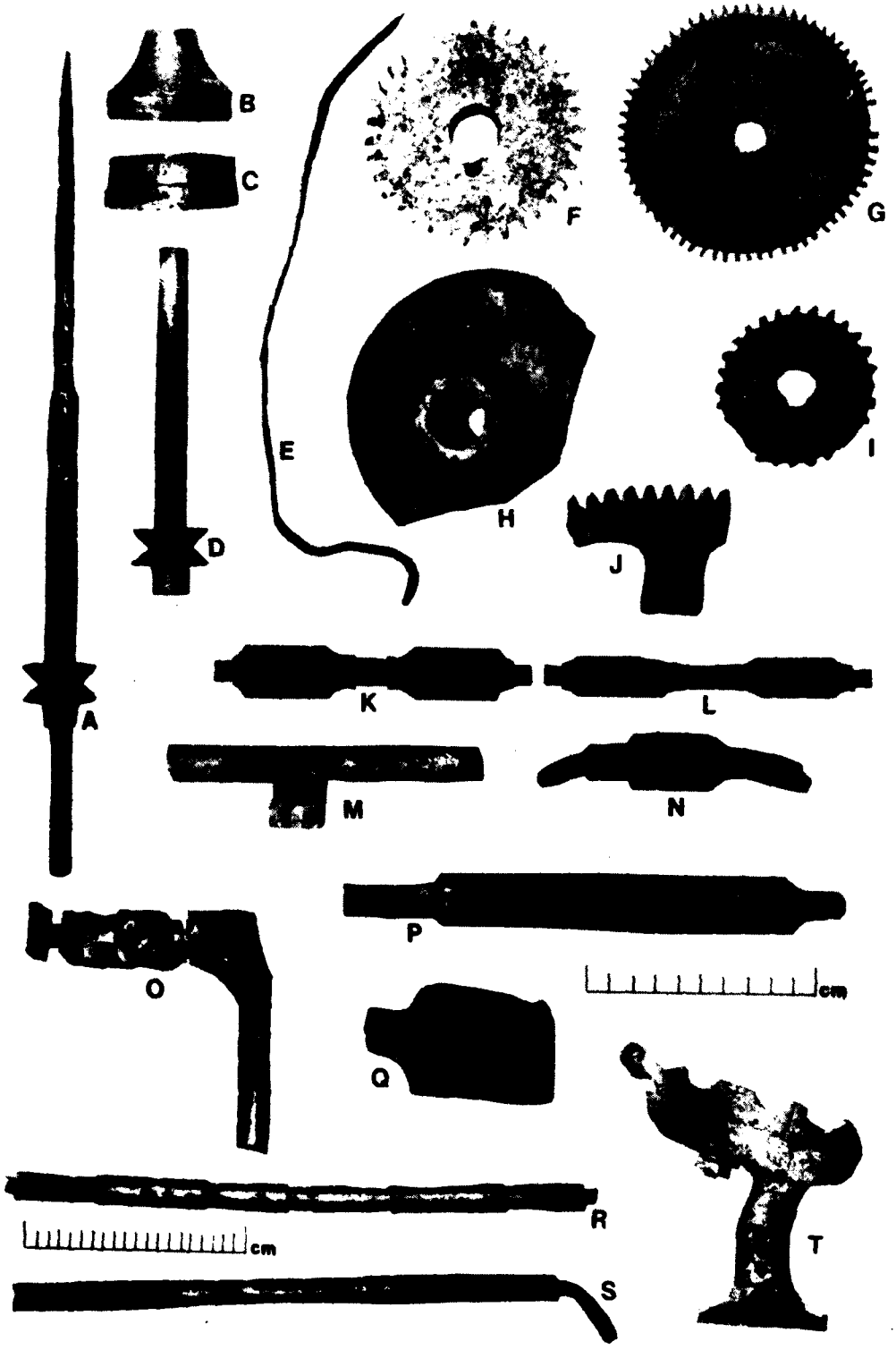
Spinning Parts and Gearing (Page 383)

A)	F22-02-01A and F22-02-02A	spindle with bobbin drive
B)	F22-02-07	cap spinner top
C)	F22-02-08	cap spinner bottom
D)	F22-02-01A	bobbin drive
E)	F22-02-05A	possible flyer fragment
F)	F22-03-01B	solid spur gear
G)	F22-03-02E	hollow spur gear
H)	F22-03-06A	cam gear
I)	F22-03-04I	bevel gear
J)	F22-03-03E	open spur gear
K)	F22-04-01A	single boss cap roll
L)	F22-04-01E	single boss cap roll
M)	F22-04-07C	cap bar midsection
N)	F22-04-04A	single boss top roll
O)	F22-04-07A	cap bar
P)	F22-04-06A	double boss cap roller
Q)	F22-04-08A	roller bearing
R)	F22-04-02A	double boss top roll
S)	F22-04-03A	double boss, fluted top roll
T)	F22-04-05A	12o roll stand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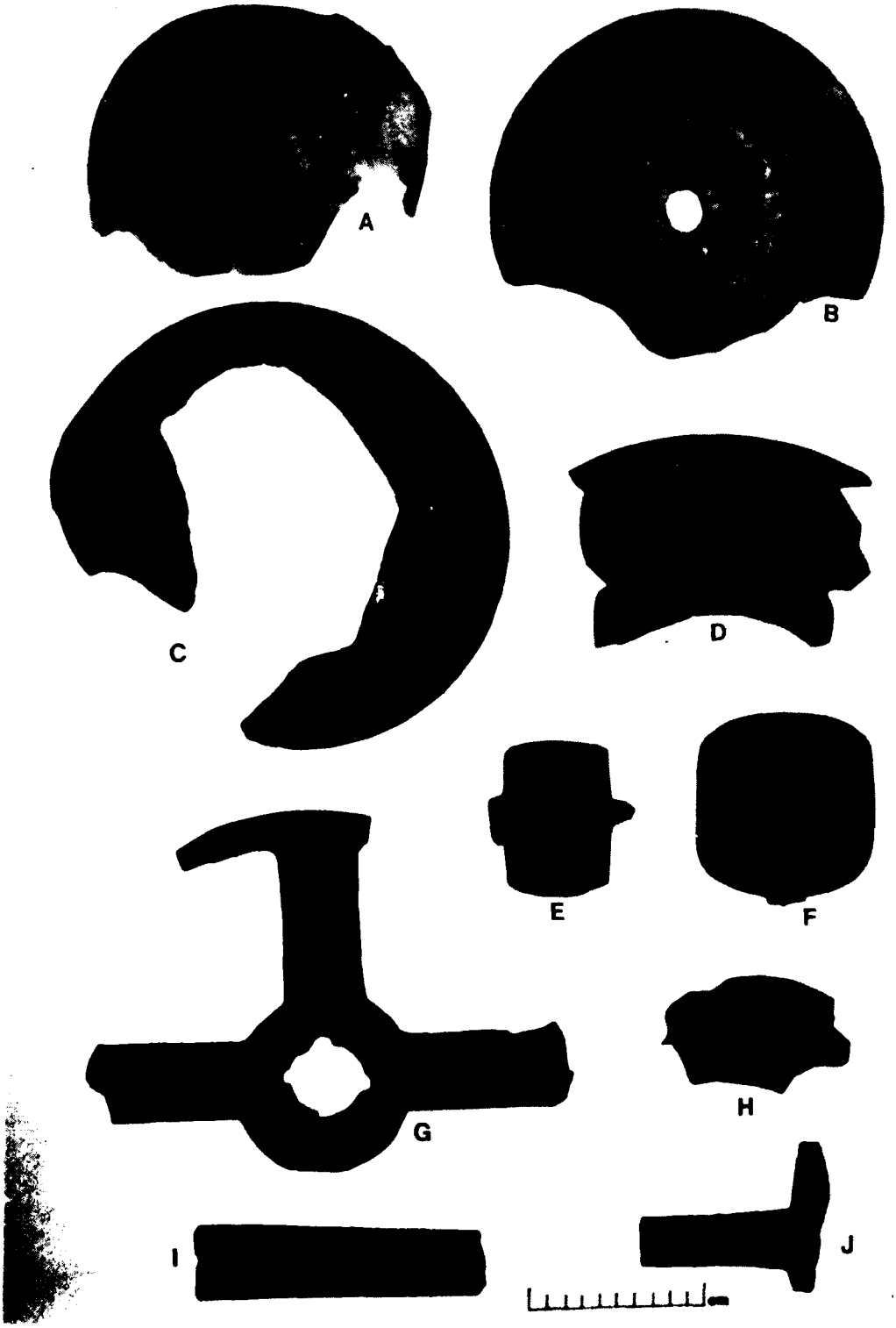
Pulleys and Pulley Fragments (Page 385)

A)	F22-05-01C	hollow crowned pulley
B)	F22-05-02A	hollow flat pulley
C)	F22-05-01A	hollow crowned pulley
D)	F22-05-09A	double step pulley
E)	F22-05-06A	pulley hub
F)	F22-05-07A	idler pulley
G)	F22-05-03A	open crowned pulley
H)	F22-05-04H	pulley surface fragment
I)	F22-05-05F	open pulley arm
J)	F22-05-06D	pulley hub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A) F22-06-01C bonnett frame part, "C. DANFORTH"
B) F22-06-01F bonnett frame part
C) F22-06-01E bonnett frame part, "PATTERSON, N. J."
D) F22-06-01I bonnett frame part, "PAT..."
E) F22-06-03A bonnett top fragment
F) F22-06-04A carding drum support stand
G) F22-07-01A line and jack shaft hanger
H) F22-07-03B cap bearing

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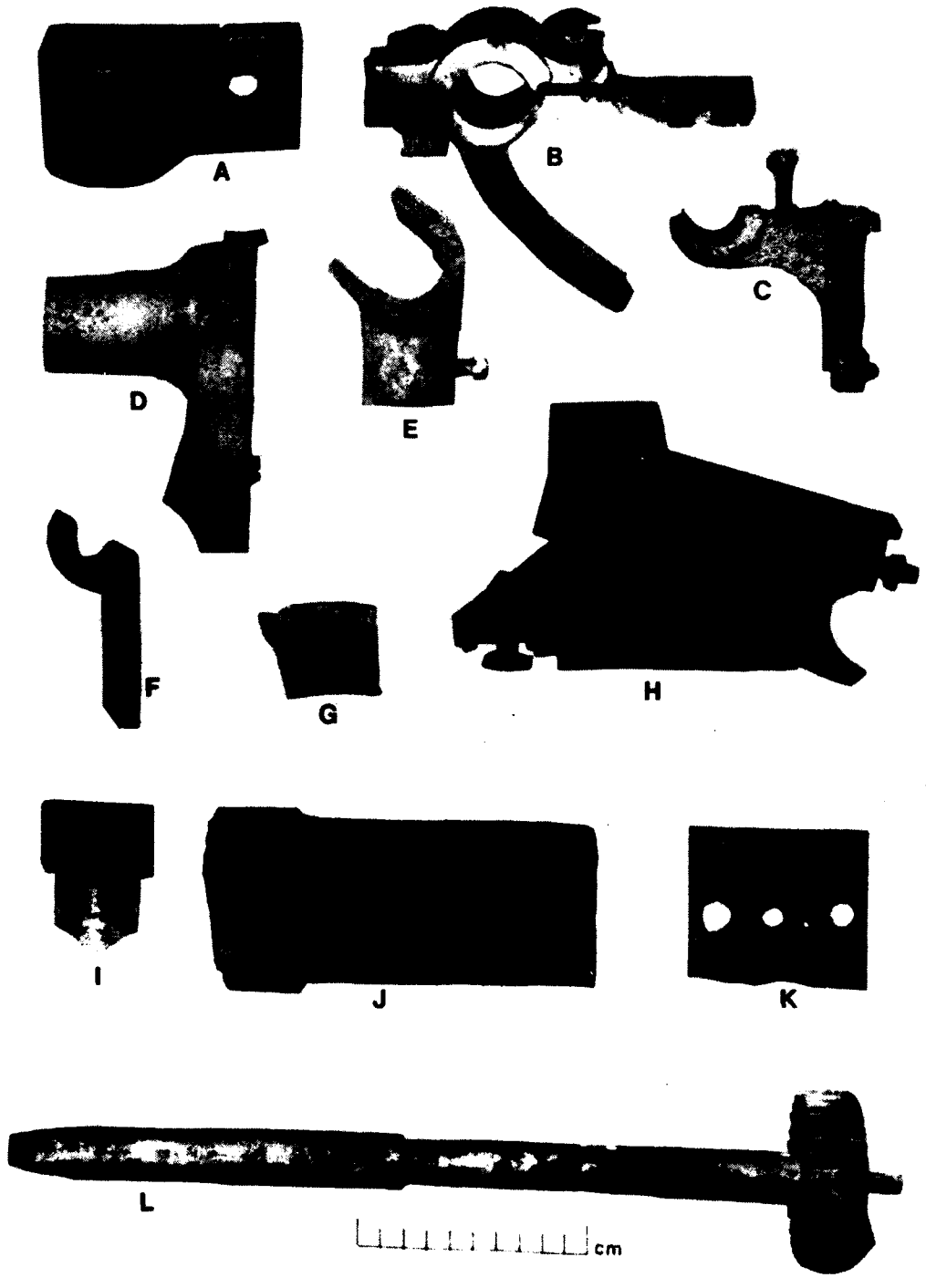
A)	F22-07-05A	machine shaft bearing
B)	F22-07-05B	machine shaft bearing
C)	F22-07-05C	machine shaft bearing
D)	F22-07-05D	machine shaft bearing
E)	F22-07-05E	machine shaft bearing
F)	F22-07-05J	machine shaft bearing
G)	F22-07-05K	machine shaft bearing
H)	F22-07-05I	machine shaft bearing
I)	F22-07-05M	machine shaft bearing
J)	F22-07-04A	line shaft fragment
K)	F22-07-03D	cap bearing
L)	F22-07-06A	machine shaft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Machine Shafts and Machine Frame Parts (Page 391)

A)	F22-07-06B	machine shaft
B)	F22-07-06C	machine shaft
C)	F22-07-06F	machine shaft
D)	F22-08-01A	I bar
E)	F22-08-01A	I bar, footed
F)	F22-08-08A	T bar
G)	F22-08-02J	U bar, "C. DANF..."
H)	F22-08-03D	h bar
I)	F22-08-01B	I bar, footed
J)	F22-14	unknown stand

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Weights and General Support Pieces (Page 393)

A)	F22-09-01A	oil cup
B)	F22-10-01D	weight
C)	F22-10-02A	stirrup weight hanger
D)	F22-10-03A	C shaped weight hanger
E)	F22-10-04A	saddle bar weight hanger
F)	F22-10-04C	saddle bar weight hanger wire
G)	F22-10-01B	weight
H)	F22-10-01A	weight
I)	F22-10-01C	weight
J)	F22-12-04E	L shaped, adjustable support
K)	F22-12-04B	L shaped, adjustable support
L)	F22-12-01A	T shaped, adjustable support
M)	F22-12-04A	L shaped, adjustable support
N)	F22-12-05A	curved, adjustable support
O)	F22-12-03A	angled, adjustable support
P)	F22-12-04D	L shaped, adjustable support and bracket
Q)	F22-12-07A	rocker arm

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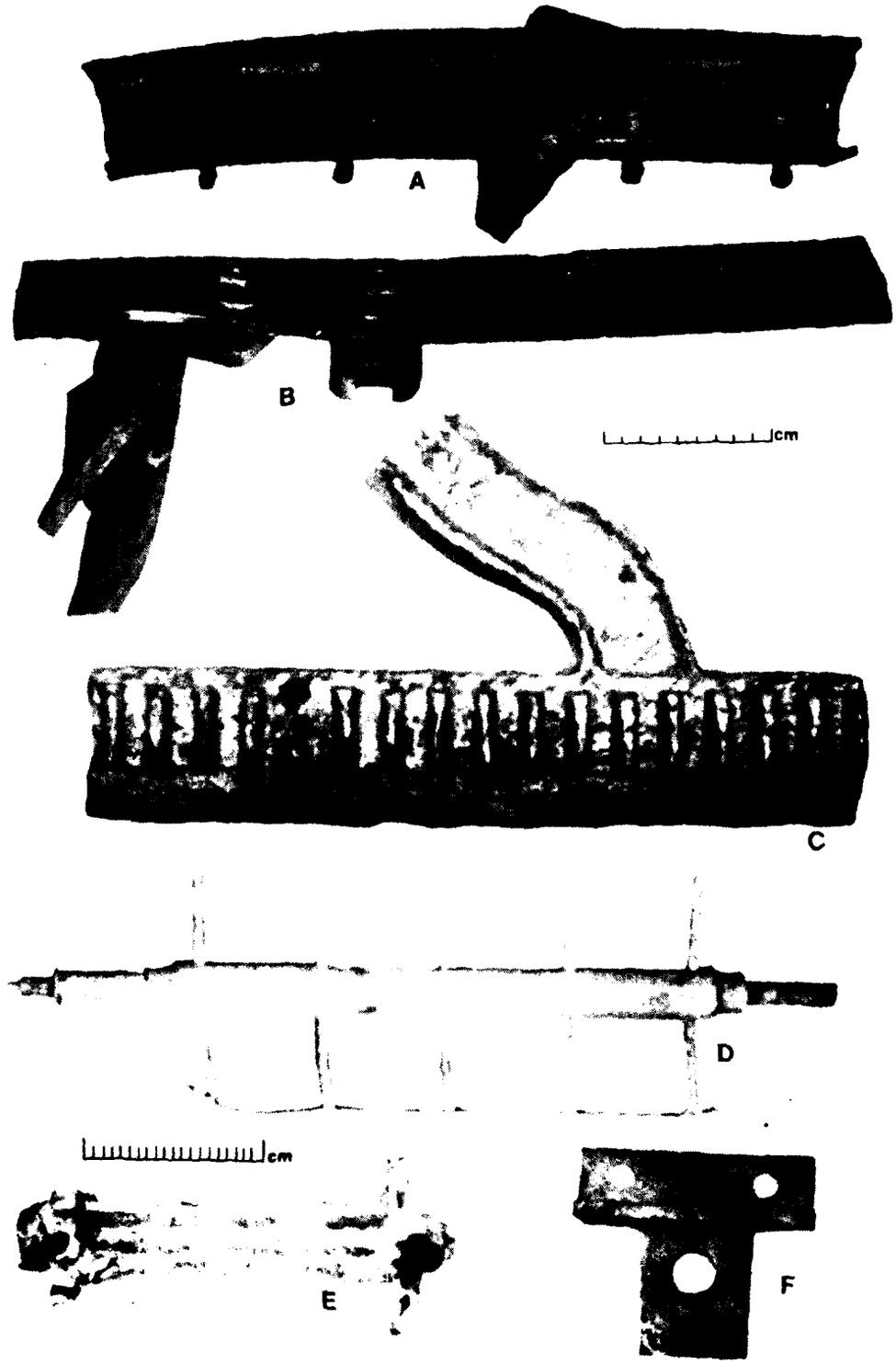
F22-14 Unidentified Mill Parts (Page 395)

A) spindle rack ?
B) spindle rack ?
C) builders' rack ?
D) opener beater ?
E) picker core ?
F) support piece ?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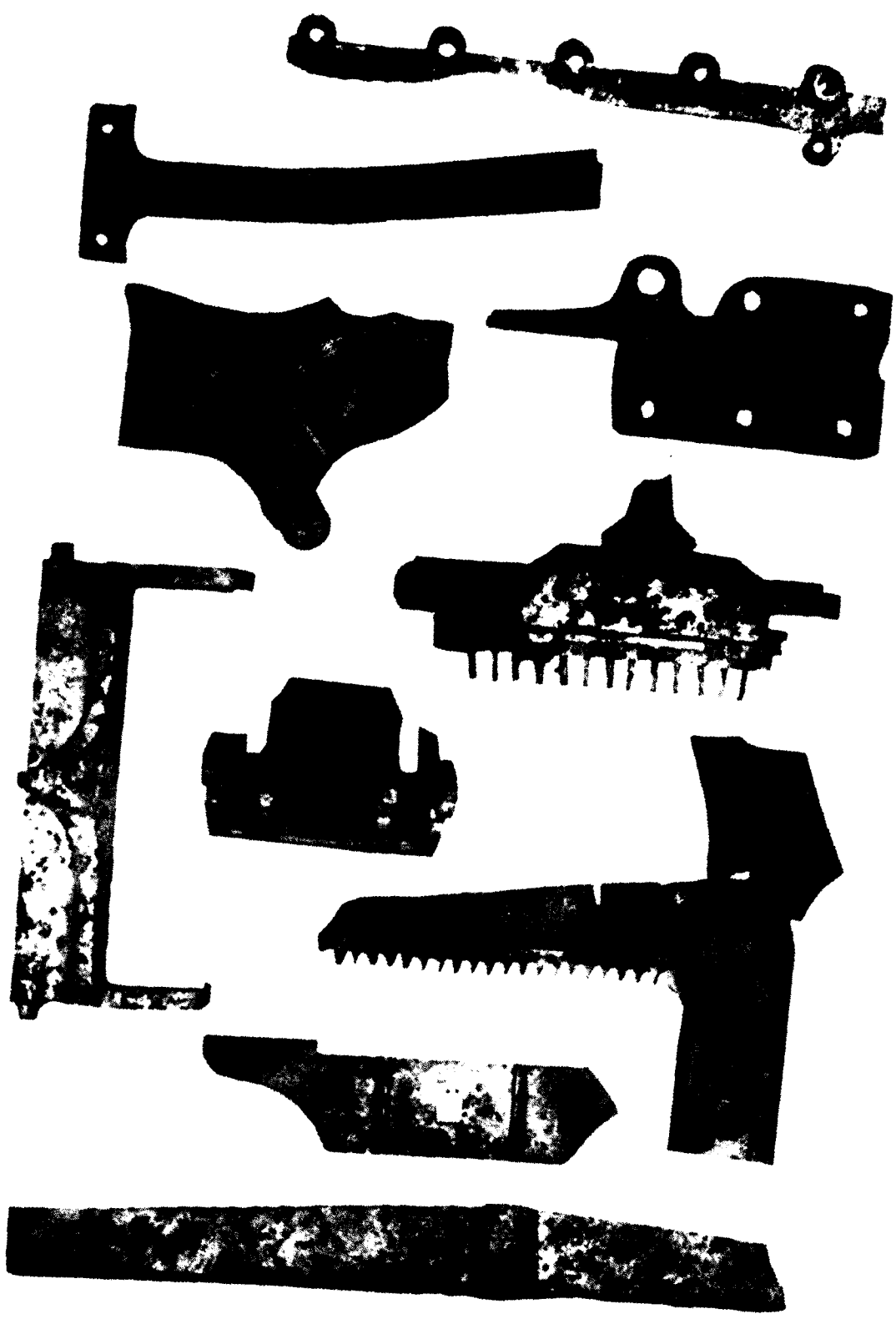
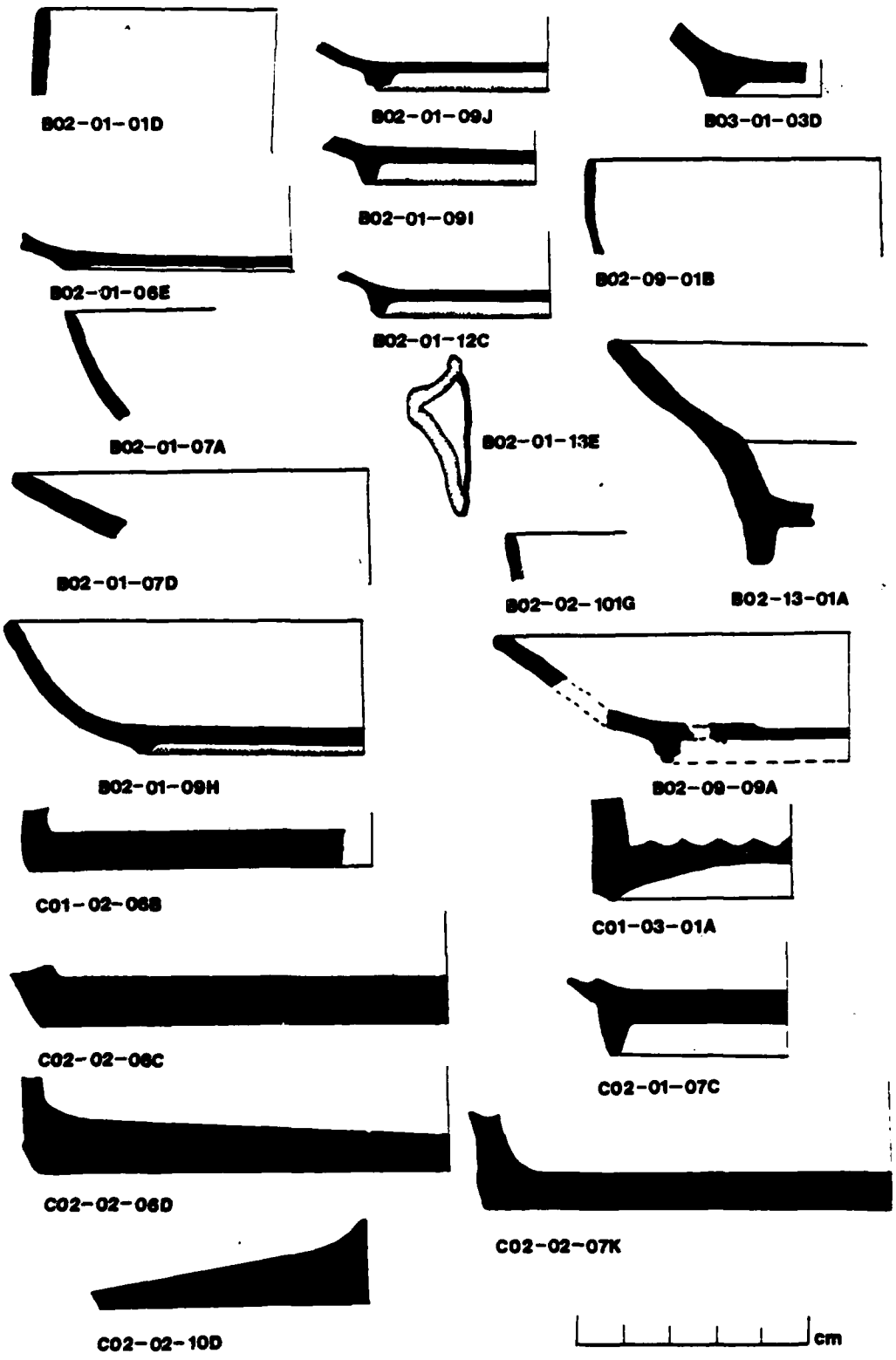
F22-14 Unidentified Mill Artifacts (Page 397)

F22-14 Unidentified Mill Artifacts (Page 399)

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B02-01-13E
B02-01-07D
B02-02-101G
B02-13-01A
B02-01-09H
B02-09-09A
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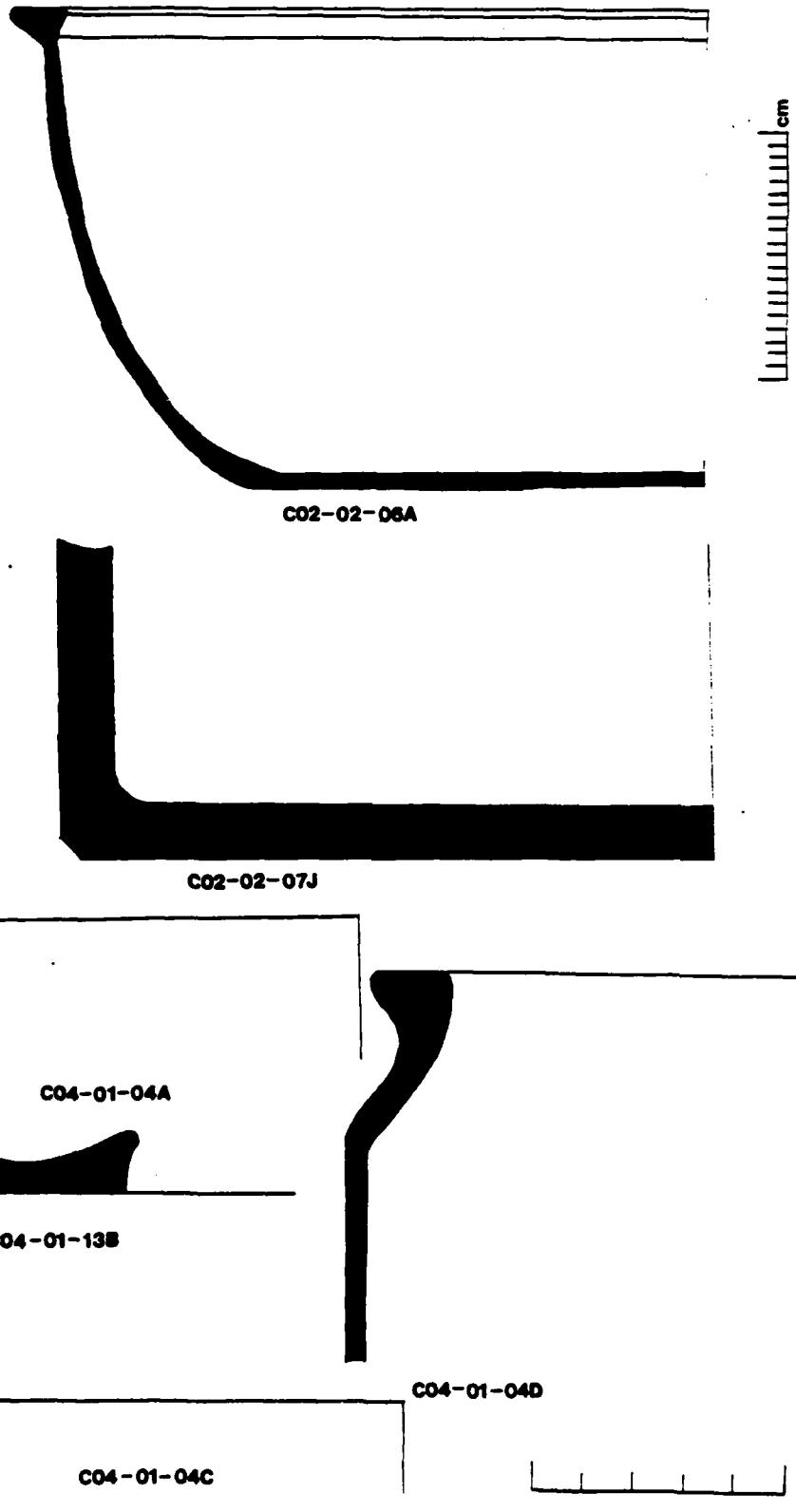
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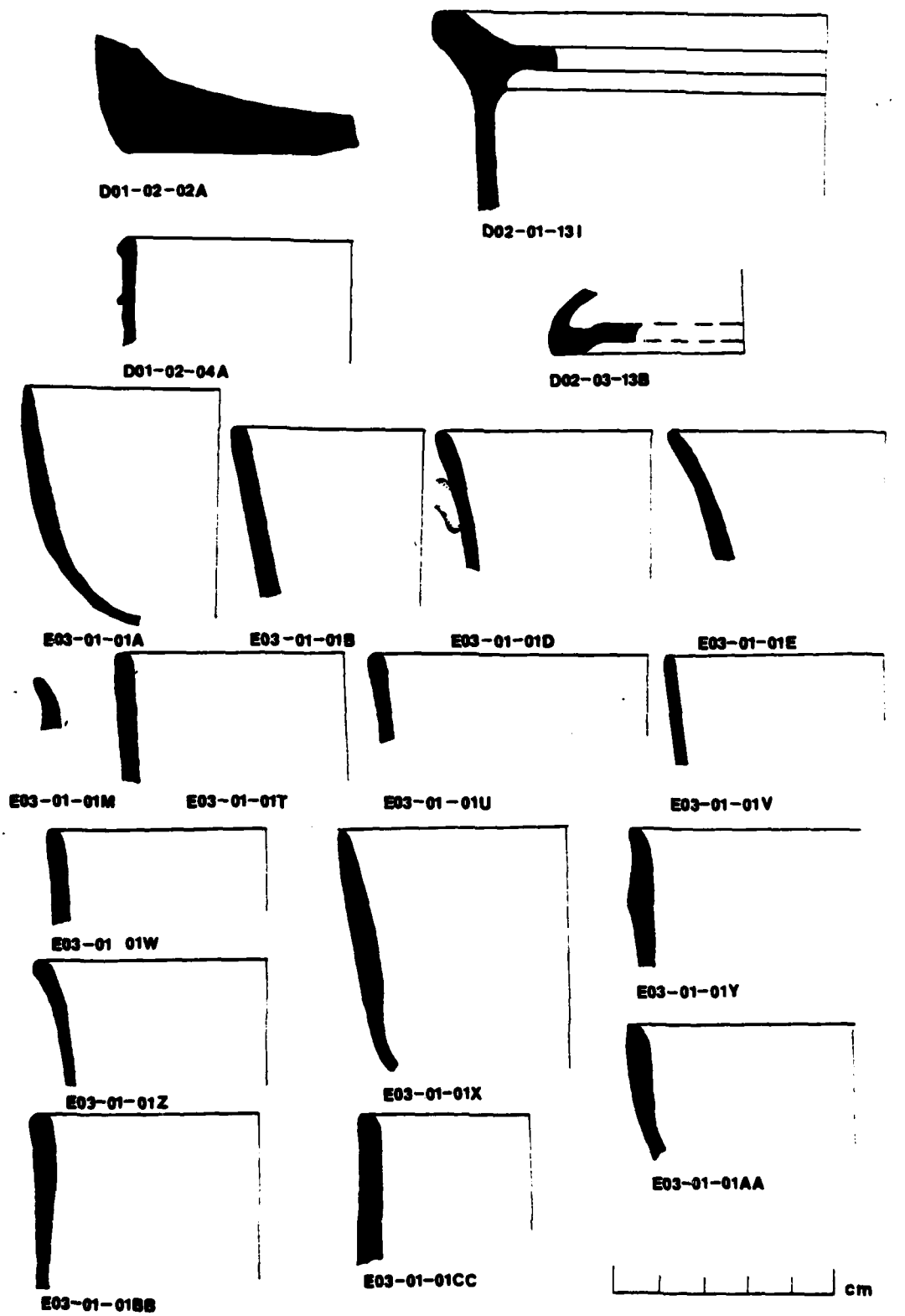
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E03-01-01D
E03-01-01E
E03-01-01M
E03-01-01T
E03-01-01U
E03-01-01V
E03-01 01W
E03-01-01Y
E03-01-01Z
E03-01-01X
E03-01-01AA
E03-01-01CC
E03-01-01BB
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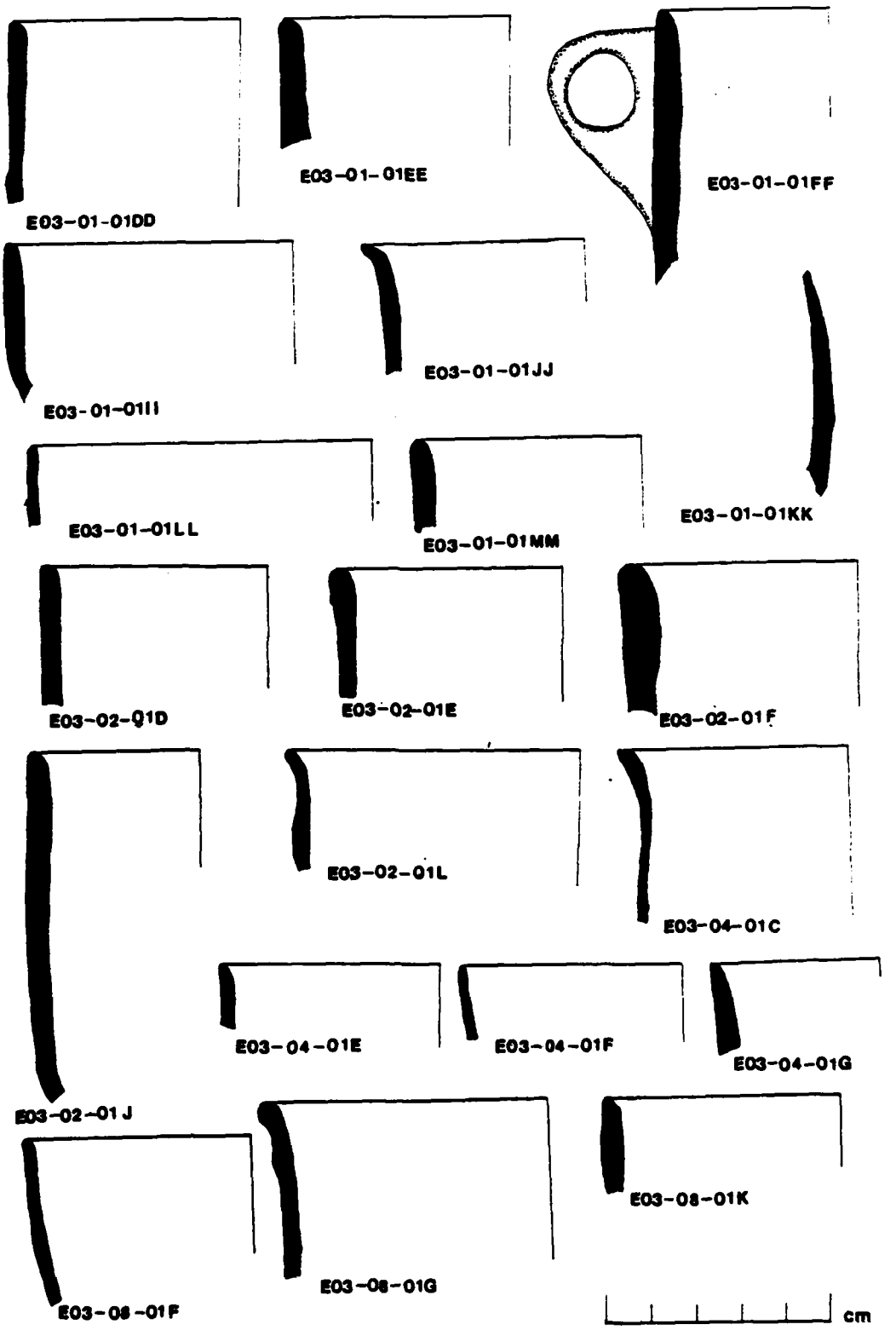
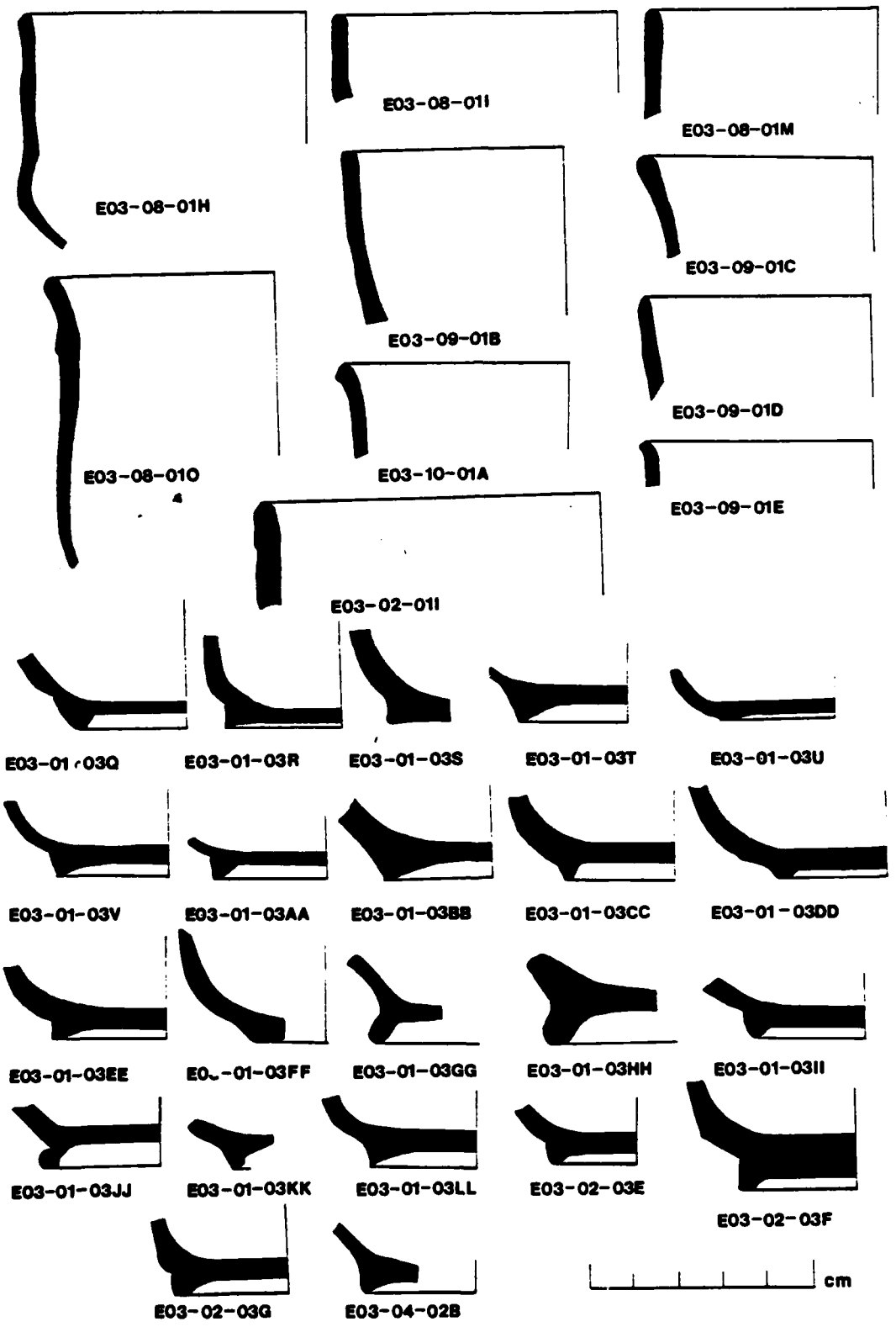

E03-01-01DD
E03-01-01EE
E03-01-01FF
E03-01-01II
E03-01-01JJ
E03-01-01KK
E03-01-01LL
E03-01-01MM
E03-02-01D
E03-02-01E
E03-02-01F
E03-02-01J
E03-02-01L
E03-04-01C
E03-04-01E
E03-04-01F
E03-04-01G
E03-08-01F
E03-08-01G
E03-08-01K
cm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E03-08-01M
E03-08-01H
E03-09-01C
E03-09-01B
E03-08-01O
E03-09-01D
E03-10-01A
E03-09-01E
E03-02-01I
E03-01-03Q
E03-01-03R
E03-01-03S
E03-01-03T
E03-01-03U
E03-01-03V
E03-01-03AA
E03-01-03BB
E03-01-03CC
E03-01-03DD
E03-01-03EE
E03-01-03FF
E03-01-03GG
E03-01-03HH
E03-01-03II
E03-01-03JJ
E03-01-03KK
E03-01-03LL
E03-02-03E
E03-02-03F
E03-02-03G
E03-04-02B
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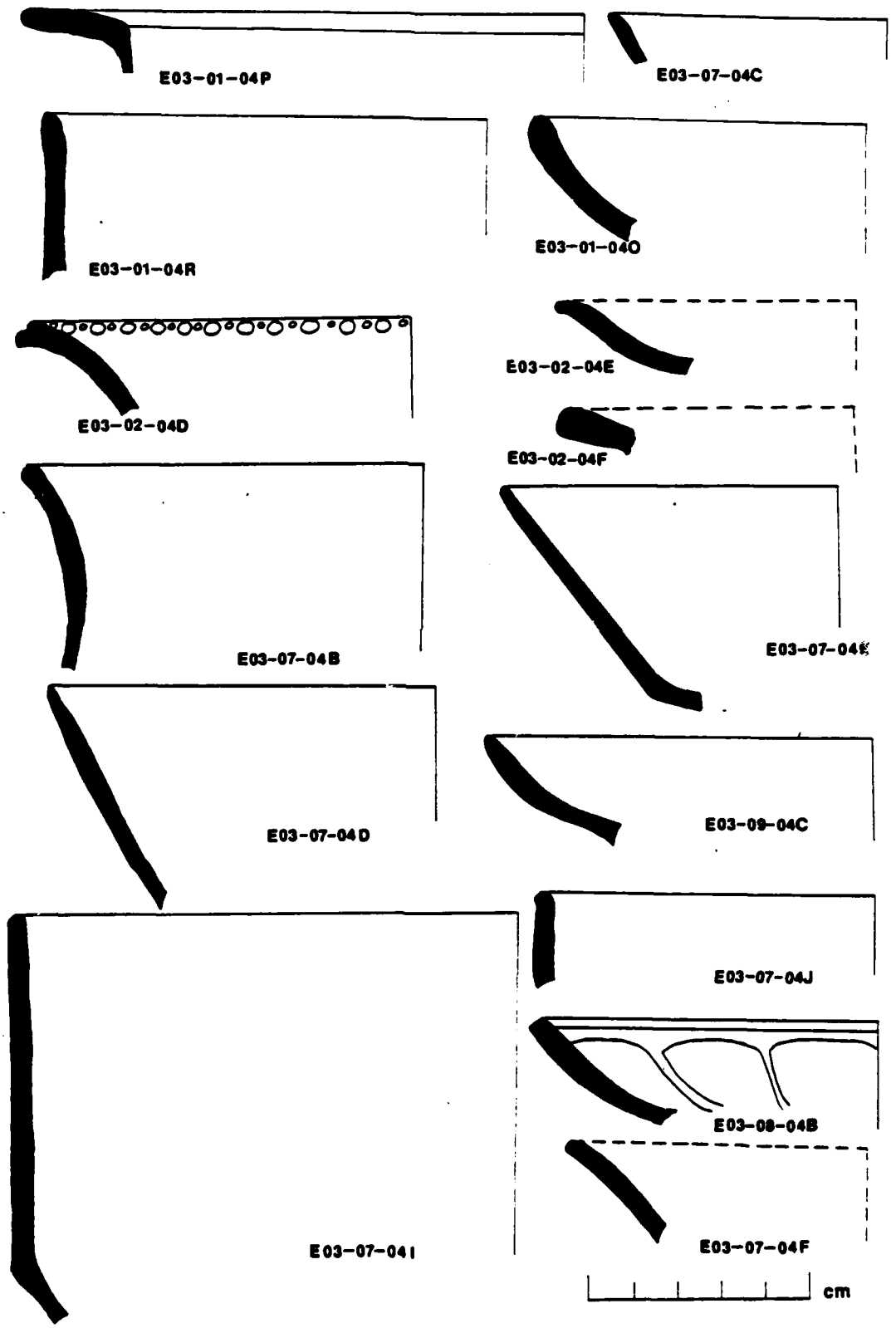
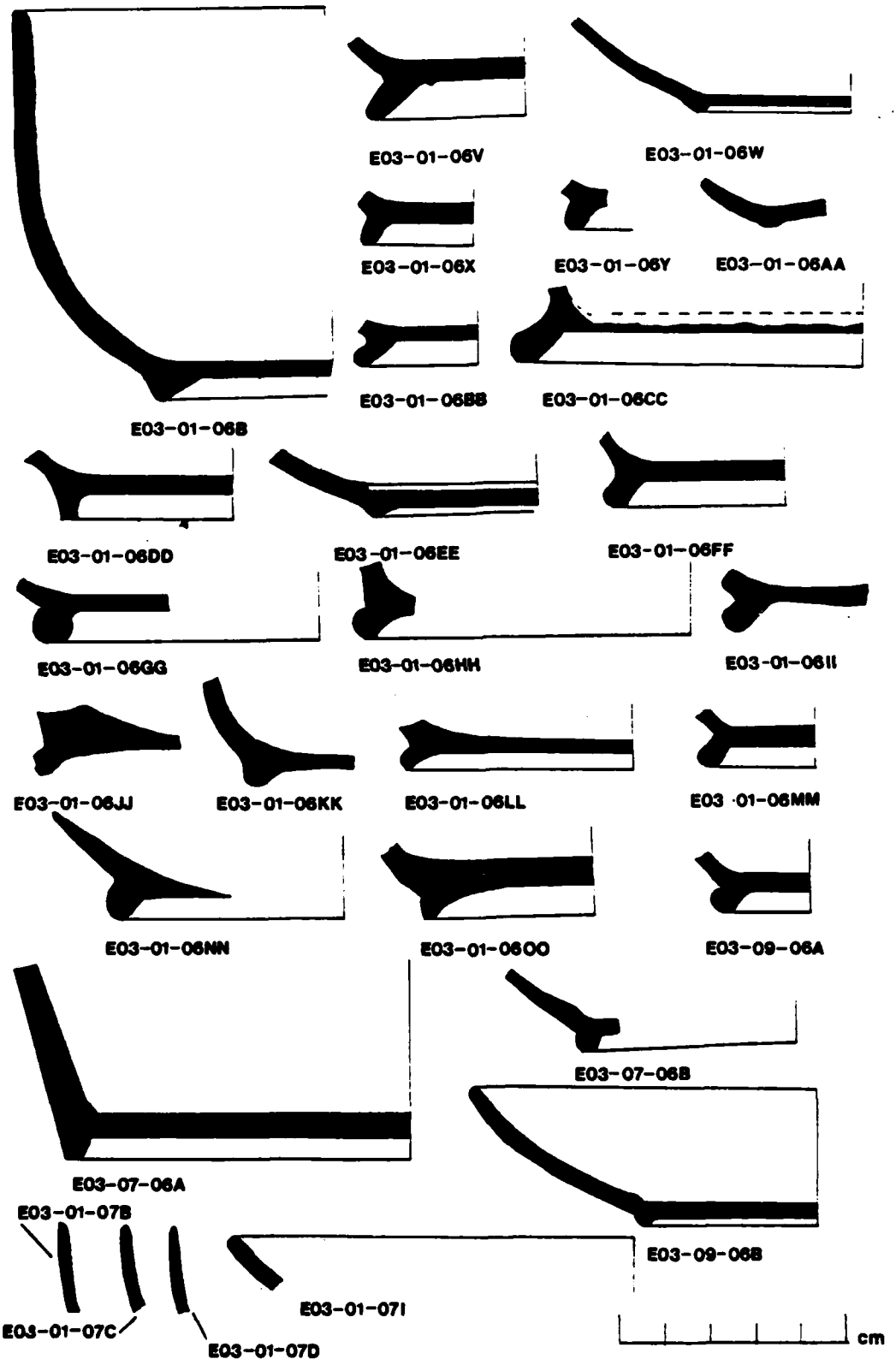
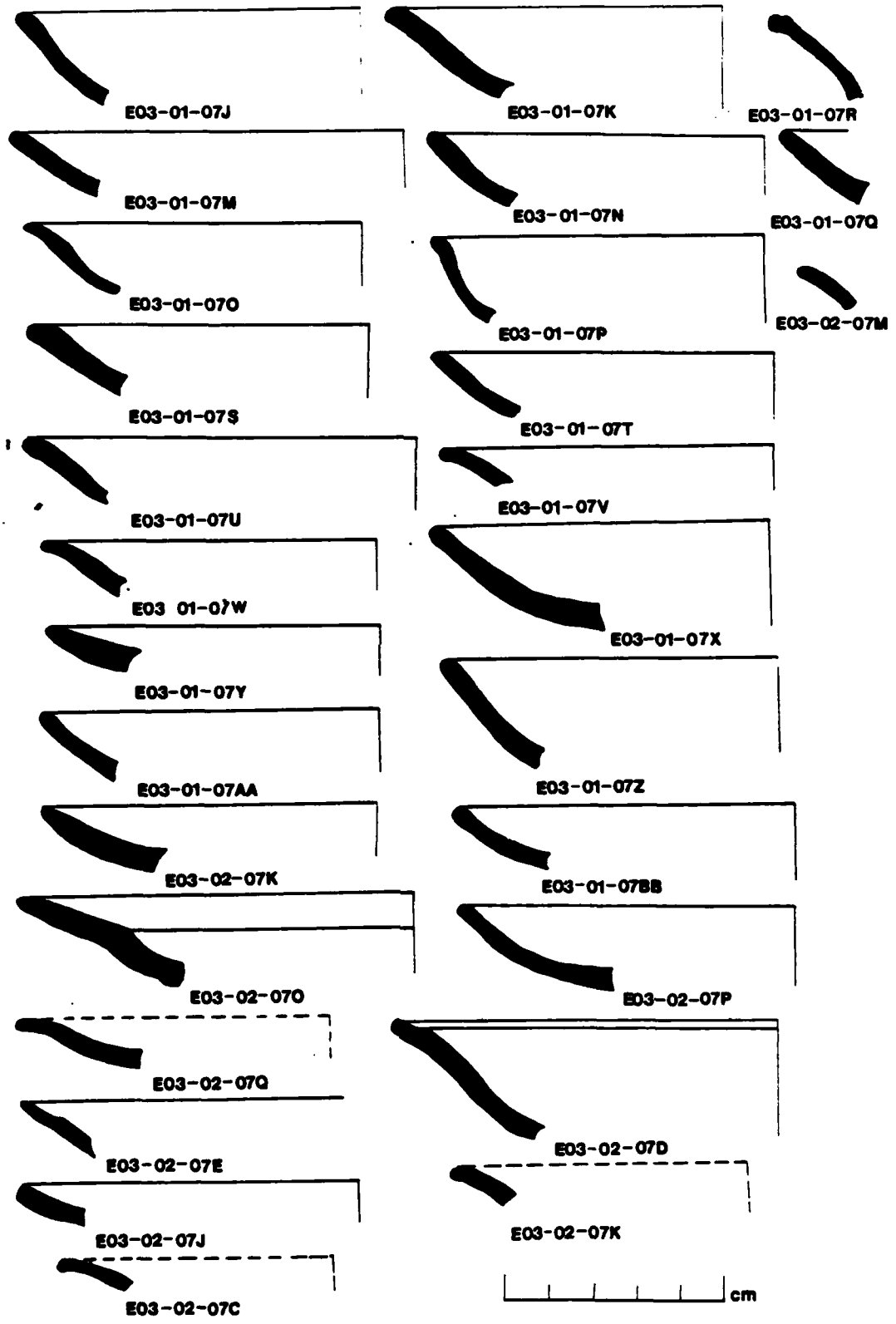
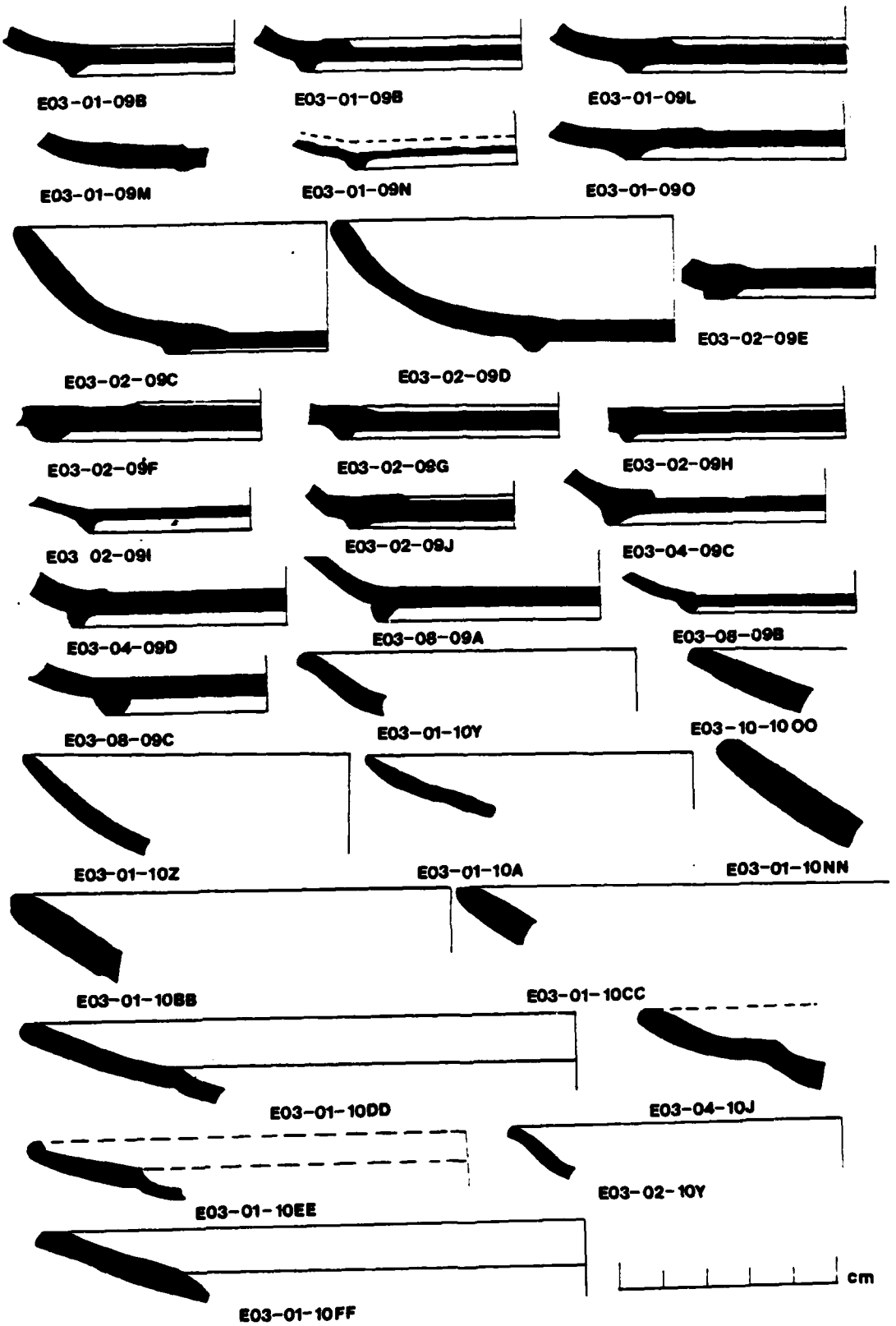

E03-01-04P
E03-07-04C
E03-01-04R
E03-01-04O
E03-02-04E
E03-02-04D
E03-02-04F
E03-07-04B
E03-07-04E
E03-07-04D
E03-09-04C
E03-07-04J
E03-07-04I
E03-08-04B
E03-07-04F
cm


E03-01-06V
E03-01-06W
E03-01-06X
E03-01-06Y
E03-01-06AA
E03-01-06BB
E03-01-06CC
E03-01-06B
E03-01-06DD
E03-01-06EE
E03-01-06FF
E03-01-06GG
E03-01-06HH
E03-01-06II
E03-01-06JJ
E03-01-06KK
E03-01-06LL
E03 -01-06MM
E03-01-06NN
E03-01-06OO
E03-09-06A
E03-07-06B
E03-07-06A
E03-01-07B
E03-09-06B
E03-01-07I
E03-01-07C
E03-01-07D
cm


E03-01-07J
E03-01-07K
E03-01-07R
E03-01-07M
E03-01-07N
E03-01-07Q
E03-01-07O
E03-01-07P
E03-02-07M
E03-01-07S
E03-01-07T
E03-01-07U
E03-01-07V
E03 01-07W
E03-01-07X
E03-01-07Y
E03-01-07Z
E03-01-07AA
E03-01-07BB
E03-02-07K
E03-02-07O
E03-02-07P
E03-02-07Q
E03-02-07D
E03-02-07E
E03-02-07K
E03-02-07J
cm
E03-02-07C


E03-01-09B
E03-01-09B
E03-01-09L
E03-01-09M
E03-01-09N
E03-01-09O
E03-02-09E
E03-02-09C
E03-02-09D
E03-02-09F
E03-02-09G
E03-02-09H
E03 02-09I
E03-02-09J
E03-04-09C
E03-04-09D
E03-08-09A
E03-08-09B
E03-08-09C
E03-01-10Y
E03-10-10OO
E03-01-10Z
E03-01-10A
E03-01-10NN
E03-01-10BB
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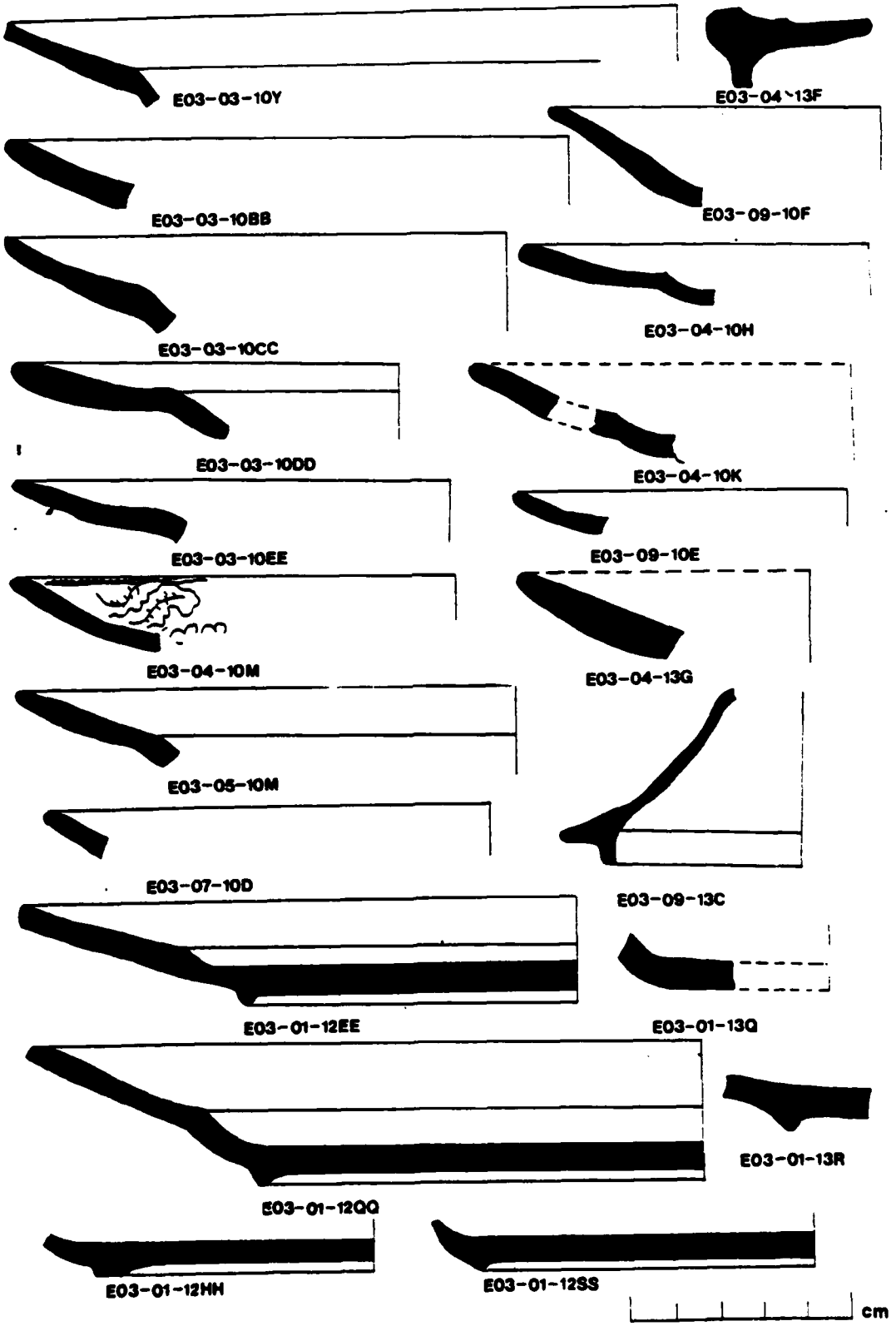
E03-02-10Y
E03-01-10EE
E03-01-10FF
cm


E03-03-10Y
E03-04-13F
E03-09-10F
E03-03-10BB
E03-04-10H
E03-03-10CC
E03-03-10DD
E03-04-10K
E03-03-10EE
E03-09-10E
E03-04-10M
E03-04-13G
E03-05-10M
E03-07-10D
E03-09-13C
E03-01-12EE
E03-01-13Q
E03-01-13R
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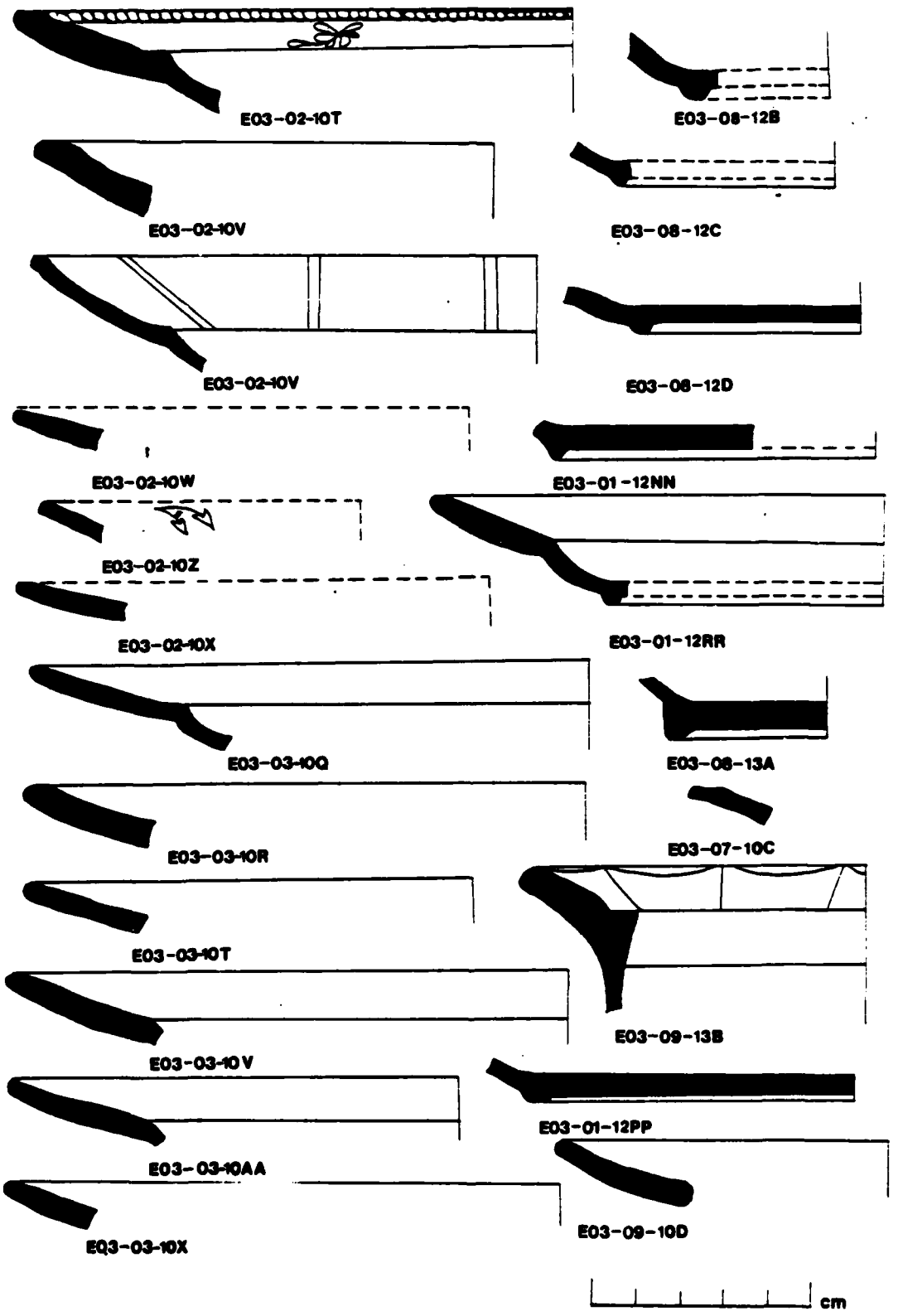
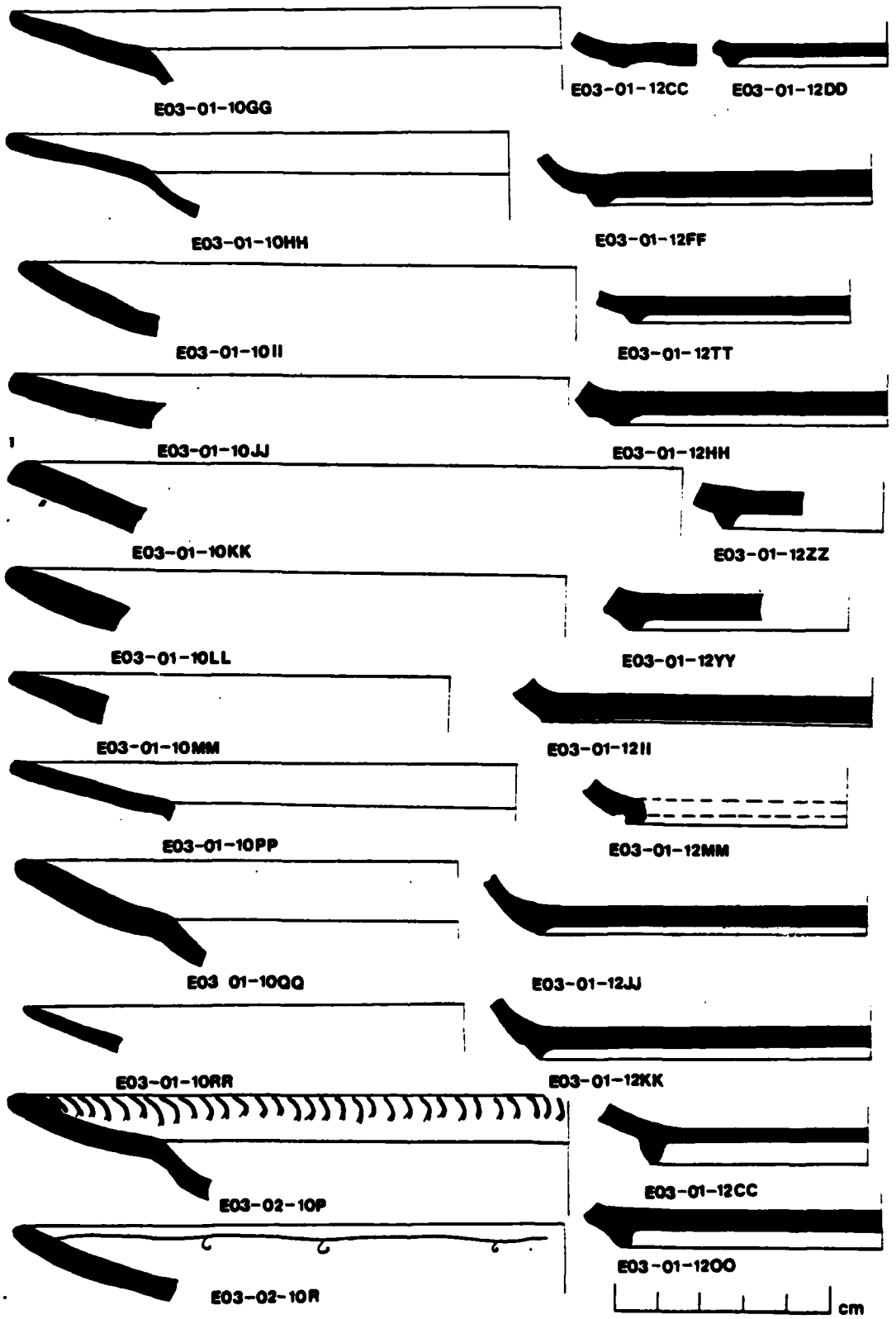
E03-01-12SS
cm


E03-02-10T
E03-08-12B
E03-02-10V
E03-08-12C
E03-02-10V
E03-08-12D
E03-02-10W
E03-01-12NN
E03-02-10Z
E03-02-10X
E03-01-12RR
E03-03-10Q
E03-08-13A
E03-03-10R
E03-07-10C
E03-03-10T
E03-09-13B
E03-03-10V
E03-01-12PP
E03-03-10AA
E03-09-10D
E03-03-10X
cm


E03-01-10GG
E03-01-12CC
E03-01-12DD
E03-01-10HH
E03-01-12FF
E03-01-10II
E03-01-12TT
E03-01-10JJ
E03-01-12HH
E03-01-10KK
E03-01-12ZZ
E03-01-10LL
E03-01-12YY
E03-01-10MM
E03-01-12II
E03-01-10PP
E03-01-12MM
E03 01-10QQ
E03-01-12JJ
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E03-01-12KK
E03-02-10P
E03-01-12CC
E03-02-10R
E03-01-12OO
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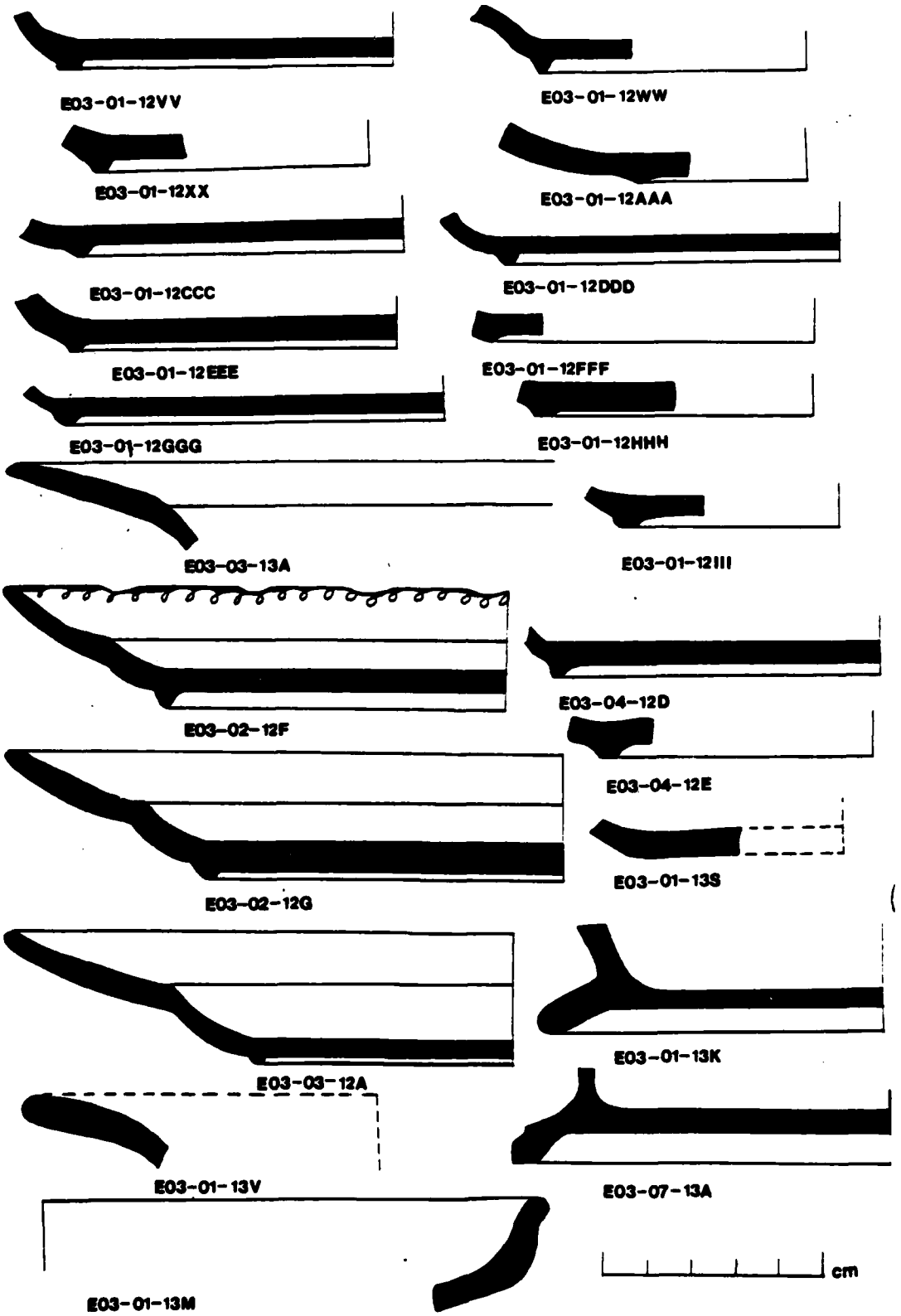
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E03-01-12WW
E03-01-12XX
E03-01-12AAA
E03-01-12CCC
E03-01-12DDD
E03-01-12EEE
E03-01-12FFF
E03-01-12GGG
E03-01-12HHH
E03-03-13A
E03-01-12III
E03-02-12F
E03-04-12D
E03-04-12E
E03-02-12G
E03-01-13S
E03-01-13K
E03-03-12A
E03-01-13V
E03-07-13A
E03-01-13M
cm

END

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