Interdisciplinary Investigations of the Boott Mills Lowell, Massachusetts

Volume III: The Boarding House System as a Way of Life

Cultural Resources Management Study No. 21

Division of Cultural Resources
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INTERDISCIPLINARY INVESTIGATIONS OF THE BOOTT MILLS LOWELL, MASSACHUSETTS

VOLUME III
THE BOARDING HOUSE SYSTEM AS A WAY OF LIFE

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PREFACE

In this, the third and final volume of reports on the investigations of the Boott Cotton Mills operation in Lowell, the focal point of our efforts is once again the mill operatives and the boardinghouses in which they lived. With the boardinghouses now gone and the examination of interior space limited to documentary research, we have endeavored to probe the proxemics of the worker's daily lives by turning our attention to the rear yards. These small but intensively used areas served the needs of mill workers and boardinghouse keepers alike. Here was a truly urban space where work and leisure activities merged to create a material record that is a select yet fitting legacy for a laboring people. Much like the prankster's jar of peanuts that explodes in the hands of the unsuspecting dupe, the boardinghouse yards have contained innumerable surprises. By employing excavation techniques geared for maximum horizontal coverage and an array of interdisciplinary analytical techniques, we hope that few of the surprises have eluded us.

I would like to take this opportunity to thank the many skilled participants who have contributed their time and talents to this investigation of mill life in Lowell. Never have I worked with such a dedicated group of researchers. I would especially like to thank Mary Beaudry and the many graduate students from Boston University who have performed such an outstanding job. To my colleague Gerald Kelso, many thanks for the hours of argument and discussion; they have been a true delight. I would also like to thank Francis P. McManamon, Dwight Pitcaithly, Myra Harrison and the entire staff of the Lowell National Historical Park for their unflagging support for the project. I hope our efforts have proved worthy of their support.

Stephen A. Mrozowski
Boston, 1989

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This report simply would not have made it out of Beaudry's computer, where it seemed determine to remain while feeding on endless revisions and editorial changes, if it had not been for the wonderful production support of David Dutton and David Landon of Boston University, assisted by Allison Dwyer and Nora Sheehan of the University of Massachusetts, Boston.

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Chapter 1

INTRODUCTION

by Mary C. Beaudry

This is the third and final volume in the series of reports on the Boston University/National Park Service cooperative, interdisciplinary study of the Boott Mills in Lowell, Massachusetts. It presents the results of documentary and archeological research and analysis as well as our interpretations of the evidence; the focus is on boardinghouse keepers and boardinghouse residents.

As our research and analysis proceeded, it became increasingly clear that the boardinghouses in Lowell were very much part of a *system* and must be approached, understood, and interpreted as such. The boardinghouse system, engendered by the policy of corporate paternalism, had a pervasive influence on the lives of all those who lived in corporate housing. It further influenced how boardinghouse keepers ran their houses, local businesses marketed their goods, and politicians developed city ordinances and municipal policy. Ultimately it affected—and accounts for—the nature of the archeological record of sites such as the Boott Mills boardinghouse backlots.

The boardinghouse system may represent a pattern for corporate housing, but it is a pattern that differs as dramatically from private boarding as it does from normal—if such a term can ever be used with accuracy—domestic arrangements (i.e., nuclear families). The Lowell boardinghouse system fostered a way of life that contrasted starkly with life in rural America, but it was a way of life that became common in industrial cities as the 19th century progressed.

That the Lowell system was effective in meeting managerial goals is evident in the fact that, with minor modifications, it was widely adopted throughout New England (see Clancey, this volume). This "system" was a bounded arena which, despite its seeming rigidity, left openings for workers to operate creatively. Workers found room for individual choice and self-expression where they could, inventing and constructing a working-class culture in contradistinction to middle-class mores and lifestyles. Oftentimes it is from the residues of daily existence—in the artifacts of everyday life and leisure—that we recover evidence of such adaptation and self-expression. Hence there are two themes throughout this volume: the boardinghouse system and its effects, direct or otherwise, on workers' lives; and workers' response to the conditions engendered by the system. Both perspectives are essential to a full comprehension of how the boardinghouse system truly became a way of life.

Theoretical Perspective

Our research for the Boott Mills project has been characterized by integrated, interdisciplinary archeology with an interpretive analytical approach. We have sought to provide a detailed, contextual examination of selected Boott Mills housing units as the basis for offering broader observations about life in urban–industrial communities. Our definition of context includes cultural/historical context as well as environmental context. This involves consideration of peoples' attitudes and beliefs in addition to their actions. It goes without saying that documentary analysis (in addition and in distinction to 'historical research') is integral to such a study, and we contend that it is in fact a vital element in all historical archeological research.

Interpretive approaches in anthropology are characterized by attention to belief systems or world views and by a concern for meaning within its cultural and historical contexts; culture is seen as meaningfully constituted, cultural facts as observations subject to multiple interpretations (cf. Geertz 1973; Leach 1982; Taylor 1979; Yentsch n.d.a, n.d.b, 1988a, 1988b, 1988c, 1989; Yentsch et al. 1987). Yentsch (n.d.a: 7) notes that in interpretive studies

> The focus is on historical moments and repetitive events that convey information about a specific culture. The emphasis is on small-scaled and detailed examinations of specific, varied expressions of cultural meaning, on a small range of human activity that tells of ordinary social action, on the day-to-day behavior that in its particularity and complex texture reveals the meaning that gave form to peoples' lives in a given time and place.

Attention to historical and cultural context allows human beings an active role in creating meaning and in shaping the world around them; they are seen to interact with their environment rather than simply react to it. Material culture is viewed as a medium of communication and

expression that can condition and at times control social action.

An interpretive approach in historical archeology seeks to examine a site from as many aspects as possible; Yentsch (n.d.a: 7) offers the analogy of an optical prism, which captures and refracts a continuous spectrum of light, permitting analysis of its constituents. Study of minute details of a site from a variety of perspectives builds both toward total, comprehensive description and toward interpretation of meaning. In this way one is able to construct a balanced and holistic picture of a site.

Our investigations of the Boott Mills has both adopted and adapted the approach outlined above. We have labeled our approach "contextual," citing Hodder's (1987a, 1987b) definition of context as cultural and historical while drawing heavily on Butzer's (1980, 1982) notion of ecological context. The first sort of context is constructed through extensive, detailed documentary research involving as broad a range of sources as possible (e.g., primary and secondary documents, oral history, surviving artifacts and buildings, etc.), the second through our interdisciplinary studies of the archeological record aimed at recovering environmental as well as more obvious sorts of archeological data. Integrating the two notions of context has led us away from ecological functionalism and has given us insight into Lowell's evolving urban landscape as both a cultural and natural phenomenon. It also has suggested how to go about interpreting it in light of the meaning it held for its inhabitants and the effects it had on their daily lives.

We contend that exploration of peoples' attitudes toward the world around them is an integral part of the recovery of meaning as well as of explanation of the archeological record. Historical archeologists have the means at hand to inject into their etic, objective studies of the past an emic, culturally sensitive perspective; interpretive analysis, with its concern for meaning and for folk classification and perception, offers a framework for textual analysis aimed at recovering folk meaning. It does so by taking an analytical and ethnographic approach to documents, an approach labeled variously "historical ethnography" (cf. Yentsch 1975; Schuyler 1988) and "documentary archaeology" (cf. Beaudry 1988).

In essence, what we seek is the "full and inclusive context" Taylor indicated should be our primary interest (Taylor 1967: 32). As Schmidt and Mrozowski note (1983: 146), "the construction of cultural context is the way in which cultural meaning may be added to archeology and to any patterns that may be deduced from archeological evidence." We have attempted in our documentary research to establish such a cultural context, believing that

> we must carefully research different historical documents and the literature of history to derive constructs that can be synthesized to build a complex cultural context for our archaeological excavation, be it a shipwreck, an Iron Age factory site in Tanzania, or a colonial privy . . . If we fail to do this, then we overlook cultural contexts that tell us most about behavior (Schmidt and Mrozowski 1983: 147).

Despite criticism by nay-sayers such as Leone (1988a) and Leone and Potter (1988a: 14–18), this sort of approach *does not* confuse the documentary record with the ethnographic record or render it equivalent to it; rather, it permits a critical, interpretive, and culturally sensitive approach to historical documents with the aim of avoiding over-objectification of its subject matter. And while some perhaps are tempted to extend to such an approach the dismissive label 'eclecticism' (e.g., Orser 1988: 314–315), it can be said in its favor that an interpretive approach, because it is receptive to differing perspectives, manages to avoid the pitfalls of the doctrinaire application of modern liberal political thought inherent in what Orser and others propose as a more "unified" (rigid?) theoretical perspective (i.e., marxism, critical theory, etc.).

Research Framework

Our expectation was that the research design developed for the Lowell Boott Mills Study would serve as the vehicle for a truly comprehensive interdisciplinary approach to historical archeology. Our aim was to go beyond the limited use of documentary sources and materials and environmental analysis common in the discipline. Our goal was to exploit as wide a range of analytical techniques as possible, including them as integral elements of the project. In our first report (Beaudry and Mrozowski 1987a: 5), we contended that the end product of a truly interdisciplinary project should not be a collection of unrelated, independently produced specialists' reports (often tacked on as undigested appendices) but rather a comprehensive report of closely related research efforts focused on common goals. We sought to develop sampling strategies best suited to the recovery of information relevant to the overall project goals, and we delineated the contributions that each analytical or research

procedure could make to these overall goals, taking into consideration the interrelationships among the different specialties.

As we went along, we learned from our mistakes and omissions, refining our sampling designs and methods of analysis. As a result, in addition to what they can offer in the way of insight into the Boott Mills of Lowell, members of the project team have developed and applied new techniques and approaches that constitute significant contributions to the archeologist's repertoire and have applicability beyond the present project.

To guide our research and analysis, we identified a series of problem orientations and research issues we hoped to explore, delineating a number of subareas falling under the general headings of residential and industrial issues. The notion was that each of these could be addressed through archeological data in combination with documentary evidence, oral histories, and material culture research. In most areas, we have been successful beyond our greatest hopes, but in certain areas we have fallen short of our expectations. What follows is a brief review of the issues we hoped to explore along with a preliminary evaluation of the relative success of our efforts.

Residential Problem Focus

The first subarea we identified within the residential problem focus was architecture. The built environment of Lowell, especially workers' housing, represented at once corporate investment in providing for and controlling the work force as well as the arenas for workers' private lives and leisure activities. To provide a basis for understanding the Boott housing from both perspectives, Gregory Clancey (1987a) investigated the architectural history of the Boott Mills boardinghouse blocks, reviewing differences between housing for operatives and supervisors and delineating changes in the housing over time. The latter aspect of the architectural history proved especially useful in developing a program of archeological investigation at the boardinghouse site.

At the outset we knew far less, however, about the internal arrangement of workers' living quarters and about the use of enclosed yard areas immediately behind the workers' housing. The archeology, as well as much of the documentary research for this project, have been aimed at shedding light on these issues.

At the outset, we also knew very little about the nature and quality of the material life and diet of mill workers. Our study of the Boott Mills boardinghouses has focused to a considerable degree on the topic of foodways. Our interest was in the entire foodways system, including types and quantities of foodstuffs, food purchase and procurement, food preparation, dining habits, and possible social and ethnic variation in dietary patterns (Landon 1987a, b). We have been able to compare workers' foodways with those of mill supervisory personnel, using deposits from the Kirk Street Agents' House (Landon 1987b; Beaudry and Mrozowski 1987b).

The analysis of material culture relates to the study of consumer behavior among workers, supervisors, and, most pointedly, boardinghouse keepers. This fact helps to underscore the effects of the policy of corporate paternalism on the lives of mill workers, because boardinghouse residents owned only their own clothing and personal effects; they were not in control of many other aspects of their everyday material lives. The environment in which they lived and worked was created and controlled by others; the boardinghouse keepers, who like the mill owners were engaged in a profit-making enterprise, exercised control over the domestic environment. Workers were not directly involved in the choice of the furnishings of their surroundings, of the food they ate, and even of the sorts of dishes, glassware, and cutlery with which they ate and from which they drank. Thus the early decades of Lowell present us with a truly corporate pattern of consumption and lifestyle. (Our rationale for viewing boardinghouses as corporate households is offered in Chapter 5.)

Matters of health and hygiene, including waste and water management facilities, have formed part of our study of the Boott boardinghouses because we feel that these reflect, perhaps far more truthfully than stated company policy, a corporate ideology that sought to control workers' lives without taking ultimate responsibility for them (e.g., Bell 1987a; Mrozowski et al. 1989). As it turns out and as will become clear throughout this report, these concerns are linked to almost every aspect of our study and perhaps form its strongest common theme.

We noted that space becomes a commodity in urban contexts, its use—as well as its creation—reflecting the evolution and growth of a city. Urban land use has increasingly occupied the attention of urban and industrial historians (e.g., Hershberg 1981: 3–35; Hohenberg and Lees 1985: 290–330; Lampard 1985: 194–249, 1983: 3–53; Davison 1983: 349–370; Warner 1962). We have considered the built environment of the Boott Mills and its housing as reflective of corporate

ideology and corporate response to changing technology and fluctuating profitability. Several aspects of our research coalesced in an analysis of the evolution of the urban, industrial landscape in Lowell (e.g., Beaudry 1987, 1989; Fisher and Kelso 1987; Mrozowski and Beaudry 1989). In this volume, we turn to a close examination of the use of boardinghouse backlots and offer interpretations of how those spaces served the needs of boardinghouse and tenement residents.

Industrial Problem Focus

Our plan to examine of the industrial complex that comprised the Boott Mill Corporation from both documentary and archeological perspectives, intended to contribute to an overall understanding of corporate attitudes toward labor, production, and technology, has not come about. This in large measure is because we could not hope to surpass Mahlstadt and George's fine work conducted during recent renovations to Boott Mill #6 (Mahlstadt and George 1988). Their report reveals that archeological evidence of changes over time in the physical layout of the millyard survive, albeit often in highly mutilated form, and can contribute to our knowledge of the changing appearance of the millyard. Alterations to the millyard landscape (revealed, e.g., by features such as curbing and evidence for earlier grade levels), in addition to architectural changes of the mills themselves, came about in direct response to technological innovations that increased production and hence profits for corporate stockholders (cf. Gross 1988; Gross and Wright 1985). It is clear that such modifications to the work environment served also to alter the relationship between workers and machines.

This relationship, and the nature of the work environment (temperature, humidity, noise, toxicity) as a whole, has been termed industrial ecology. "Changes wrought in the material environment of production" must be carefully delineated in order to provide a "comprehensive picture of the daily routines" that workers performed. Hence, an industrial ecological approach aims to "merge an account of the worker's tasks with description of a particular workplace and its equipment" (Leary 1979: 178). Although our proposed excavations in the millyard did not come about, we have remained alert to what Gareth Stedman Jones points to as the primacy of work: "the social relations within which it is carried on, in the determination of class position and in the articulation of class attitudes" (Jones 1977: 170). Jones further notes that working class leisure behavior must be studied from a vantage point that considers both work and non-work time. Industrial ecology and the ideology of industrial capitalism reached well beyond the workplace and affected the non-working hours of those who lived in mill housing; our research has brought to light many examples of just how pervasive the influences of conditions in the workplace and the policy of corporate paternalism were in workers' lives.

The Present Volume

In the 12 chapters that follow, aspects of the boardinghouse system in Lowell are examined from a variety of perspectives and at differing scales, ranging from tiny sherds and microscopic pollen grains to entire structures and to the urban environment as a whole. The corporation's point of view as well as worker response to it are considered, through documentary analysis and through detailed analysis and interpretation of boardinghouse material culture. Archeological methods and sampling techniques are discussed as well. Although much of the raw data appear in tables throughout the text, certain classes of information are merely referenced in the text and appear in full as appendices on microfiche. These are the Boott correspondence (Appendix A), the ceramic vessel count (Appendix B), the catalog of faunal remains (Appendix C), the results of soil chemistry analysis, and the artifact catalog (Appendix E).

In Chapter 2, Gregory K. Clancey broadens his earlier investigation of Boott housing by tracing the evolution of the Boott boardinghouse plan and its spread beyond the city of Lowell. Of special relevance to the present study is Clancey's discussion of the technological limitations imposed on residents of a Boott-type boardinghouse by the very nature of its floorplan, internal arrangement of space, and provisions for access and egress, cooking, heating and lighting, and so forth.

Chapter 3, by Kathleen H. Bond, offers an analysis of a series of letters drawn from a late 19th-century Boott Mills company correspondence book. Bond uses these letters, written on behalf of the company to mill operatives and boardinghouse keepers, to examine company policy and attitudes toward workers. She is able to demonstrate through these revealing documents the extent to which the corporations continued their attempts to control worker behavior away from the workplace long after the policy of corporate paternalism lost its initial vigor.

The focus shifts from company-worker relations to boardinghouse keepers in Chapter 4, by David B. Landon. Here Landon explores the link between the 19th-century concept of domestic ideology and boardinghouse keeping as suitable woman's work and discusses exactly what services keepers were expected to provide their boarders. He further investigates how the Lowell boardinghouse system provided an economic environment particularly conducive to making a profit as a boardinghouse keeper, and by delineating the constraints of this economic situation, provides the backdrop for interpreting food-related remains recovered from the boardinghouse yards.

Results of excavations in the Boott Mills boardinghouse and tenement backlots are presented in Chapter 5, by Mary C. Beaudry and Stephen A. Mrozowski. Beaudry and Mrozowski attempt to place the Lowell excavations in the context of the archeology of urban houselots in general and of boardinghouse living in particular. The notion that this is 'household archeology with a difference' is based on the authors' model of the boardinghouse as a corporate household. This model forms the basis for interpreting both the archeological remains and the artifacts recovered from the backlots.

The first category of material culture to be examined in detail is ceramics. Chapter 6, by David H. Dutton, presents the results of the analysis of the ceramic assemblage from the site as well as a descriptive catalog of makers' marks. The ceramic study points to subtle differences in ceramic purchase and use by members of corporate (boardinghouse) versus nuclear (tenement) households. Dutton is able to make such fine-grained distinctions because he applies a wide variety of analytical techniques (e.g., vessel counts, economic scaling, decorative analysis, etc.) to his material. The results serve to demonstrate anew just how sensitive ceramics can be, not only as indicators of status and class as well as of variation *within* social groups, but also as reflections of peoples' aspirations and notions of proper behavior (cf. Beaudry 1984a; Bograd 1989; Herman 1982; Stone 1988).

In Chapter 7, Kathleen H. Bond provides an interpretive analysis of the bottle glass from the Boott backlots. She is able to show that, although in large measure selection of medicinal and beverage products by workers tended to be governed by a need to economize, other factors, possibly including deliberate flauting of company rules, played a significant role in the purchase and disposal of beverage alcohol containers.

Grace H. Ziesing's analysis of personal effects from the backlot deposits, Chapter 8, provides interesting insight into items such as buttons, clothing fasteners, costume jewelry, hair combs, etc., both in terms of production technology (and hence date of production) as well as in behavioral terms. This material, perhaps moreso than any other category of artifact recovered from the site, can in part be directly attributed to women in terms of selection, use, and, presumably, discard, and Ziesing offers limited interpretations about this connection.

David B. Landon offers a comprehensive analysis of the faunal assemblage from the backlots in Chapter 9. He offers interpretations about food-related issues, such as butchery patterns and food preparation techniques, as well as about taphonomic processes affecting the assemblage—rodent activity in particular. He is able to show that while certain features of the assemblage speak to issues germane to boardinghouse foodways, in many regards they can also be seen as reflective of urban faunal deposits in general.

Chapter 10, by Lauren J. Cook, is a descriptive catalog of the tobacco-related material culture from the backlots. In Chapter 11, Cook uses this material as the springboard for a discussion of the symbolic aspects of smoking behavior and of the role it plays in the construction of working class culture.

In Chapter 12, Gerald K. Kelso, William F. Fisher, Stephen A. Mrozowski, and Karl J. Reinhard provide a series of reports on the environmental analyses performed on the site matrices: pollen, soil chemistry, macrofossil, parasitological, and phytolith analysis. These are summarized and synthesized to provide a comprehensive interpretation of formation processes, natural and cultural, and the archeological record of the site.

In the concluding chapter, Mrozowski and Beaudry summarize the results of the project and discuss the contributions the research has made to our understanding of material life in the context of the boardinghouse system.

Chapter 2

THE ORIGIN OF THE BOOTT BOARDINGHOUSE PLAN AND ITS FATE AFTER 1836

by Gregory K. Clancey

Introduction

The aim of this chapter is to locate the Boott boardinghouses within the architectural history of corporation housing in the "Waltham system" towns (cf. Candee 1981, 1985). The objective is not to present a general survey of corporation housing, but to trace the evolution of the particular configuration of the original Boott blocks. Recognizing that alternatives to the Boott configuration existed within the Waltham system, it nonetheless appears that the design of boardinghouse blocks (i.e., the grouping of units, the elevations, and the floor plans of units) was standardized by Lowell's Proprietors of Locks and Canals in the late 1820s and applied to all mill-building campaigns in Lowell throughout the late 1830s. Elements of this standardized design continued to appear in textile corporation housing in Lowell and elsewhere at least as late as the 1850s.

Origin of the Plan

The earliest corporation houses built in Lowell were 2 1/2 story duplexes erected by 1825 for the Merrimack Corporation and the Lowell Machine Shop (Figure 2–1). These were detached from one another, and each had its own ell. A Locks and Canals plan of January, 1824, shows that the same scheme of multiple duplexes was intended to service the as-yet unbuilt Hamilton and Appleton Mills. A map of the following year, however, illustrates two long boardinghouse blocks on land of the Hamilton Corporation, whose mills were then under construction. Another Locks and Canals plan, of January, 1826, projects the site of the future Lawrence, Tremont, and Suffolk mills as filled with long boardinghouse blocks.

In *Mill and Mansion,* author John Coolidge (1942: 33–39) includes a photograph of a Merrimack Corporation 2 1/2 story brick block on Dutton Street that he dates to ca. 1825. This block is illustrated on Mather's 1832 Lowell map, which also depicts two potential mates on Worthen Street (Figure 2–2). A much longer one-story brick block was also constructed on Prince Street by the Merrimack Corporation in 1827 (Candee 1985: 38; Coolidge 1942: 33–39; Figure 2–3). The Dutton Street block contained four units under a simple pitched roof. Each unit was three bays wide, and the block was arranged so that the kitchens and parlors of each pair could abut and thus be serviced by common chimney stacks. When the builders planned the rows, economy in chimney stacks rather than aesthetics determined on which side of each unit the front hall was to be located and hence where the front door would occur on the façade.

Thus by 1825, Locks and Canals had clearly rejected the duplex in favor of the block or row. This renovation was to be expected, as economy was a major corporate concern. A block was cheaper to build than duplexes, as it required only one foundation, fewer walls and chimneys, and fewer windows. It also occupied less land and presumably required less fuel in the winter because of the shared chimney stacks and party walls. The only disadvantages were perhaps aesthetic, but the corporations did have the precedent of the urban row-house. Perhaps more significantly, the brick college dormitory of the type found at Harvard, to which the perfected Lowell boardinghouse block bore a strong resemblance, provided a precedent with overtones of cloistered, academic lifestyles (Figure 2–4).

While the Merrimack's Dutton Street block was 2 1/2 stories tall, the five blocks erected by the Hamilton Corporation from ca. 1825 onward was more ambitious. A ca. 1912 photograph by George Kenngott of the now-demolished Webster Street block shows a 3 1/2 story brick building with six boardinghouse units and single tenements at either end (Kenngott 1912: fig. 24)). The dormers shown in the photograph are 20th-century additions. These blocks were probably the first in Lowell of this height and length, which would henceforth be standard. Unlike later examples, however, the Hamilton blocks had 2 1/2 stories end tenements slightly narrower in width and with different floor-to-ceiling heights than the central boardinghouse sections. The tenements also had exposed granite foundation trim, while the boardinghouses were all brick

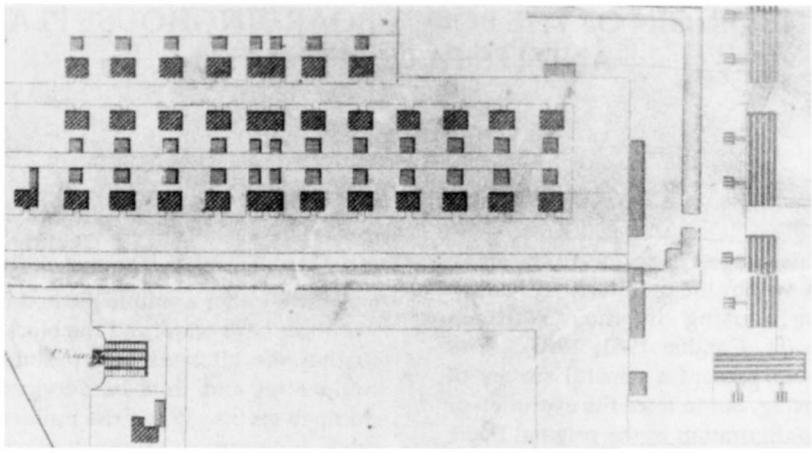


Figure 2–1. Detail of 1825 Lowell map showing duplexes belonging to the Merrimack Company. From "A Plan of the Land and Buildings belonging to the Merrimack Manufacturing Company..." made in 1825 by Geo. R. Baldwin. (Courtesy of the Lowell National Historical Park.)

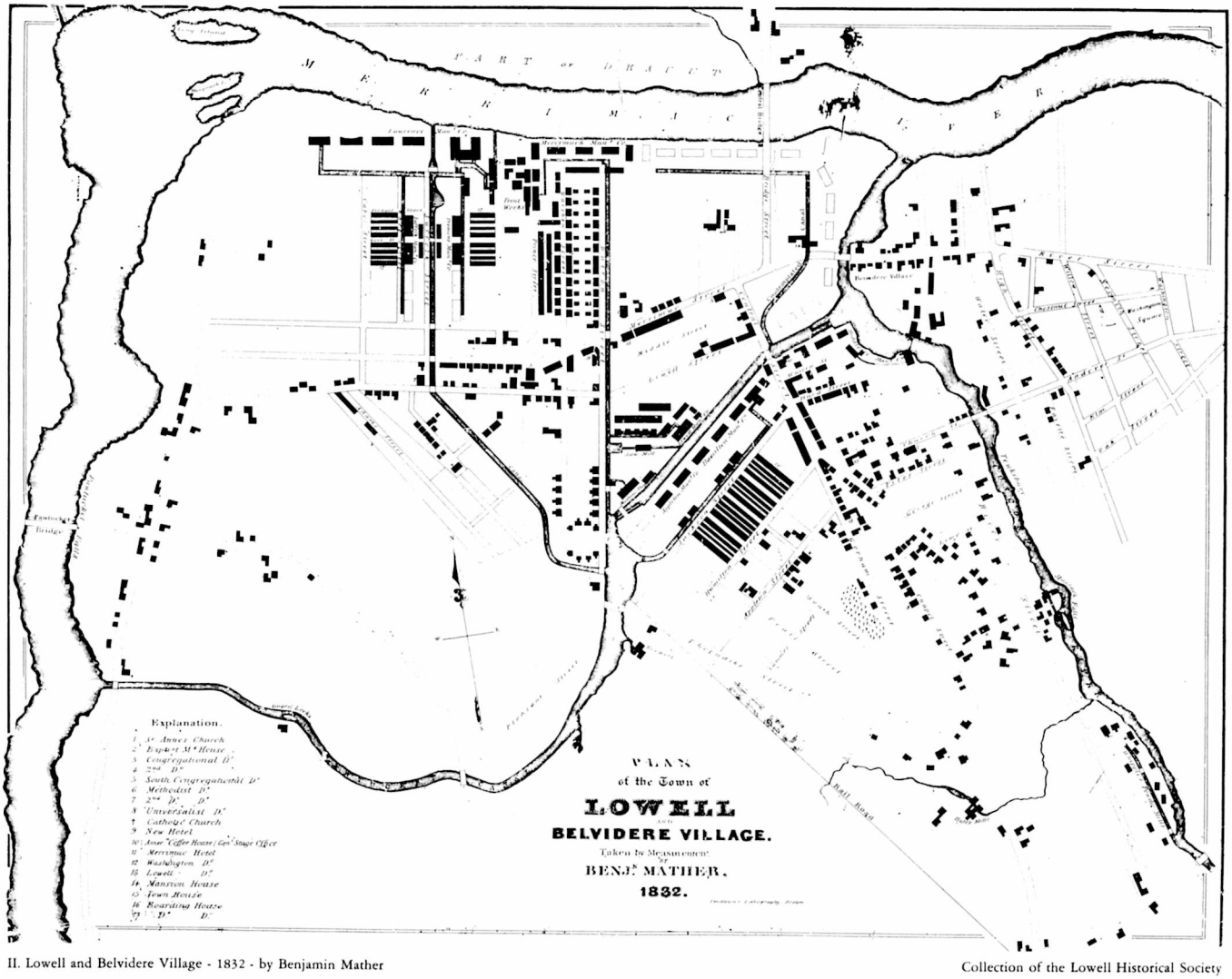
above grade. These changes in articulation reflected not only different uses but differences in worker status between the occupants of the boardinghouses and tenements.

Evolution and Adaptation

The concept of the 3 1/2 story brick block may not have originated in Lowell. Between 1824 and 1826, five 3 1/2 story brick blocks of four boardinghouses each were constructed in Great Falls, later Somersworth, New Hampshire (Candee 1985: 39). These blocks were serviced by a continuous, detached one-story shed behind their rear yards, a characteristic of Lowell and later Waltham system boardinghouses. They differed markedly from the Lowell blocks in certain elevation details, however, and based upon their fenestration pattern, some aspects of their floor plan must have differed as well. More research would be needed to determine the exact chronological relationship between these blocks and those at Lowell, or the possibility of direct influences.

The Lowell boardinghouse block only reached its mature form with the construction of the three Appleton Corporation blocks of ca. 1828. Like the Hamilton blocks, those of the Appleton each contained six 3 1/2 story boardinghouses three bays wide, whose party walls were topped by joined chimney stacks. The Appleton end tenements, however, were doubled, pushed up to 3 1/2 stories, and otherwise made to appear integral with the rest of the block. They also had a series of small dormers along the roof and full double-hung sash windows in the gable ends of the attic. The Hamilton block lacked this later feature and may have lacked the former, judging from the early 20th-century dormers that appear in the Kenngott photograph. This Appleton boardinghouse configuration, with such slight modifications as the depth of the end tenements, the number of boardinghouses to a block, and the number and placement of dormers, would henceforth serve Locks and Canals as a standard model, up to and including construction of the Boott and Massachusetts complexes to the later 1830s. Boardinghouses with the Appleton's characteristic massing and elevations will hereafter be referred to as being of the "Appleton type."

As only two sets of plans survive for Appleton-type boardinghouses, those of the Suffolk (ca. 1833) and Boott Corporations (Figures 2–5, 2–6), it is not known whether the type was further defined by a single floor plan and what relation this plan had to the earlier Hamilton and Merrimack blocks. The fact that the Suffolk and Boott plans are virtually identical, however, is strong evidence that Locks and Canals had a common plan to accompany their common elevation drawings. The only elevations of an Appleton-type set of blocks that clearly suggest modification of the Suffolk/Boott plan are those



II. Lowell and Belvidere Village - 1832 - by Benjamin Mather

Collection of the Lowell Historical Society

Figure 2–2. 1832 map of Lowell depicting brick boardinghouse blocks built by the Merrimack Corporation along Dutton Street. (Courtesy of the Lowell Historical Society.)

Figure 2–3. John Coolidge photograph of a later Merrimack Company brick housing block on the east side of Prince Street. (Courtesy of the Museum of American Textile History.)

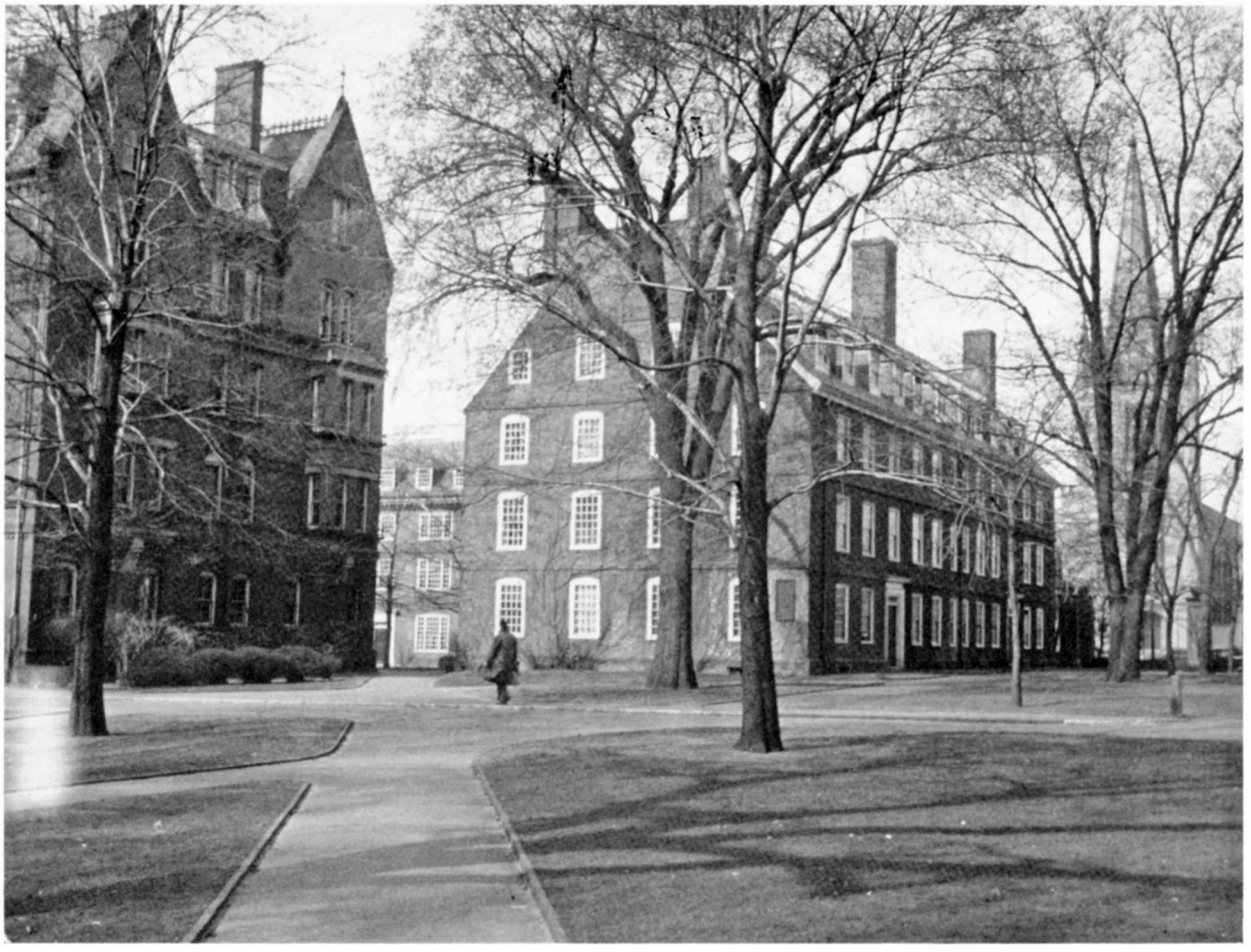


Figure 2–4. John Coolidge photograph of Harvard Yard. Mill housing was at times compared favorably to academic dormitories. (Courtesy of the Museum of American Textile History.)

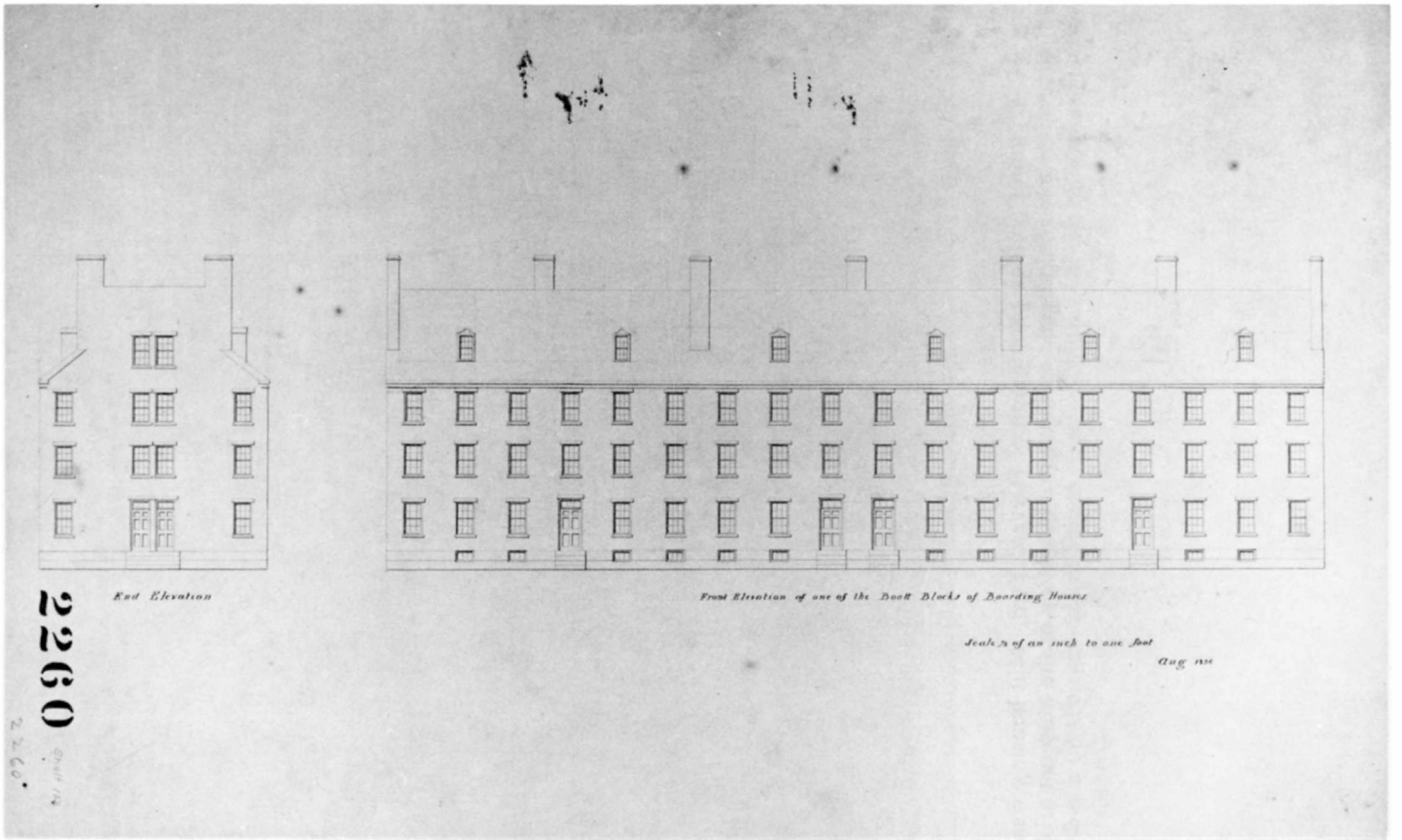


Figure 2–5. Front and end elevations of "one of the Boott blocks of Boarding Houses," 1836. (Locks and Canals Collection. Courtesy Lowell Historical Society and University of Lowell Special Collections.)

of the four Lawrence Corporation blocks of ca. 1833, whose tenements are four bays deep instead of three (Figure 2–7).

A comparison of the plans of the Suffolk and Boott blocks reveals that the only significant difference is in the location of the first-floor doorways within the boardinghouses. The Suffolk plan has both the front parlor and back room accessible only from the kitchen. The advantage of this plan, presumably, is that no first-floor traffic escapes the gaze of whoever is in the kitchen. Apparently the inconvenience of this circulation pattern outweighed the advantage, however, for the later Boott plan links each adjacent space, in the manner of a typical house plan.

An interesting feature of the Boott/Suffolk plan is the asymmetry of the end units. The unit abutting the yard on each end is clearly favored. The front hall of the yard unit opens to both the front parlor and the kitchen behind. In the street-facing unit, the visitor must enter and cross the kitchen to get to the small, ill-lit parlor. While the yard units have fireplaces in both rooms on every story, the street-facing units lack fireplaces in the parlor and parlor chambers, the only rooms in the entire block deprived of a heat source. These street-facing units are also cut off from the back yards and sheds and lack the closets of their neighbors. While certain of these disparities, such as yard access, could not easily have been avoided, the lack of a second chimney in the street-facing units is not so quickly explained. It appears that initially, at least, the less comfortable units were rented to single males rather than to families (cf. demographic data presented in Bond 1987: Appendix B).

The Suffolk plan makes it clear that ells were not intended to be built behind any of these units. A small ground plan in the corner shows a continuous 12-ft-wide shed separated from the main block by 29 1/2-ft-long yards, the breadth of each boardinghouse. The body of cartographic, plan, and photographic evidence indicates that ells were not normally part of the original plans of Lowell boardinghouses. When John Coolidge photographed the rears of the five brick blocks in Somersworth in the early 20th century, continuous sheds were clearly visible, but the blocks still lacked ells (Coolidge Photograph Collection, Museum of American Textile History, nos. 382–386). The earliest boardinghouse plans that show ells as an integral feature are probably those of the Amoskeag Corporation blocks in Manchester, New Hampshire (Figures 2–8 and 2–9), which date from 1839. The Bay State Corporation blocks of 1845–46 in Lawrence were also built with ells (Coolidge 1942: fig. 47). In Lowell, however, it is probable that most boardinghouse ells were not added until after the Civil War. The 1876 Lowell bird's-eye view shows most blocks still lacking them, although they are clearly illustrated on the 1884 drawing of the Appleton blocks and the long one-story ells of the Boott blocks, further supports the theory that the ells were later additions.

The Massachusetts Corporation Mill blocks of ca. 1839 were probably the last corporation boardinghouses in Lowell erected on the model of the Appleton blocks and likely followed the Suffolk/Boott plan. As one of the Massachusetts blocks still survives on Bridge Street, it would be worthwhile to investigate its floor plan. In elevation it is identical to the Boott blocks, except that its dormers are spaced differently. Heavy 20th-century alteration of the first floor exterior has obscured the original location of doorways. The two blocks between Bridge and George Streets and one block along Merrimack Street were the only Massachusetts blocks as long as those of the Boott. The six remaining blocks illustrated in the 1879 City Atlas, some of which may be later than 1839, each include six units, including doubled tenements at their ends (Richards 1879).

After 1840, Lock and Canals shifted from the building of Appleton-type boardinghouse blocks to the construction of blocks of overseers' tenements. Certain of these overseers' blocks shared characteristics of the earlier boardinghouses (e.g., a height of 3 1/2 stories, 3-bayed units, the kitchens and parlors of two units abutting, etc.), but there were significant differences as well. First, the overseers' blocks consisted entirely of tenements, and there was thus no need for end units. They also had higher floor-to-ceiling heights than the earlier blocks, reflecting a general architectural trend that existed until the middle of the 19th century. Their attic stories were invariably serviced by more dormers than had occurred on the boardinghouses; further, these tenements were usually built with integral brick ells of one or two stories. The "New Block" of the Merrimack Corporation on Dutton Street, constructed ca. 1850–55, and the Boott overseers' block of ca. 1850–55 are good illustrations of this type (Figure 2—10; see also Kengott 1912: fig. 23). The former was particularly unique for its great length. Nonetheless, surviving drawings of the Lawrence Corporation overseers' block of March 1845, show it to have had a slightly modified Suffolk/Boott floor plan, the only differences being the elimination of the two first-floor

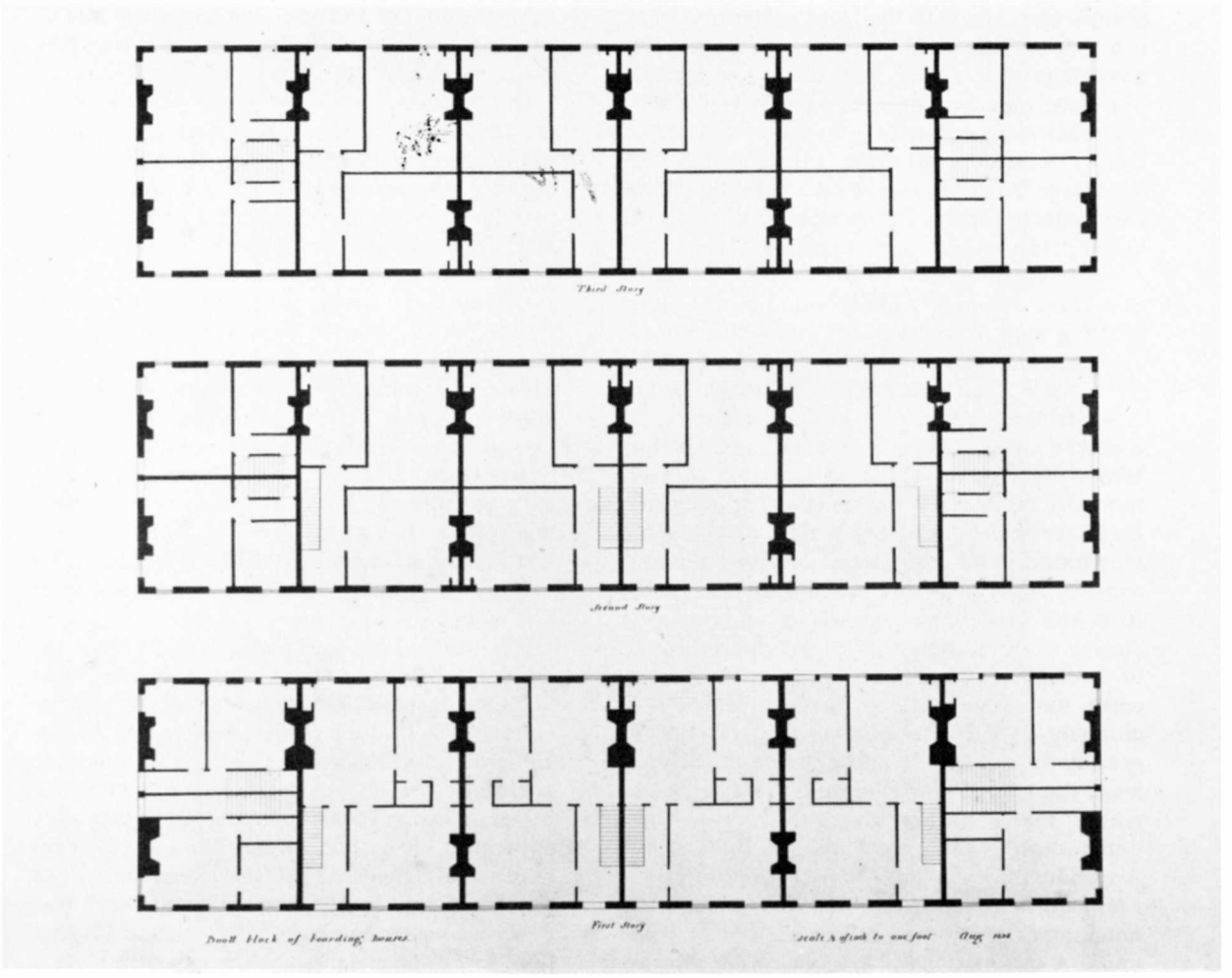


Figure 2–6. Floor plans of Boott boardinghouse, 1836. (Locks and Canals Collection. Courtesy Lowell Historical Society and University of Lowell Special Collections.)

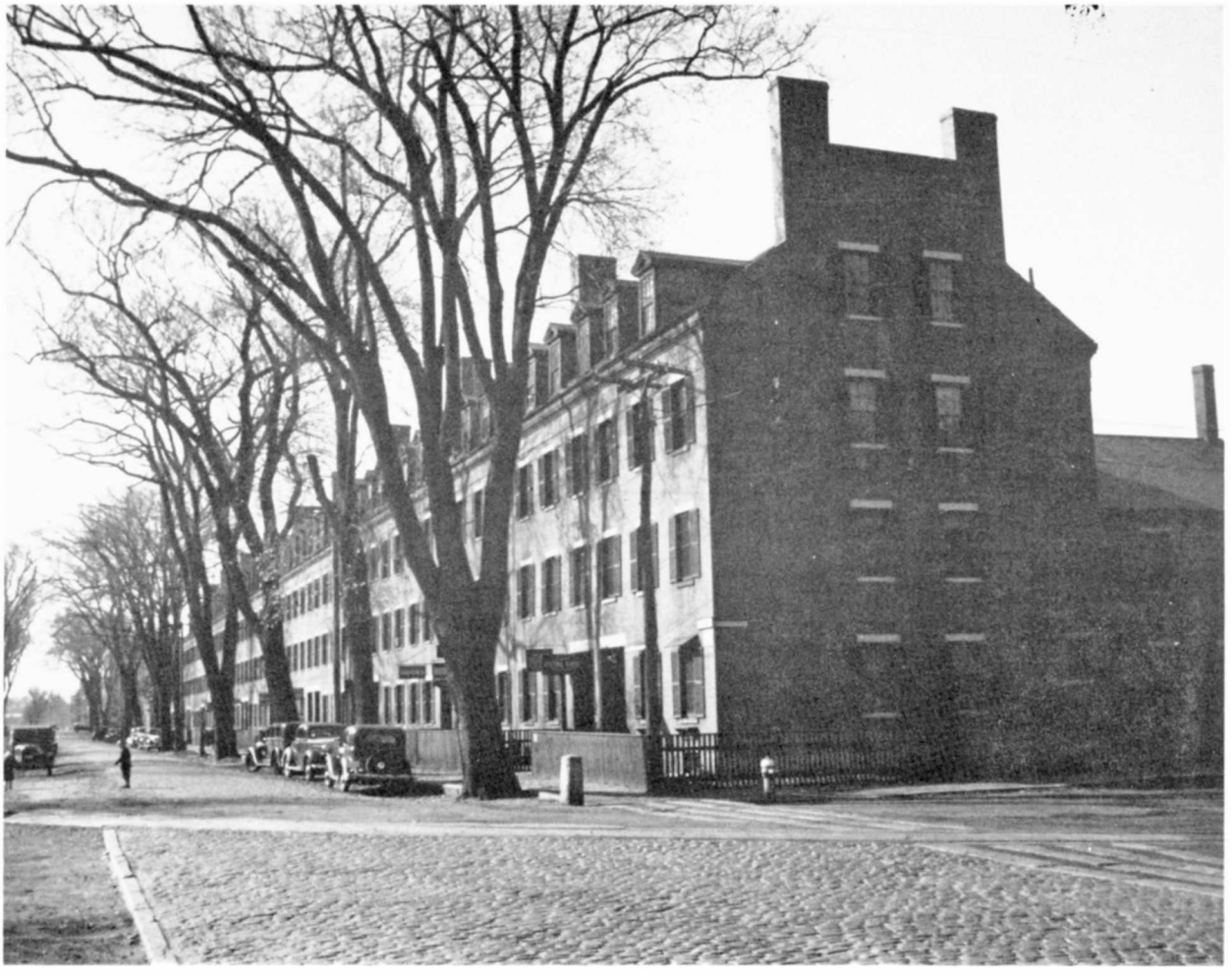


Figure 2–7. John Coolidge photograph of "New Block" of Merrimack Company housing, built ca. 1845. (Courtesy of the Museum of American Textile History.)

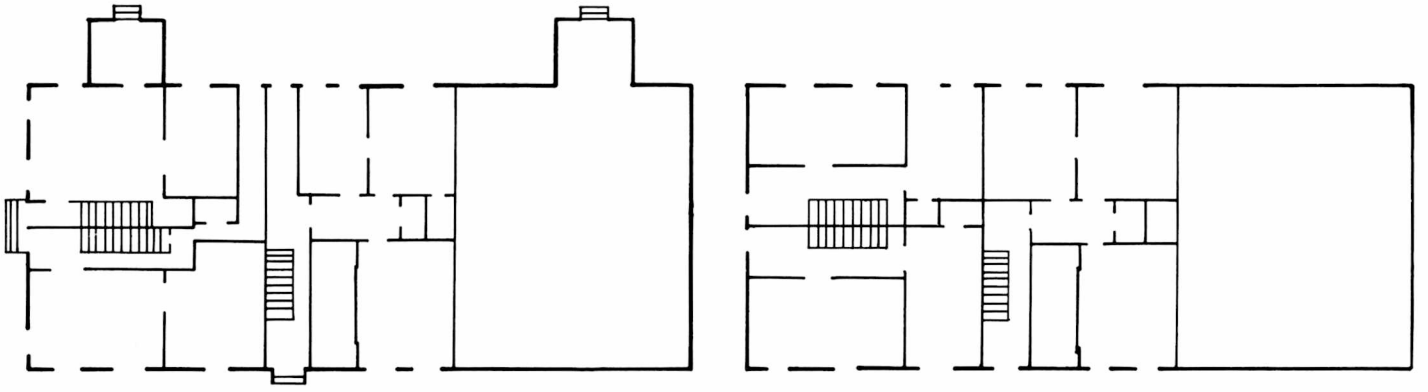


Figure 2–8. Amoskeag blocks no. 1 and 3, first and upper stories (2). Not to scale. (Copied by Gregory K. Clancey from plans at the Manchester Historical Society. Redrawn by David H. Dutton.)

Figure 2–9. Middle units, Amoskeag block nos. 2, 4, 5, 6, 10, 15, 16, 17, first and upper stories (2). The end units were identical to those shown in Figure 2–8, but the number of middle units per block varied. Not to scale. (Copied by Gregory K. Clancey from plans at the Manchester Historical Society. Redrawn by David H. Dutton.)

Figure 2–10. John Coolidge photograph of Overseer's Block, Boott Mills Corporation. (Courtesy of the Museum of American Textile History.)

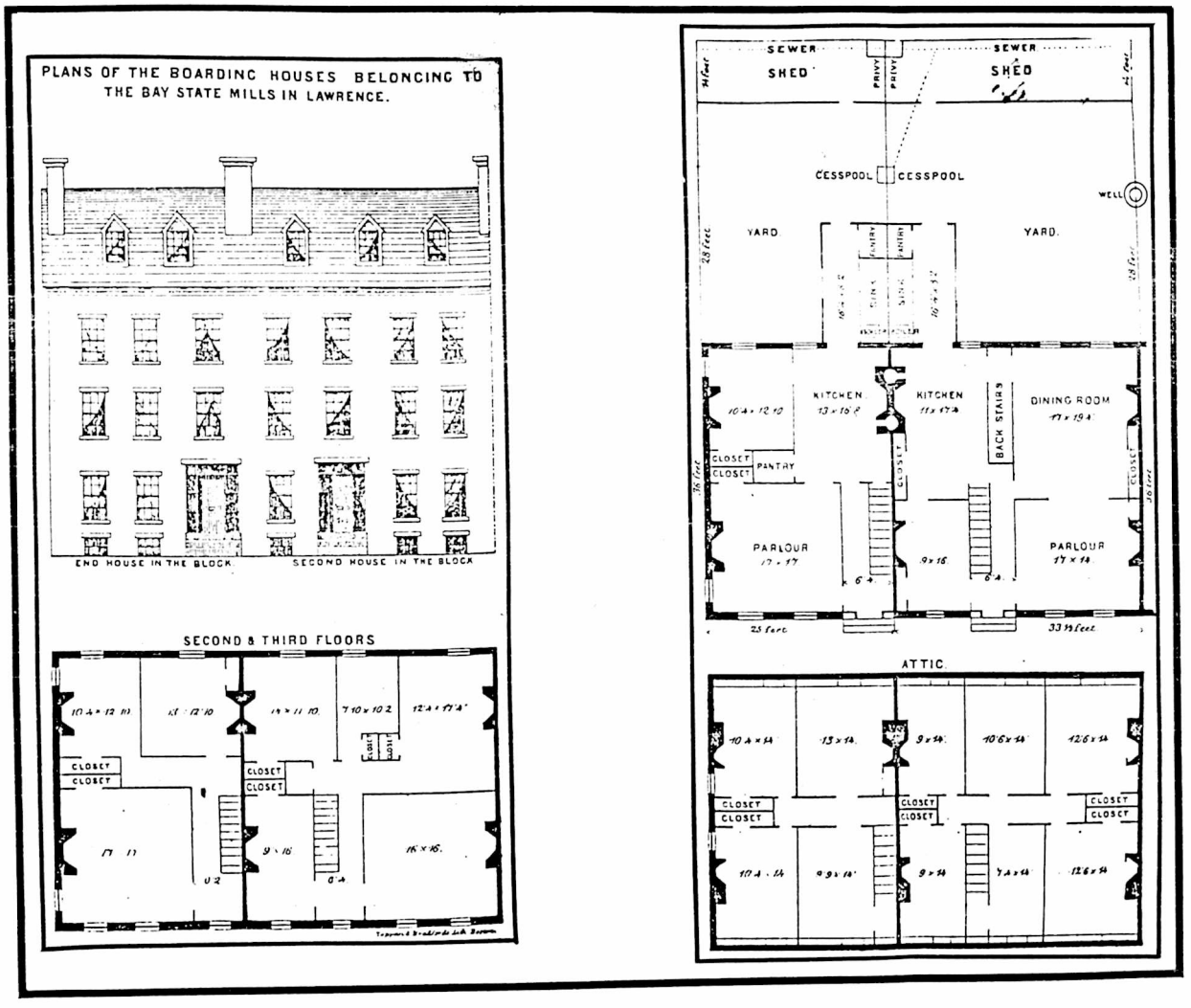


Figure 2–11. Elevation and plans of Bay State Mills boardinghouse, Lawrence, Massachusetts. (Reproduced from Shattuck 1850.)

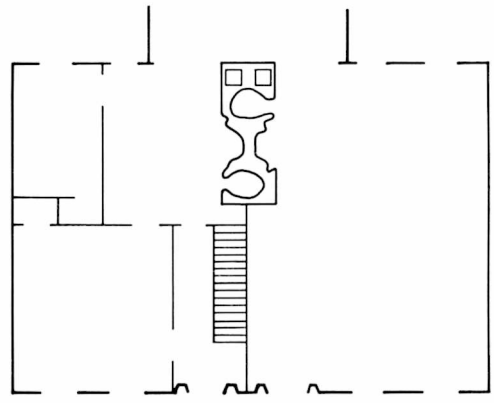


Figure 2–12. Essex Company Machine Shop blocks, Lawrence, Massachusetts, ca. 1847; first story of 2 1/2 stories. Fifty units were constructed, in rows of 61-17 units each. Not to scale. (Copied by Gregory K. Clancey from plans at the Manchester Historical Society. Redrawn by David H. Dutton.)

closets, as well as some changes in the dimensions of rooms. This block (or blocks) was not designed with ells and was only 2 1/2 stories tall, so the similarity of its floor plan to that of other overseers' blocks is open to question.

Brick boardinghouse blocks of 3 1/2 stories were also constructed in most of the other Waltham system towns. The example of Great Falls (Somersworth), New Hampshire, has already been cited. In no instance, however, was the Appleton-type boardinghouse copied in all its details. Perhaps the closest relatives of the Appleton-type blocks beyond Lowell were certain of the blocks erected by the Amoskeag Corporation in Manchester, New Hampshire, beginning in 1839 (Figures 2–5, 2–6). Amoskeag blocks no. 1–6, 10, and 15–17, the last of which were erected by 1848, all have the distinctive massing and elevations of the Appleton type. The first four blocks, however, have only one boardinghouse unit sandwiched between four end tenements, and the extreme hilliness of the Amoskeag site dictated that the units be dramatically stepped. The interiors show a great deal of modification. Blocks no. 1 and 3 (both 1839–40) reject the Suffolk/Boott plan for an entirely new arrangement. The middle unit is actually three separate apartments, one to each floor. The end tenements also have floor plans which correct some of the disadvantages inherent in the Suffolk/Boott plan. The street-facing unit now has a corridor connection to the back yard, and the yard unit, to compensate for the loss of space occasioned by this corridor, now enjoys a small ell. Both units have generous closets. Although the end tenements still preserve certain differences, their livability is more nearly equal.

In the other eight Amoskeag blocks, the Suffolk/Boott floor plan was reintroduced for the boardinghouse units, with only slight modifications on the upper stories. In all cases, however, the Suffolk/Boott plan for the end tenements was abandoned in favor of that of blocks no. 1 and 3. As Amoskeag had faithfully adopted the design of the Lowell mills and even the Lowell City Hall for Manchester, so too did it adopt the Lowell boardinghouse design, but not without correcting what it perceived to be Lowell's mistakes.

The counterpart of Locks and Canals in Lawrence, the Essex Company, was apparently less enthusiastic about copying or modifying Lowell models. Surviving plans for the Atlantic Corporation boardinghouses of 1846 (one of the first two sets of boardinghouse blocks in Lawrence, see L. A. Williamson, "Plan of the Boarding Houses Built for the Atlantic Cotton Mills in 1846, Nos. 7 & 8"), as well as two extant units of an Atlantic block which survive with their interiors intact, show that the idea of doubled end tenements was abandoned in Lawrence. The end units of the Atlantic blocks, facing the street like the intermediate units, copy the Suffolk/Boott boardinghouse floor plan, except that they include kitchen ells. These end units probably functioned as tenements rather than as boardinghouses. The middle units of the row, however, present an entirely different floor plan, four bays wide instead of three, and are far more spacious than those of the end units. The blocks of Lawrence's other original corporation, the Bay

State (1846–47), appear to follow an identical scheme, according to a contemporary plan of one such block (Figure 2–11). These Lawrence blocks also abandoned the "dutch" or joined chimneys so characteristic of Lowell.

The 2 1/2-story brick tenement rows that the Essex Company erected for the Lawrence Machine Shop in ca. 1847, perhaps taking their cue from the 2 1/2 story blocks Locks and Canals had just erected for the Lawrence Corporation overseers in Lowell, preserve the Suffolk/Boott floor plan (Figure 2–12). The same floor plan was again used for fourteen units of "First Class Machine Shop Blocks" for the Lawrence Machine Shop, which were erected sometime in the 1850s and sold at auction in 1859 when the machine shop failed. In this late manifestation of the plan, the kitchen has been pushed entirely into an ell, and what was the kitchen has become the dining room, a change that occurs with almost no alteration to the plan's features (Plans No. 45–46: "First Class Machine Shop Blocks" in Folder W12, No. 1, Everett Mills, Essex Company Collection, Museum of American Textile History).

Summary

Although plans for contemporary blocks in the other Waltham-system towns have yet to be discovered, it appears from ancillary evidence that the standard boardinghouse configuration of Lowell, represented by the Boott elevations and floor plan, was carried only as far as Amoskeag in Manchester, and even there met with significant modification. The planning of corporation housing underwent constant development after 1840 both in and outside of Lowell, as represented by the Locks and Canals overseers' blocks, the Essex Company boardinghouses, and even later boardinghouses designed by the Essex Company for Lewiston, Maine (Plan No. 41, Essex Company Collection, Museum of American Textile History). The Boott boardinghouse floor plan continued to provide some service to corporation planners at least into the 1850s.

Chapter 3

"THAT WE MAY PURIFY OUR CORPORATION BY DISCHARGING THE OFFENDERS": THE DOCUMENTARY RECORD OF SOCIAL CONTROL AT THE BOOTT MILLS

by Kathleen H. Bond

Introduction

From the very beginning of industrial Lowell in the 1820s and continuing into the 20th century, the Lowell mill owners took myriad steps to regulate workers' lives. In turn, workers struggled to maintain control of their own lives. Conflicts between the interests of workers and those of management revolved around social, political, and, most pointedly, economic issues. The underlying tensions existed not only at the Boott Mills and the other mills in Lowell, but throughout the factory system as a whole (Gutman 1975; Harvey 1976; Gross and Wright 1985; Johnson 1978).

A series of letters written by Boott management to boardinghouse residents and other documentary data provide evidence of Boott management's attempts at social control and help to outline the response by workers to that attempt at control. Used alone, neither documentary nor archeological evidence is adequate to illumine fully the relationship between workers and management. But woven together, the strands, of which social control is one thread, help to create a dense and complex weave that present a clearer picture of life in the boardinghouse as experienced by the workers.

The primary focus of this research is the mill's attempt at social control during the post–Civil War era, when a large number of immigrant workers labored in the mills. A concentration on the post–bellum years is in no way intended to slight the importance of the earlier "mill girl" era at the Lowell mills; the decision to focus on the "immigrant" era of the Boott's history, however, was made for three reasons. One, a portion of the documentary evidence that dates to the end of the 19th century—the letters in the Boott Mills correspondence book (see below)—is texturally very rich; the letters deserve to be examined in detail. Two, much of the artifactual material from the Boott boardinghouse backlots dates after 1880. Three, some of the Boott Mills letters in the correspondence book were written to keepers and/or residents who lived in the units that were investigated archeologically. Such a direct connection between the archeology and the documentary data permits a close comparison between the beliefs inherent in the documents with the behavior suggested by the artifacts.

The Boott Mills' correspondence book is a series of letters written by James G. Marshall, paymaster for the Boott Mills between 1872 and 1906 (see Appendix A). The letters were written on order of his superior, mill agent Alexander J. Cumnock. Marshall not only signed his own name but also included the phrase "per order agent" at the bottom of the majority of letters. The correspondence book in which the letters are contained (in the University of Lowell Special Collections) spans a relatively brief period (1888–1891), so it is highly probable that the book is one in a series compiled over the years. Most of the letters in the more than 900 pages concern the sale and transport of cotton, but 60 of them were written to Boott boardinghouse keepers, overseers, and mill workers.

Although there are other general 19th-century descriptions of boardinghouse life in Lowell, the Boott letters are unique documents. They provide a rare documentary glimpse into the daily lives of the Boott workers of 1890 (at least as perceived by agent Cumnock). While archeological investigations provide tangible evidence of day-to-day behavior—more often than not in the form of detritus or the seemingly mundane—the documentary record rarely yields similar data, particularly for working-class individuals. The letters describe repairs to the units, as well as water and sanitation systems in use in the housing, details that are invaluable aids to the archeological interpretation. Cumnock accused workers of damaging mill property or of alcohol use in the boardinghouses. These behaviors, too, have material correlates in the archeological record.

Equally as important, through the letters one can begin to examine the conflict that existed between the interests of mill owners and those of mill workers. First, the letters help to illumine the methods used by the mill workers to increase the degree of decision making in their lives. Second, they bring into focus the ways in which management responded to and in fact played a role in shaping mill workers' behavior.

For the purposes of study, the correspondence is divided into four categories: dismissals and complaints; conversion of boardinghouses and availability of housing; repairs to units and cost of utilities; and a "catch-all" section with letters that concern debts, wages, illness, and death of employees (see Appendix A). These categories are not mutually exclusive, as a number of the letters address more than one issue.

The letters, particularly the "complaints," and other documents—e.g., 19th-century accounts of life in the mills, newspaper articles, *Lowell City Directory* data—are used below to explore two types of social control implemented by mill management. First, management's attempts at direct control of the workforce is discussed. The system of paternalism during the "mill girl" era is outlined briefly, and the form of direct control used during the latter part of the century is examined in more detail. Second, Boott management's use of indirect methods to control workers' lives is examined. These methods include the mills' involvement in the temperance movement in Lowell and its influence on city policy regarding the sale and consumption of alcohol.

Direct Control of the Workforce

Company Policy and New England-Born Workers

From the 1820s onward, mill regulations played a pivotal role in the plan of the Boston Associates (the wealthy shareholders of all the Lowell mills) for the development of the textile industry in Lowell. The "lords of the loom" (Cowley 1868: 90) initiated a formal, paternalistic system of control. Although paternalism "can become a spongy term, calling forth only imagery of a fuzzy, vaguely friendly form of domination" (Scranton 1984: 234), both its purpose and quality were quite different. Paternalism was at once an efficient means of facilitating both for worker and employer a cultural transition from pre-industrial, artisanal production to the world of the mill and a method to manipulate workers' behavior in the interest of profit.

Out of necessity, the Boston Associates provided for the physical needs of their employees and proffered at least the trappings for meeting their spiritual and emotional needs. The mill owners provided company-run boardinghouses, a church, and educational opportunities. In doing so, the industrialists tapped into what was for their purposes an ideal workforce: young, New England-born women. The "mill girls" were an unskilled, short-term labor pool that could easily be replenished.

To counteract the public's fear that Lowell would become a gloomy slum, inhabited by degraded individuals—the contemporary image of English industrial centers—the industrialists assured the public that both the workers' physical and moral well-being would be carefully tended. The Boston Associates frequently took the opportunity to publicize (e.g., Massachusetts House of Representatives Docket #50 1845; Miles 1846) that the workers' behavior would be diligently supervised by mill room overseers—men whose conduct the mill owners guaranteed was above reproach—and by strict yet motherly boardinghouse keepers.

The system closely regulated workers' waking hours, both at work and during their time away from the looms. Included in the list of regulations were rules that required workers to attend Sunday worship and to refrain from alcohol use, and "immoral and indolent persons" who disobeyed were subject to immediate dismissal (Austin n.d.; Lawrence 1846). Moreover, unless special permission was given, all workers were to live only in the boardinghouses of the company by which they were employed, and the units locked at ten o'clock each night.

The long, parallel, rows of corporate housing in themselves were designed to assuage the public's initial distrust. As Coolidge points out (1942: 34, 48), the buildings' façades followed the dictates of rural tradition and academic propriety. The design of Lowell's mill housing of the 1820s resembled contemporary rural architecture, and the boardinghouses of the 1830s bore a striking resemblance to 18th-century buildings, such as Harvard University's Massachusetts Hall (cf. Figure 2–4). Further, the mill yards were landscaped in an attempt to soften the harshness of the industrial environment (Beaudry 1989: 19–20; Beaudry and Mrozowski 1988: 18).

The image of a façade seems an appropriate metaphor when applied to the system of paternalism as initiated by the Boston Associates. The façades were key to conveying an image of order and propriety, but it is questionable whether the same degree of concern extended to areas out of the public eye. In workers' letters to home, descriptions of boardinghouse life (Dublin 1981) were general in nature. The reticence suggests that, while "nothing to write home about," the housing was either adequate, or, these particular women had resigned themselves to the conditions. At least two accounts asserted life in the housing was less

than ideal—although these were written at a time of labor unrest in the mills, and the authors were not disinterested observers. Strikes occurred over wages and conditions in the mills, however, so there is probably truth to their assertions. In 1845, one factory worker wrote (Female Labor Reform Association 1845: 6) that they were required to sleep in "small comfortless, half ventilated" rooms and the price of board would not "ensure to her the common comforts of life." Another critic of conditions in the mills maintained that not only were the houses overcrowded, but they had inadequate sanitation and were overrun with vermin (Huntington 1843, cited in Coburn 1920: 259).

While it is simplistic to suggest that the mill owners were motivated only by a desire for profits—a complex set of of economic, social, and political factors figured in the plan of the Lowell mill owners (Dalzell 1987)—neither was the façade buttressed by an unselfish sense of responsibility to meet workers' needs, let alone desires. The owners wished to serve their own interests, and they desired to control workers' lives without taking concomitant responsibility for these same lives. To do so, management wove around the workers "a complex social matrix so thorough that it left no significant decision, day or night, to the workers" (Gross and Wright 1985: 14).

Company Policy and Immigrant Workers

Beginning after 1840, the New England-born mill women, protesting wage cuts and hours of labor, began to leave the Lowell mills, to be replaced by Irish immigrant workers; French Canadians arrived after the Civil War, and Eastern European workers after 1900. Not surprisingly, management's control of the workforce continued, still hidden behind the façade. "Strong and independent labor continued to be seen as the enemy and a low-skilled, transient, divided workforce the defense" (Gross and Wright 1985: 21).

The quality of the control changed, however. The desire to convey to the public that an orderly, morally correct environment prevailed, but, with the arrival of the immigrants and increased economic pressures of textile production, the formal structure of the mill owners' paternalism faded. Any attempt at "moral sheltering was dropped for the benefit of increased output" (Scranton 1984: 245).

The Massachusetts Bureau of Statistics of Labor (MBSL) included in its 1882 report the regulations for the corporations' tenements and boardinghouses in Lowell (see Clancey, this volume, for a discussion of the distinction between tenements and boardinghouses). The MBSL list is somewhat suspect because it is generic; it may be a compilation of many different sources. But the 1876 Massachusetts Mill Regulations (cited in Kenngott 1912: 24) and the 1886 *Boston Globe* interview cite similar boardinghouse regulations.

The regulations for lease of the tenements were as follows.

> Rent at a fixed sum to be paid monthly, and, in addition, the taxes assessed on the tenement to be paid monthly sums to the lessor.
>
> Tenant to keep the tenement in good order and repair except ordinary wear and tear.
>
> Tenement not to be sub-let without lessors' consent.
>
> Tenements to be carefully used, subject to rules made by the agent for their orderly management, among which are: no rubbish to be put in privy vaults; no hens or swine to be kept; snow and ice to be at once removed from sidewalks; no locks to be put on or changes made in tenements without permission; no boarders to be kept except in specially designated boarding houses.
>
> Agents of lessor may enter the premises to make repairs or to see that conditions of lease are observed, and lessors retain full control over all streets and ways on their land leading to tenements.
>
> Either party must give the other at least ten days notice of intention to terminate lease, *except* that lessee may at once be expelled if he shall make any strip or waste. After ten days notice, may be expelled, and, if allowed to remain while lessor seeks to recover possession by legal process, shall remain as a tenant by sufferance, expressly waiving any such right after the expiration of said ten days.

The MBSL asserted that the next seven regulations pertained to the boardinghouses.

> The following are not permitted without special permission: underletting tenements; boarding parties not in the employ of the company; boarding males and females in the same house.
>
> Tenants are not to permit their boarders to have company at unseasonable hours. Doors must be closed at ten o'clock each evening, and no person admitted after that time without some reasonable excuse.
>
> Buildings and yards must be kept clean and in good order, and, if ignored, otherwise than from ordinary use, will be repaired at the expense of the occupant. Sidewalks must be kept free from snow and ice.
>
> The several companies have at great expense provided a hospital for the benefit of those connected with the mills.... Boarding house keepers

> are therefore required to report at the Company's office all cases of sickness among the boarders...
>
> The prices to be paid for board at the present are as follows: Females per week, $1.85; Males, $2.90. By board is meant, providing meals, doing the usual washing, and furnishing lodging, and care of rooms. Boarders are not required to perform chamber-work.
>
> The furnishing of meals to persons employed by the company is in some cases allowed; but this practice must in no case be permitted to interfere with...good treatment of the operatives.
>
> When required, boarding house keepers must give an account of number, names, and employment of their boarders, of their general conduct, and whether they habitually attend church or not.

As written, many of the housing rules of the 1880s were quite similar (while, perhaps, more detailed) than those of the 1840s. In a step that reflected the abandonment of moral sheltering, however, three prominent rules were dropped from the written regulations or not enforced.

Despite the assertion in the MBSL that management wished to know whether workers "habitually" attended church, Dublin (1979: 277) notes that it "seems to have been enforced only in the breach." In an 1886 *Boston Globe* interview, a mill agent asserted that he considered it "an important duty to attend religious worship, and we let it [the regulation] have what weight it may as friendly advice." No doubt this attitude reflected in part the distrust and fear of Catholicism that had greeted immigrant workers and their "unAmerican," non-Protestant cultures.

The solid rows of brick boardinghouse must have remained as highly visible reminders of the "beneficent" policies of the mills, but, after the immigrants began to stream into Lowell, the regulation that all employees live in company housing was rescinded. Funds were diverted from housing costs and poured into mill expansion; as the century progressed, the value of the mill housing in Lowell continually declined (Dublin 1979: 76).[1] In addition, while many foreign-born workers preferred to live in the ethnic enclaves in Lowell, at least initially, immigrants were discriminated against and denied access to the mills' boardinghouses (Dublin 1979: 155).

Notable in its absence from the regulations was the proscription against alcohol use; the implications of the omission are discussed further below.

Following the Civil War, mill agents' power increased (the agent was responsible for the day-to-day operation of the mill). In 1864, William Southworth, agent of the Lawrence Manufacturing Company, stated that his job required

> a knowledge of my subordinates & their doings—full acquaintance with the condition of things in and about the mill & yard—the holding of all employed to the faithful performance of their duties & constance care of the company's property (quoted in Lubar 1983: 84).

Some years later, Southworth also maintained that those workers who lived in company housing felt "they were under a certain espionage which was irksome" (n.d., quoted in Center For History Now 1983: 26). The Boott letters attest to the mill agent's knowledge of his subordinates' "doings."

In the following discussion, quotations from the Boott letters are used for illustration. Full transcriptions appear in Appendix A; unless otherwise noted, emphasis, indicated here by italics, appears in the original document. Each letter was assigned a number as it was transcribed (letters appear in the letterbooks in chronological order—they are dated but not numbered); these arbitrary numbers are cited herein to provide the reader with a handy cross-reference to the transcriptions in Appendix A.

Dismissals and Complaints

Mr. Marshall, per agent Cumnock's orders, wrote 33 letters to keepers, overseers, and mill workers in which he complained of an individual's behavior or actually fired workers for having disobeyed a rule or for having acted in an unacceptable manner: 9 letters concerned boarding by keepers of non-Boott employees; 16 letters reprimanded individuals for alcohol use; 5 for other forms of "immoral" behavior; and 3 for damage to company housing.

Boarding of Non-Boott Employees

Although there is evidence that some keepers were financially successful in the business of running a boardinghouse (see Chapter 5 and Bond 1988), others failed. In 1889, Marshall inquired of the Lowell law firm of Marshall & Hamblet (letter 2)[2]

[1] The Boott expended over $121,000 for construction of 8 rows of housing between 1835 and 1838. By 1898, 9 rows of Boott housing were valued at just over $87,000 (Proprietors of Locks and Canals, cited in Center for History Now 1983: 128–129).

[2] Despite the same surname, no familial link could be found between the attorney and the paymaster.

> If personal property (household goods) are attached for one of our boarding houses, can the party proceed and sell the goods by auction from the said house, against our wish or consent—In other words, can *he make an auction room of our boarding house without our consent.*
>
> The facts in the case are these. One of our boarding house keepers has had her household goods attached for debt by a grocer. Now can the grocer use our building for the purpose of disposing of the goods by auction?

As many workers moved away from the mills into private tenements, the mills expended less money on housing, and, as the archeological and documentary evidence attest, housing conditions deteriorated, keepers took measures to turn a profit, or even to stay solvent. One practice was to take in "mealers"—workers who ate in the boardinghouse but lodged elsewhere. Also, on occasion, a keeper was permitted to run two units at one time (*Boston Globe* 1886: n.p.; Southworth, cited in Kenngott 1912: 46). This was the case with two of the units explored archeologically; at least for a few years in the late 1880s and 1890s, Boott #44 and #45 were run by one keeper, Enoch Hutchins.

Sometimes keepers' actions were contrary to corporation policy. Boarding non-company employees was one "illegal" action. Not only would this have increased the number of boarders in a house but, perhaps, allowed them to charge non-mill employees a higher rate for room and board than was set by the mills.

Keepers Lizzie Kittredge and O. D. Starkey were two of the keepers who received reprimands (letters 6 and 7)). Marshall wrote to Kittredge, "It is reported that Sarah Stuart is boarding and rooming at your house and is employed by Prescott corporation. And that Sarah has been with you for the past six months." He stated emphatically, "Mr. Cumnock directs me to say that any further violation of these rules will cause you to forfeit your tenement *as our tenements are for our own employees....*" To Starkey, Marshall pointed out that he had "called your attention to matter of underletting rooms without authority before."

The phrase "it is reported," which the paymaster included not only in Kittredge's letter but in many others as well, suggests that employees of the Boott were in fact "under a certain espionage" (Southworth n.d., quoted in Center for History Now 1983: 126), and that management did indeed rely on a network of individuals to provide information about employees' behavior. Stuart may have boarded illegally for six months, however, and keeper Starkey had been warned before. Management either could not catch all the offenders or was inconsistent in enforcement of the rule.

Whichever was the case, management consistently dealt less harshly with boardinghouse keepers than mill workers. As the century progressed, the boardinghouses became harder to fill and more expensive to run; the Boott's leniency may reflect the lack of potential replacements for the jobs. In addition, it may reflect a prejudice against foreign-born individuals. Four keepers—Hutchins, Kittredge, Williams, and Scott—received multiple letters that reprimanded them for rule violations. Yet none were dismissed. Mr Chambagne, a French Canadian, received only one letter in which he was accused of "keeping a noisy and disorderly house" (letter 25), and in the letter he was fired.

"Immoral" Behavior and Property Damage

Marshall wrote 24 letters in which he complained of "inappropriate" behavior by Boott employees. The paymaster ordered Frank Leonard and Edward Hazard dismissed from company boardinghouses (letters 14 and 33) Hazard had "used language in the street in front of your [Mrs. Kittredge's] premises unbecoming a gentlemen." Leonard, who had recently left the Boott, had been seen loafing on street corners. In addition, Marshall reprimanded keeper A. M. Williams because his boarders had "been throwing filth and debris on top of the sheds" (letter 13). And in September of 1889, the paymaster wrote to Alfred Gardner (letter 9)

> Complaint is made that your family throws swill, tea grounds etc. into the cesspool in your back yard and the same has clogged the drain and will have to be cleaned out which Mr. Crawford will attend to, but *you must stop throwing such stuff into the drain and not have it* [illegible] *again, and use our swill bucket for such things.*
>
> Also you had a dead cat in your ash barrel last Friday which had lain so long that it was maggatey. You must be more cleanly, and not have so much litter about your premises, as it will breed disease and *can't be allowed.*

There are no photographs of the debris and disarray to which Agent Cumnock objected, but the scene of the rear of a Homestead, Pennsylvania, millworker's home, with its pile of liquor bottles, washing hung out to dry, and overturned chair by the stoop (Figure 3–1), is evocative of what Cumnock described. Moreover, the image of waste being tossed into the backyards is borne out in the archeological evidence. The boardinghouse yard was littered with sheet refuse.

Figure 3-1. A man washing up outside the rear door of a Homestead, Pennsylvania, boardinghouse. Note bottles and other refuse accumulated on the ground against the building. (Lewis Hine photograph reproduced from Byington 1910.)

The litter outside the Homestead house appears to be mostly liquor bottles. Of the 24 Boott letters, 16 complained of employees' alcohol use. If the number of letters is any indication, workers' inebriation was considered the most serious offense. That drunkenness was dealt with harshly—every mill worker so accused was dismissed—is not surprising.

Drunken employees would have slowed production and therefore profits; but the mills' policy toward alcohol was also in keeping with the middle-class morality of the day. The emergence of the factory system played a major role in the transformation of alcohol from a beverage that most colonists had considered "in itself a good creature of God" (Mather, quoted in Tyrrell 1979: 16) to the great scapegoat of the 19th century. Demon rum was blamed for crime, insanity, poverty, and economic uncertainty—in essence, it was made responsible for most of society's ills (Johnson 1978: 55; Levine 1979: 34). The logic was that self-control, an all-important concept to the industrial work ethic, rested inside each person. Thus when individuals acted in an unacceptable manner, there must have been something that affected the inner control and causedbad behavior. It was easy and logical to point the finger at liquor. It became perceived as a liquid that was inherently addictive, loosened moral constraint, freed the destructive impulses, and weakened, if not destroyed, self-control (Levine 1979: 34, 37).

Once immigrant workers arrived with their own pre-industrial customs associated with alcohol use, attitudes toward liquor fueled the prejudice these newcomers experienced (Stivers 1976; Tyrrell 1979). Immigrants' poverty was blamed on their drinking. Moreover, many Americans believed there was something innate in the Irish and other immigrant groups that caused them to drink.

Of the 16 letters that complained of workers' drinking, 12 were written to individuals with Irish surnames. That evidence in itself is not proof of prejudice against the immigrant workforce—they may in fact have been drinking. But it is suggestive of it, as foreign-born workers were discriminated against in other ways, such as in wages and housing (Dublin 1979: 149–164).

Annie Driscoll was one of the Irish so accused. In 1889 Marshall complained to keeper George Kittredge (letter 10)

> We are informed that Annie Driscoll who has been working for Mr. Dearborn—has been drunk at your house all this week—You probably know that this is contrary to your order from agt. and that *all cases of drunkenness must be reported to the counting room.* You will *at once* dismiss Driscoll from your house and *look out for any further violation of the rules.*

Two years later, an overseer, Mr. Houston, received the following letter (letter 21) about the behavior of one of his mill hands who lived in keeper Enoch Hutchins' house.

> Mr. Hutchins reports that last night *David O'Hara* was drunk in his house and making disturbance and brought bottles of liquor into the house. You will please discharge him and not again employ him.

Marshall sent a total of 9 letters that either reprimanded Enoch Hutchins, or notified overseers to dismiss one of Hutchins' boarders because of alcohol use. The artifactual evidence recovered from the backlot of Boott #44 and #45 indicates there was truth to Marshall's suspicions. In October of 1890, Enoch Hutchins received the following letter about one of his boarders, Annie Pierce (letter 17). An earlier correspondence (letter 15) indicates that Marshall understood that Pierce, also known as McGinness, had worked in overseer Lawley's mill room until she left the Boott and began to work at the Merrimack Mills; she then returned to the Boott and overseer Rice rehired her. Marshall stated

> I have looked into the case of Annie Pierce, alias McGinness and Mr. Lawley says she left him Labor Day claiming to be sick but that she went off riding with a fellow and another girl, and that he saw them drunk and disorderly on the streets, and he has seen her on several occasions. Her father says that she did not leave your home [illegible] to work and board on Merrimack Corporation, as she claims, but has continued boarding with you all the time, and when she went to work for Rice, she changed her name from McGinness to Pierce and that you changed it same on your books. From reports, she is a bad girl, and not entitled to remain on our corporation, and Mr. Rice will dismiss her as he can fill her place, and you must also discharge her from your house—I will say that our books show that she left Lawley Sept. 1st and commenced work for Rice Sept. 17th—2 and two seventh weeks afterwards. Report also comes that you have a great deal of drunkenness in your house and don't report it in counting room. You must be careful to run your house a little more strict and not allow any drunkenness in it, nor any profanity or disturbance and report at our office *all cases of this kind which may arise that we may purify our corporation by discharging the offenders.*

Ironically, none of the published accounts of post–Civil War mill regulations included an explicit ban on alcohol use (*Boston Globe* 1886: n.p.; 1876 Massachusetts Cotton Mills Regulations, cited in Kenngott 1912: 24; Massachusetts Bureau of Statistics of Labor 1882). Yet, as the letters attest, proscription of liquor was still in effect at the Boott. The disparity between the published regulations and the letters suggests two facets to management's

attitude toward liquor. First, it is likely that there was no longer any need to be explicit about the regulation against alcohol. The assumption must have been that the corporations' policy on alcohol use was common knowledge. Second, silence was one method of dealing with the reality of the situation. Despite the assertion that they wished to "purify" the corporation, management had, on some level, realized they would not be able to enforce the regulation. Workers drank for a variety of reasons—ethnic customs, as means to promote working-class solidarity, and to temporarily escape from the realities of poverty—it was behavior the workers chose for themselves. If a worker wished to drink whiskey, no amount of "moral" lecturing would change that fact. Drinking belied the image that mill management wished to project, however, as "moral," orderly, and in full control of the workforce. Therefore, managment avoided a public discussion of the subject.

The content of the dismissals and complaints suggests that Cumnock objected to workers' aberrant behavior when it was in the public eye aswell as to publicly visible damage to the housing. Drinking and inebriation could not be ignored. Drunken employees created a less profitable workforce, and their deportment was highly visible to the citizens of Lowell. Loafing on street corners and gatherings of individuals (like the group of workers playing cards in the courtyard of a Homestead, Pennsylvania, tenement; Figure 3–2) was public behavior. Trash on a roof was a visible sign of disorder. In the letter to attorneys Marshall and Hamblet, James Marshall questioned whether the grocer, who wished to sell off the keepers' belongings, could "use our building for the purpose of displaying goods by auction." A public auction would have been an embarrassment to the mill.

None of the letters discussed conditions of the interior of the housing, and, only once does Marshall mention repairs to the inside of a unit and then only in the vaguest of terms (letter 39). Marshall wrote to a woman who was being evicted that, before the new residents moved in, Mr. Cumnock "says he shall do some repairs in your house." Only two letters, the reprimand sent to Mr. Gardner (letter 9) and the letter sent to Mr. Fay (letter 53) concerned the condition of backlots; one would suspect that the letters were sent because the situation was severe enough that management had no choice but to attend to the drains. For the most part, however, what was hidden, out of public view, was ignored.

In his letter to Hutchins, Marshall asserted that management wished to "purify our corporation by discharging the offenders." The paymaster's choice of words is telling. Because management could neither fully control the workforce nor completely eliminate certain behaviors, they merely expelled the "corrupt" individuals from the corporation so that the façade of moral purity and order could be maintained.

Conversion of Boardinghouses and Availability of Housing

Marshall sent 12 letters to 10 individuals regarding rental of the Boott's housing or eviction from a unit because of the mills' plans to convert a portion of the boardinghouses to tenements.

On February 11, 1889, per Mr. Cumnock's orders, James Marshall wrote to Mrs. L. D. Leadbetter (letter 37); Mrs. Leadbetter ran aboardinghouse at 43 Boott. The body of the letter read

> It is our intention to close some of our boarding houses and make some into private tenements, and in persuance of this plan this is to give you notice that we desire you to vacate your tenement to us by 15th of April next.

That same day Marshall sent a similar letter to Mrs. Davis, a keeper at #30 Boott (letter 38). He told her that #21 Boott, a boardinghouse run by Mrs. Bixby, was to be converted to a tenement. Mrs. Bixby would vacate her unit and be permitted to move into #30, and Mrs. Davis would have to leave. And, in September of that year, Mrs. McDonald at #20 Boott (letter 42) was given similar notice. Marshall was careful to point out, however, that there was "no dissatisfaction with you or your house only now we don't need as many boarding houses."

As the letters indicate, by the late 1880s the Boott had begun to increase the number of tenement units. In letter #48, regarding a prospective tenant, the paymaster allowed as the office was "besieged with applicants" for the tenements. To a certain extent, the increase in demand for family-type housing, as opposed to the communal boardinghouses, reflected the fact that, once the immigrants arrived, more families worked in the mills. But tenement housing also would have afforded workers a bit more autonomy over their own lives than life in a boardinghouse. While still subject to the mills' schedule and regulations, tenements afforded more privacy and freedom to prepare meals and furnish the house as one liked (and could afford).

Whether their actions were based on seniority of employment, number of years in the units, personal feelings toward individuals, or the

Figure 3–2. A group of men playing cards in the courtyard of a Homestead, Pennsylvania, boardinghouse. (Lewis Hine photograph reproduced from Byington 1910.)

whims of agent Cumnock, management was inconsistent in the wording of eviction notices. In some instances, such as Mrs. Davis's, occupants were to move out with no offer of other housing; in other cases, Mrs. Bixby's, for example, they were provided with other housing when their boardinghouses were converted. Some residents were given several months to vacate, others barely one month. Moreover, Marshall apologized to only one individual, William Marland, for the eviction (letter 44). Marland's position as an overseer may have played a role in the apology. He wrote to Marland that the unit was to be rented to another overseer who was in need of housing, and added, "we are very sorry to be obliged to do this but can't help it."

Repairs to Units and Cost of Utilities

Of these 5 letters, 3 inquire about charges due on city water bills, one concerns a leaky privy vault, one a broken hitching post.

Documentary research (Bell 1987a: 61–65) provides clear evidence that, as the century progressed, the Lowell Board of Health became concerned about leakage from privy vaults into well water (leakage did occur at the Boott—see letter 58 cited below); in 1893 the Board even analyzed water from one of the Boott boardinghouse wells, but no results were published. Although the Boott had begun to install connections from the housing to the city water supply as early as 1874, Bell's research indicates that occupants of some of the units continued to draw well water into the early 20th century.

For some Boott residents the luxury of city-supplied water was a financial burden. In May of 1889, Marshall wrote to Millard Wright, Superintendent of the Water Works, on behalf of tenant John O'Hare; O'Hare felt he had been overcharged on his water bill (letter 49). In October of 1890, Marshall evicted the man because he was six months behind on payment of the bill (letter 52). In letter 50 the paymaster complained to another tenant, Mr. William Hibbard, about a four-month balance on his water bill.

The Lowell Board of Health records (Bell 1987a: 60–63) and information contained in the letters suggests that the shift from corporation-built privies to a city-managed sewage system began in the late 1880s. The privy vaults had become an increasing nuisance for the Board, both because of problems with leakage and because their use was a sign of backwardness, "a relic of a by-gone age" (Lowell Board of Health 1891: 18, quoted in Bell 1987a: 62). In April of 1890 the Board officially ordered the corporations' privies removed within 60 days, but the Board stated in the report of that year that removal had begun in 1887.

Not all of the Boott privies were filled within the 60–day stipulation. On April 17, 1891 (letter 53), the paymaster requested John Fay, the man licensed by the city to clean privies, to repair a leaky connection to a vault behind Boott #30. Further, it is unclear precisely when #45 and #48, the two units explored archeologically, were connected to city sewage systems. In letter 49 to Mr. Wright, dated May 24, 1889, Marshall inquired whether the Superintendent had overlooked the water charges for the "W. Closets" for units 33–48. The artifactual evidence suggests, however, that the privies were not filled until after ca. 1910. It is evident, however, that despite the fact that workers' health depended in part on clean water and sanitary conditions, "the textile workers, by whom these services were needed, had little control over the form and condition of such facilities" (Bell 1987a: 68).

Employees' Debts, Wages, Illness, and Death

Three letters in this category discuss workers' debts, two concern wages due, one concerns an employee's illness, and one is a response to an inquiry about length of employment of a former Boott worker.

The letters are testament to Marshall's competency as a paymaster. They indicate that not only did he keep precise accounts, but that he followed Cumnock's orders closely. Employees wages and debts are the only areas in which the paymaster appeared to have any autonomy, for he did not include the phrase "per order agent" in many of the letters that dealt with the issues of finance.

In letter 56, regarding a "consumptive" employee, Marshall wrote Cumnock, who was away from the mill, that Maggie Bell might have to be hospitalized and, if so, another worker "would be responsible" for the costs. Marshall added, however, "Dr. doesn't see why case can't rest until your return." Clearly, Marshall preferred (or was obligated) to wait for Cumnock's response before taking any action.

In the case of the wages due Elizabeth Mullen (letter 59), Marshall was willing to pay out exactly what was owed but not a penny more. Mullen, who had died suddenly, was due $4.71 in wages. A man requested the wages, which he claimed would be used for funeral expenses; Marshall, however, refused payment until the claim could

be verified so "that we shall not be called upon to pay 2nd time."

Sarah Norcross (letter 58), who had boarded in #45 for at least 10 years (1890 *Lowell City Directory* ; 1880 federal census), left the Boott, apparently because of ill health, and the paymaster enclosed in his letter her wages of $25, with added interest of $1.37. Not only does this letter attest to Marshall's desire to settle accounts, but it is the only letter which indicates a friendship seems to have existed between the paymaster and an employee. Marshall stated, "am glad to hear from you and to know that your health has improved since you went east."

Letter 60 settles accounts with the Whipples, former Boott employees who had lived in one of the tenements. Marshall confirms that their rent and water bill had been paid and that, at Mrs. Whipple's orders, the balance of their wages should be given over to John Buttrick. According to the 1890 *Lowell City Directory*, Buttrick was in business with F. H. Butler & Co., a Lowell apothecary.

Perhaps one of the Whipples had been ill and purchased a quantity of proprietary medicine. If so, he or she would have been in good company; medicine bottles were recovered in large quantities from the backlots of #45 and #48 (see Chapter 8, this volume). "Patent" medicines were widely used during the 19th century both because of their supposed restorative powers, and because the nostrums often contained drugs such as codeine, morphine, and alcohol (Stage 1979: 32; Williams 1980: 544). The cures would have provided relief for the mill workers who felt debilitated much of the time from the long hours at work and conditions in the mill rooms.

Two letters were written to attorneys who attempted to garnish the wages of workers who were in debt. Marshall stated these workers had "sold their pay" (five other letters in the "complaints" section also dismissed employees who, along with other infractions, had sold their pay).

A worker who sold his pay had been "trusteed." The MBSL (1882: 216) explained the procedure. When a worker fell behind in a payment to a merchant, mill management was served a legal writ, a trustee, to garnish the worker's wages. A Lowell mill worker stated in the same report that a worker was discharged after he or she had been trusteed twice. At least in one instance, however, the Boott did not permit an employee a second chance. On May 7, 1891 (letter 31), mill worker Henry Ashton sold his pay. The next day, in a letter to overseer Newell Abare, Marshall questioned why Ashton was even employed at the Boott; the mill worker had sold his pay on April 1 and had been fired. To rehire him was "contrary to agent's orders."

Mr. Vernette and Mr. McLarty had both been trusteed (letters 55 and 57), and attorneys had written to Marshall hoping to collect the wages. Marshall refused to pay either of the attorneys. In Mr. McLarty's case, Marshall preferred to let a judge decide the case. The paymaster suggested that "probably Vernette worked under an alias" as his name did not appear on the employee list. Marshall had also accused one other employee, Annie "Pierce," of changing her name (letter 17). The straightforward tone of the paymaster's letter suggests that using an alias was not an unusual tactic; when workers were in financial or other sorts of difficulties, the tactic must have been used to hide ones' problems from management and remain employed.

Indirect Control of the Workforce

Mill Influence in the Temperance Movement and in City Policy

One of the most effective ways to regulate the lives of labor in the workplace and in the home is through indirect control. Intervention through ideological and political mechanisms can "diffuse the target of labor's discontent" (Harvey 1976: 283). In Lowell, mill managements' attempts to "purify" the corporation extended beyond the bounds of company property; it extended into the temperance movement and into local politics.

The Lowell industrialists took an active role in the temperance movement. William Austin, agent of the Lawrence Mill, was one of the first presidents of the Lowell Temperance Society (Coburn 1920: 207). In 1840, the *Lowell City Directory* listed John Clark, superintendent of the Merrimack Manufacturing Company, as the Society's president and an agent of the Lawrence Mill, John Aiken, as a vice president. Linus Child, who in 1845 became the second agent at the Boott, had, as a state legislator, been influential in passing one of Massachusetts' first temperance bills (Clark 1864: 11). In 1860, Child, along with Lawrence agent William Southworth, presented a petition before the Lowell mayor and city aldermen. Signed, they said, by more than 1500 women of Lowell, it advocated strict enforcement of prohibition legislation (Peoples Document 1860: 2).

Mill management influenced city policy regarding liquor licenses; mill supervisory personnel were often elected to the city council, and, until 1894, aldermen on the city council

granted liquor licenses (*Lowell City Documents* 1895: 45; Lubar 1983: 11). Lists of city officials in the *Lowell City Documents* indicate that from 1837 onward, the year after Lowell was incorporated as a city, a Boott overseer, machinist, superintendent, or agent was, more often than not, a Council member.

Lower-level supervisory mill personnel were more frequently elected than agents. In 1855, Homer Bartlett, the Massachusetts Mills Treasurer and its former Agent, stated

> Holding the office I do, I dont consider it proper to take an active part in the way of addressing public meetings—Our stockholders have always been very sensative on this subject and unwilling that their Treasurers and Agents should enter into politics (Bartlett 1855, quoted in Bell 1987b: 19).

As Bell suggests, because of corporation views, Bartlett did not consider it "proper" to enter highly public political races. If this attitude did in fact constrain Lowell agents, perhaps lower-level, less visible personnel, such as overseers, were urged to run on behalf of the mill. No doubt mill employees did not always parrot the views of management, but they did have the ability to influence city policy to the mills' advantage.

There is strong evidence that the Boott used indirect methods to limit the number of taverns in the area directly outside the mill gates. The attempt to limit the sale of alcohol around an industrial area was not a unique one. In Pennsylvania, the state legislature passed numerous acts that forbade taverns within a three-mile radius of an industrial site (Tyrrell 1979: 107). Management's actions would have prevented no one from walking the few extra blocks to purchase a pint, and "illegal" saloons could have operated in basements and storefronts quite close to the mill gates.[3] But the line was a symbolic boundary; it was one further method of making the Boott's presence felt.

In 1868, the first year of licensing in Lowell following a 16-year attempt at statewide prohibition (Turner 1972: 34), the *Lowell City Directory* indicates that no saloons were licensed in the four-block area bounded by the Boott, Merrimack Street, Kirk Street, and Bridge Street. In 1880, one licensed saloon operated on Paige Street; according to the *Directory*, that number increased to six in 1888. There was also one tavern on John Street and one on Bridge Street. In that year, the City Council received a request from the John Street Church to revoke all liquor licenses on Paige Street, and the request was granted (*Evening Citizen*, April 7, 1888; *Vox Populi*, May 19, 1888).

The Church was linked to the Boott via Newell Abare; Abare, a Boott overseer, was sexton of the church, and, in 1890, he became a city councilman (*Lowell City Directory* 1889; Lowell City Documents 1890: 43). No further licenses were granted on Paige Street for the rest of the century. Whether this action was influenced by the Church or the Boott, or both, is unclear. One piece of evidence indicates, however, that the ban on licenses on Paige Street was in keeping with the wishes of the mill.

Beginning in 1899, the Boott sold off most of the corporation's housing to real estate investor Saiman Sirk (Middlesex County Deeds Book 314: 206). One contemporary writer asserts that real estate speculators such as Sirk increased rents and allowed conditions in the housing to deteriorate (Kenngott 1912: 28). Some of the units may have become lodginghouses, where workers slept, going elsewhere for their meals (Bond 1987: 41).

But the indirect method of control of workers that was used by Boott management continued. There was a stipulation in the deed to Sirk that the conveyance was made subject to the perpetual restriction that no intoxicating liquor ever be sold on any part of the premises. The purpose of the stipulation was, presumably, to exclude working-class saloons from being established adjacent to the mill yard. The only exception to the restriction was one row of housing on Bridge Street. It is likely that Bridge Street was excluded because it was a major commercial street, and, perhaps, because Sirk remodeled the Bridge Street housing into an apartment building (Clancey 1987: 32). This block would have been unlikely to have housed the immigrant workforce.

Conclusions

The image of threads woven together in a loom is almost unavoidable when one visualizes the tension between workers and management at the Lowell mills. The metaphor will not be belabored. But it is as if the warp—threads stretched lengthwise—were the rules and policies of the mill system. The weft—threads that crossed over and under the warp—were the steps taken by workers and management, spread over time, that altered the system. The

[3] In the 1895 Report of the Chief of Police in the *Lowell City Documents* (1895: 6), the chief stated that liquor was often sold from tenements, particularly on Sundays. He added that when tenants had a common entrance, it was difficult to tell which kitchen was being used to dispense the liqour, and that lookouts were posted on the street to warn of police presence.

spread over time, that altered the system. The basic mill system was a constant, but the pull between the desires of workers and those of management altered the fabric of the system.

Within the system, regulations were established that governed every aspect of workers' lives. Initially, workers were housed, fed, and provided with religious as well as secular education. Once the immigrants became the dominant workforce, these provisions, but not the regulations, ceased to be seen as a necessity by management. The sturdy brick façades of the boardinghouses—highly visible structures—and the public testimony on the importance of religious education, however, were still used by the industrialists as pointed reminders to the Lowell populace that the mill system was built upon a firm, "moral" foundation.

The appearance of neatness and order was vital to the success of the enterprise; it is questionable, however, whether management was ever vigilant in upkeep of the housing, particularly what was hidden from public view. A certain standard was necessary to attract the mill women to Lowell, but, as the century progressed, as the immigrant workforce entered the mills, and as the economic pressures of manufacturing increased, less money was spent on the units. The Boott letters and other sources attest that the housing was equipped with leaking, outmoded privies, polluted wells, and that management turned its back on the conditions of the boardinghouse interiors.

Yet behavior that was public in nature—noise, disorder, and especially drunkenness—belied the image of an "orderly" workforce in a "moral" environment. Because the reality of drunken employees did not jibe with the way in which the mills wished to be perceived, management avoided a discussion of the subject. Individuals who loafed on the street, threw trash onto the roofs, or carried bottles of liquor into the mills' housing were chastised or fired.

This effort to regulate public behavior of workers went beyond the confines of mill property. Boott management attempted to limit the number of saloons near the millyard, and this policy continued even after the sale of the housing to Saiman Sirk.

In sum, like the Yankee "mill girls" before them, the foreign-born workers had little say over aspects of their lives such as hours of work, wages, whether the housing was supplied with clean, running water and was in good condition, and whether they were evicted from the units or fired. Management "held the cards" and their actions—in everything from installation of sewer systems to employee dismissals—depended on what was expedient at that particular moment. Management's policy toward workers was also influenced by an individual's ethnicity, religion, and level in the hierarchy of mill employment.

As revealed by the letters, workers did, however, take steps to retain control over their own lives. In an attempt to stay solvent or to increase a house's profitability, keepers took in "mealers" and ran several boardinghouses at once. Workers chose to live in the tenements rather than the communal boardinghouses where they would have had a greater degree of privacy and choice. Some steps were contrary to mill policy or considered unacceptable behavior, such as the boarding of non-Boott employees, assuming an alias, and drinking alcohol in the Boott's boardinghouses.

The information gleaned from the letters—that the boardinghouse yards were messy, that the overall condition of the backlots was poor, and that workers consumed alcohol in the units—concurs with the archeological evidence. In some instances the letters were even written to or about individuals who lived in the units investigated archeologically. The neat, orderly image of the mills that the owners took pains to present, however, is made all the more hollow by the archeological evidence. The archeology helps to strip off the façade of neatness and order; in so doing, it exposes management's attempts to regulate workers' behavior without taking equal responsibility for workers' lives. Managers, however, could not completely eliminate certain behavior. They could only "purify our corporation by discharging the offenders" and remain vulnerable, at least in a small way, to workers' attempts to retain control of their lives.

Chapter 4

DOMESTIC IDEOLOGY AND THE ECONOMICS OF BOARDINGHOUSE KEEPING

by David B. Landon

Introduction

The 19th century was a period of dynamic transition in the United States. Large-scale urbanization, industrialization, and immigration caused changes in the structure of work and life that profoundly affected the course of American development. The rapid growth of urban and industrial areas of this period provided challenges to the family and individuals attempting to adapt to new living and working conditions. These changes did not go unnoticed or uncontested. Many people were greatly concerned with the shifts taking place in living and working arrangements. The first part of this chapter will examine some of the 19th-century conceptions about alterations in the function of the household, and specifically, the position of women's labor within the home. This will provide a framework for a more specific analysis of boarding, which was one particular living arrangement that expanded during the period. In some of the emerging industrial centers of the Northeast, boarding became an institutionalized form of housing that helped to facilitate the transition to urban-industrial society. The boardinghouse system in Lowell, Massachusetts, exemplifies this type of situation. During the early period of Lowell's development the textile corporations that created the town built numerous boardinghouses to house their employees, and it is important to try to understand the relationship of the Lowell boardinghouse system to the wider patterns of boarding during the 19th century. A certain amount of research has attempted to address aspects of the boardinghouse system, but the social and economic factors influencing the boardinghouse keepers have often been neglected. A major goal of this discussion will be to try to examine boarding from the perspective of people who were taking in boarders or running boardinghouses.

The Changing Nature of Women's Work

One of the primary changes in domestic labor during the course of the 19th century was the increasing movement of various components of household production out of the household and into the general economy. As large numbers of people moved into urban settings and began wage labor outside of the household, the household lost its position as the primary locus of productive activity. The factories and businesses in which these people labored increasingly began to take over production of some of the commodities that had previously been centered in the household. The textile industry provides a striking example of this phenomenon as the traditional position of cloth production within the house was supplanted by industrialized factories, such as those in Lowell. This transition of productive functions out of the house caused fundamental changes in the nature of housework.

> Before the effects of technology reached them, women produced nearly everything their families consumed. By the Civil War period, women in the expanding cities and towns were able to buy not only cloth, but butter, milk, meat flour, and myriad other household necessities. With the exception of child-rearing, most of the work a woman did consisted of day-to-day maintenance: feeding and cleaning and mending and feeding and cleaning. Her tasks were fewer but they were distinctly monotonous and in a tangible sense unproductive (Shapiro 1986: 12–13).

The "unproductive" nature of women's work (i.e., as a rule women received no compensation for their work and produced no tangible or marketable product) was heightened by the rapidly expanding economy that increasingly defined the value of labor solely in terms of wages. With more and more people participating in wage-paying labor (including many women) the unpaid labor of women in the household was in an ambiguous position of indefinite value. This contributed in a very real sense to the development of new definitions of the appropriate role for women and the value of women's labor in the household. While there was some debate about how this new definition of household labor should be structured and formed (e.g., Hayden 1981), the middle class ideology that prevailed redefined the value of household labor primarily by investing it with spiritual and sentimental value.

> As women's traditional responsibilities became less and less relevant to a burgeoning industrial economy, the sentimental value of home expanded

> proportionally. Moralists, theologians, and popular writers produced reams of literature aimed at investing domesticity with the spiritual sweetness of heaven itself. According to these authorities, a woman's most impressive duty was to make her home a heaven in miniature, herself the angel ready at the end of each day to receive and revive the weary worker (Shapiro 1986: 13–14).

In addition to this moralistic image, the value of women's housework was, as the second half of the 19th century progressed, increasingly being defined in "male" terms as well. Lack of wages notwithstanding, the proponents of "domestic science" began "a campaign to professionalize housekeeping—to increase the dignity of the woman as housekeeper in order to achieve for her a status equivalent to that which society granted to 'male' professions" (Andrews and Andrews 1974: 311–313). Continuing industrial development played a dual role in the formation of these apparently contradictory "professional" and "spiritual" images of household labor.

> Technology, as a social force, stimulated the new perception of the home as a moral center and the woman as its divinely appointed ruler; and technology also offered a source of aid in elevating the woman's role as professional housekeeper (Andrews and Andrews 1974: 313).

New mechanical devices for the home were brought in, not just as labor saving devices, but also "as ornaments of technology which might bestow on their users the same honor granted to men who operated the larger machines of the factory system" (Andrews and Andrews 1974: 317). Domestic scientists tried to strengthen this association by drawing on "mechanistic metaphors" for the home and focusing on organization and efficiency as important principles of housework (Andrews and Andrews 1974: 317). This combination of moralistic and domestic science imagery created a unique definition for women's household labor. On one hand it was a woman's spiritual calling, yet at the same time, the efficient and scientific organization of this work helped to elevate its status. A woman was supposed to create the proper moral and spiritual home environment for her family, but she was supposed to do this in a professional manner.

One of the most obvious ways the attention to domestic ideology can be seen to have affected the home environment is the central importance domestic ideology took on for much of the reform movement. Although progressive reformers addressed a whole range of issues, the domestic environment was of considerable importance. The moral imagery with which domestic issues had been imbued contributed to middle class proselytization of a domestic ideology. By teaching the urban poor and recent immigrants the "proper" way to cook and clean, as well as how to decorate their houses, they could be uplifted and "Americanized" (Cohen 1986: 264). Often this took the form of visits to poor households by middle-class women who "offered suggestions on economical meals, good housekeeping routines, educational goals for the children" and a variety of other topics (Wright 1981: 128). Of crucial importance to a number of these reformers were lower-class eating and cooking habits. As one reformer wrote, "philanthropists may urge what they will,—less crowding, purer air, better sanitary regulations; but this question of food underlies all" (Shapiro 1986: 134). In addition to trying to influence diet through home visits, reformers established cooking schools and model kitchens (Levenstein 1980). Even the temperance movement placed emphasis on food and believed that better food and more attention to cooking would result in less drinking (Shapiro 1986: 138). The concern over the domestic environment and food preparation was clearly larger than just the concern for the individual housewife but was symbolic of a larger concern with the propagation of particular "American" values.

This very general discussion glosses over much of the complexity involved in looking at the changing nature and perception of housework during the 19th century. The technological advances and other changes associated with industrialization had a variety of impacts on the home environment. Four major themes have been suggested that will resurface to varying degrees throughout the remainder of this chapter. These are: 1) the increasing disassociation of aspects of production from the household; 2) the moralistic and spiritual definition of women's household duties; 3) the introduction of technological innovations as labor saving devices and as objects to symbolically elevate the woman's status; and 4) a constant concern with household work and the domestic environment as an issue for significant attention and reform. As the focus shifts increasingly to the boardinghouses the importance of having this larger understanding of the changing perceptions of household labor will become clear.

Boardinghouses as a Housing Alternative

In order to properly understand the situation represented by the Lowell boardinghouses it is necessary to have a more generalized understanding of boarding as an economic and social activity. This will be approached from

several different perspectives. To start, an attempt will be made to view the large corporate boardinghouses as part of a more comprehensive system of boarding as a housing alternative and to trace out some of the similarities to boarding on a smaller scale. An important part of this will be to try to see boardinghouse keeping from the perspective of the keepers in terms of occupational, social, and economic choices. Finally, the focus will shift specifically to the Lowell boardinghouses and attempt to delineate some of their particular economic characteristics with a special emphasis on the relation to the corporations and the services provided to boarders.

While it is easy to think of the boardinghouse situation in Lowell as unique, it is more appropriate to think of the Lowell boardinghouses as one end of a range of possible boarding situations. At one end is the household that takes in a single boarder for a short period of time, at the other, the massive institutionalized boardinghouses of the industrial system. In the center of this spectrum the lines become very blurred because "It is difficult to know when taking in a couple of lodgers became the sole support of a household or individual, [or] when it...might be considered running a boardinghouse" (Davidoff 1979: 85–86). The importance of this is that it forces the realization that the Lowell boardinghouses were part of a larger phenomenon (albeit one end of a range of situations) and helps to affirm the validity of trying to understand boarding by looking at it in a larger context.

In a certain sense the practice of taking boarders into the family, which expanded with the 19th-century growth of urban areas, was not really that much of a break with earlier traditions.

> The Colonial family included boarders as well as servants and apprentices and dependent strangers. The presence of strangers in the household was accepted as a normal part of family organization. Town governments customarily boarded the homeless, poor or juveniles with families for a fee. The 19th-century American family was an accommodating and flexible institution, as had been its eighteenth- and seventeenth-century predecessors (Hareven and Modell 1973: 467–468).

With the rapid expansion of urban populations and the growth of industrial communities during the 19th century, the practice of boarding became even more important. Boarding was increasingly attractive both to families wishing to supplement their income and to new urban residents in need of affordable housing. Statistics from the mid-19th century give an indication of just how prevalent boarding was among urban populations and in smaller industrial communities. In the cotton community of Rockdale, Pennsylvania, one-quarter to one-half of all the mill households included boarders at the time of the 1850 census (Wallace 1972: 67). Studies on communities in the Hudson River Valley and the cities of Buffalo and Detroit have suggested that at any given time during the latter half of the 19th century, 15 to 20% of all households were augmented by nonkin (Hareven and Modell 1973: 468). In Boston, between 10 and 30% of all households were taking in boarders during this period, and in 1860, 6.3% of the total city population was living in boarding and lodging houses of more than five residents (Hareven and Modell 1973: 468; Peel 1986: 816–817). All these figures tend to suggest that boarding was quite a widespread phenomenon during the 19th century. In the city of Lowell, boarding was even more significant. "Boardinghouse residents were more than simply a large group in the overall labor force. For all practical purposes, they *were* the labor force" (Dublin 1979: 80; emphasis in original). Even as late as 1875, after the corporations had started the transition away from boardinghouses, over 46% of the operatives still resided in company boardinghouses (Massachusetts Bureau of the Statistics of Labor [hereafter MBSL] 1882: 293).

Labor Opportunities for Women

While this suggests the wide-spread nature of boarding as a living arrangement, it is equally valid to try to understand the prevalence of boarding as a potential working arrangement for the boardinghouse keeper. In order to gain greater insight into boardinghouse keeping as an employment opportunity for women it is useful to try to put this job within a larger context of the labor possibilities for women. In 1884 and 1889, respectively, the Massachusetts Bureau of the Statistics of Labor published studies of the working women of Boston and the state of Massachusetts. An examination of the manner in which they grouped particular jobs and the number of women employed in different jobs can offer a great deal of information. The jobs of working women in Boston are shown in Table 4–1 (MBSL 1884: 6–11).

While all of these categories were broken down into numerous sub-categories, the principle category of interest is that of Domestic and Personal, which was broken down into enough detail to list boardinghouse keepers (MBSL 1884: 6; Table 4–2).

Table 4–1. Employment distribution of Boston women in 1884.

Occupational Category	#	%
Government & professional	2,326	5.9
Domestic & personal	20,115	51.7
Trade & transportation	3,167	8.1
Agriculture	20	0.1
Manufactures & mechanical	12,863	33.1
Apprentices, laborers, misc.	390	1.1
Total women employed	38,881	99.9

Table 4–2. Employment in domestic and personal service for Boston women in 1884.

Occupational Category	#
Boarding & lodging	1,883
Boardinghouse keepers	452
Hotel keepers	14
Hotel and restaurant clerks	15
Hotel and restaurant employes	1,366
Restaurant keepers	19
Saloon keepers	17
Domestic service	15,966
Personal office	2,266
Total domestic & personal service	20,115

For purposes of clarification, all 15,966 women involved in domestic service were domestics. Personal service, while encompassing a variety of different occupations, was almost entirely laundresses (1,435), nurses (552), and hairdressers (106), collectively representing 92.3% of the women employed in personal service.

One thing that should immediately be noticed is that boardinghouse keeping was perceived as being related to other services that provided food and lodging, such as hotels and restaurants. This points out the economic nature of boardinghouse keeping as part of a larger service industry. It is also clear just how significant boardinghouse keeping was as a women's occupation in Boston. The 452 boardinghouse keepers listed were women who ran houses professionally. This underestimates the true extent of boarding by excluding, for instance, families who took in a single boarder or operated on a similarly small, non-professional scale. Even with the expectation that this figure underrepresents boarding, keeping of boardinghouses was a very significant occupation for women. The survey of Boston women's occupations from which these figures were drawn included 222 different jobs women held in the city. Of all of these, boardinghouse keeping ranked tenth in terms of the total number of women employed (MBSL 1884: 6–11). Together, the top ten occupations made up almost 82% of the total number of employed women. These jobs were, in order, domestics (15,966), dress makers (5,511), tailoresses (3,013), store clerks (1,475), laundresses (1,435), hotel and restaurant employees (1,366), teachers (1,319), milliners (716), nurses (552), and boardinghouse keepers (452). Clearly, boardinghouse keeping, though dwarfed by some of the other occupations, was very significant in the overall framework of work opportunities for Boston women. In the case of the Boott Mills, as Bond points out in Chapter 5, boardinghouse keepers were originally recruited from the local middle class in an effort to attract "respectable" widows, and, as a result, under the Lowell system the position of keeper seemingly carried a higher status than private boardinghouse keeping.

Table 4–3. Employment distribution for women in Massachusetts in 1885.

Occupational Category	#	%
Government & professional	15,561	5.20
Domestic & personal	149,971	53.25
Trade & transportation	11,980	4.00
Agriculture & fisheries	411	0.15
Manufacture & mechanical	111,654	37.20
Apprentices & laborers	526	0.20
Total women employed	299,981	100.00

Statewide data from 1885 (published in 1889) show a slightly different pattern from that of Boston. The major occupational categories for women are shown in Table 4–3 (MBSL 1889: 582–585). As with the statistics from Boston, the Domestic and Personal category can be further broken down (Table 4–4).

For the state as a whole, personal service is once again composed primarily of nurses (3,132) and laundry workers (2,576) (the other major category is "Not specified"—3,669).

By expanding the view of women's labor opportunities to the statewide level, a slightly different image of the importance of boardinghouse keeping is apparent. Employment in boardinghouses on a statewide level ranked 30 out of 125 recorded occupations for women. The top ten jobs for Massachusetts women in 1885 were servants (137,742), cotton mill operatives (31,514), boot and shoe manufactory operatives (14,390), dressmakers (12,712), teachers (9,922), woolen mill operatives (9,149), bookkeepers and clerks (5,784), housekeepers (4,901), saleswomen (3,828), and seamstresses (3,728). Taken together, these ten occupations accounted for almost 78% of the total number of women employed in

Massachusetts. The difference in this pattern from that seen in Boston is the increased importance of manufacturing jobs, which seems to be a reflection of the concentration of industrial manufactories outside of the city of Boston in industrial towns such as Lowell, Lynn, and Holyoke. In this sense, the information from the state as a whole probably more accurately reflects the Massachusetts economy and the overall structure of labor opportunities for Massachusetts women. Interestingly, it is in the manufacturing towns outside of Boston where boarding probably played the largest role in the overall housing market.

Table 4–4. Employment in domestic and personal service for Massachusetts women in 1885.

Occupational Category	#
Boarding and Lodging	7,328
Boardinghouse employees	1,387
Hotel employees	1,867
Restaurant employees	1,528
Not specified	2,546
Domestic Service	132,855
Housekeepers	4,901
Servants (in families)	127,954
Personal Service	9,788
Total	149,971

The establishment of this framework, albeit sketchy, for looking at boardinghouse keeping within a context of women's work opportunities is valuable for several reasons. For one thing, it allows an examination of the range of possible jobs for women and contributes to an understanding of the major types of jobs women held. More important, it serves to point out, at least in a general sense, the widespread nature of boarding as an institutionalized living arrangement that offered significant potential for employment. With this in mind, it is appropriate to focus more specifically on the economic and social nature of boarding from the perspective of the keeper and to try to place boarding more clearly within the context of 19th-century conceptions of the appropriate position of women's labor.

The Social Vision of Boardinghouse Keeping

The prevalence of boarding was based on a wide variety of factors both economic and social. In Lowell, as elsewhere, it is often difficult to separate the different aspects. The corporations needed to guarantee a steady and cooperative labor force in an economic sense, but this was done, in part, by building a rhetoric describing a particular type of social environment. It is important to realize that for the early industrial communities, more attention and debate was focused on the prospective living conditions of the new employees than on the new working environments. "According to the industrialists, factory conditions were less at issue than housing, which would continue to have an influence over the workers' families after they had left the industrial town" (Wright 1981: 61). This serves to point out just how crucial domestic concerns were during this period, and emphasizes the value of looking at industry through workers' housing. While a great deal more could be said about the economic and social implications of housing from the industrial perspective (i.e., as part of a larger framework of corporate paternalism) it is of greater value to try to approach this subject from the slightly different perspective of the people who were running boardinghouses or taking in boarders.

As was stated at the outset, one of the major changes of the 19th century was the increasing movement of a variety of the productive functions out of the household and into the larger economy, and the concurrent and increasing notion of the separation of "work" and "home." Boardinghouse keeping directly contradicts this idea because it involved the expansion of labor within the household, in effect merging home and work. Any attempt to accomplish an understanding of boardinghouse keeping must attempt to address this apparent contradiction between the domestic ideal of the separation of spheres and the reality of women's work in the home (Davidoff 1979: 64).

An excellent example of the interaction of these complex themes can be seen in the writings of Catherine Beecher, one of the most significant 19th-century authors of domestic literature. Beecher's work is of particular interest because it highlights some of the issues raised about 19th-century conceptions of domestic labor. Throughout her work Beecher supports her claims with "two new metaphors of female authority: woman as 'home minister' and as skilled 'professional'" (Hayden 1981: 56). Further, Beecher was a staunch advocate of the separation of spheres and the isolation of the female within the home, feeling that this was where women could have their greatest influence on American society (Sklar 1973: 153–156). What makes all of this so interesting is that Beecher picks a boardinghouse keeper as an example to other women of the importance of "professional" housekeeping and the proper

manner of organizing home accounts (Beecher 1841: 177). Implicit in this is the acceptance of boardinghouse keeping as a morally legitimate activity for women and of the boardinghouse keeper as a model to be at least partially followed by other women. In other words, Beecher apparently saw no contradiction between the domestic ideology she was creating and the labor of women as boardinghouse keepers.

What this suggests is that boardinghouse keeping, by creating employment through the expansion of the household duties of women, did not necessarily contradict the expanding domestic ideology of the middle class and was, in fact, more acceptable than some other types of occupations for women. Boardinghouse keeping represented, in a certain sense, a chance for women to "make money and not lose social class" (Strasser 1982: 148). It was a "way of supplementing income without the women in the household having to work in public" (Davidoff 1979: 85). In part, the apparent social acceptability of boardinghouse keeping was also based on the image of the boardinghouse as a surrogate family. In industrial towns such as Lowell "boardinghouse keepers were regarded as surrogate parents and operatives as minor children" (Dublin 1979: 79). Although this was certainly part of the extension of the corporations' control of workers into their living environments, it was also a description of boardinghouses which helped to alleviate some of society's concerns for the preservation of family morality.

> Boarding ideally functioned as a surrogate for the family, shielding transient individuals from the uprooting forces of migration. It was the family's agent in the city, guiding the young migrant from home to marriage while keeping the ties to family and community intact. In large cities boarding could meet on one front the potential moral and social problems of undisciplined peer-group life. While the reality rarely met the ideal, a belief in boarding persisted insofar as it promised a means of insulating young men and women from the perils of urban life while facilitating the migration and discipline necessary for American urban-industrial development (Peel 1986: 813–814).

These notions helped to justify the validity of boardinghouse life by drawing on societal concerns over the stability of the family and put the boardinghouse keeper in a position of recognized importance.

By the end of the 19th century the acceptance of a level of respectability for boardinghouse life began to fade, especially as boarding (where the occupants most often shared meals in the house) increasingly gave way to lodging (where meals were taken outside the house). As the progressive reformers became more and more concerned with the domestic environment, the societal concerns with boarding and lodging became more pronounced. Interestingly, the surrogate family image of the boardinghouse took on added importance. By the turn of the century, reformers were making an "explicit distinction between the family life of the boardinghouse and the lonely self absorption of lodgers" (Peel 1986: 813). This is worth recognizing because it shows quite clearly the importance of the notion of the boardinghouse as a surrogate family.

Another crucial aspect of boardinghouse life that is related to the image of the boardinghouse as surrogate family is the extent to which boarders shared characteristics with each other and their "surrogate parents." During the first several decades in Lowell there was a significant amount of cultural similarity among the boarders. In addition, "kin and friendship networks . . . operated throughout the boardinghouse system" (Dublin 1979: 81). Though the socialization aspects of this system have been compared to other boardinghouse situations for women (Dublin 1979: 83), it is equally as valid to see these connections as part of a larger pattern of regularity in boarding relations. In Lowell, the female boarders were all coming into a similar situation with, to a certain extent, relatively clearly defined relations to the boardinghouse keeper in his/her role as corporate employee. The situation was slightly different in boarding with individual families, as there was more potential fluidity in relationships. By looking at the types of relationships between people involved in boarding it becomes clear that the kin and friendship networks of the women in the Lowell boardinghouses are actually reflective of a larger pattern of organizing boarding arrangements along family, class, occupational, and ethnic lines. Studies of both individual families taking in boarders and commercial boarding and lodging houses found significant (admittedly highly complex and dynamic) correlations between the boarders and the head of household or keeper in terms of occupation, status, and nationality (Hareven and Modell 1973: 473; Peel 1986: 825–826). Similarly, ethnic background has been suggested as a determining factor in boardinghouse composition during the latter half of the 19th century in Lowell as immigrant labor began to supplant native labor (Bond 1987: 40–41).

Economic Aspects of Boardinghouse Keeping

Shifting the focus somewhat, it is appropriate to try to approach boarding from a more strictly economic point of view. Above all else, boarding represented an economic transaction where an individual exchanged cash (or perhaps at times some type of service) for a place to eat, sleep, and maybe have laundry done. While the Lowell boardinghouses played an economic role for the corporations, it is harder to come to terms with the economic situation of the boardinghouse keepers. Clearly, the primary concern of these people was the support of themselves and their dependents. Although it has been suggested that boardinghouse keeping might have been a woman's occupation that was accorded slightly higher social status than some other jobs, and that this might have contributed to its attractiveness, it is necessary to go into greater detail about the economic characteristics of boarding to fully understand it.

In their study of boarding and lodging as a phenomenon of the family, Hareven and Modell emphasized the economic nature of the decision of a family to take in boarders and focused on a number of different motivations.

> Families which were prepared to accept lodgers: 1) were able to receive a 'brokerage fee' for adapting the primarily large dwelling units to the needs of usually single immigrants, usually from their own social level and a similar standard of living; 2) realized income for work performed by the wife within the home...; 3) benefited by a gain in [income] flexibility..., available even in times of sickness or unemployment; 4) were in a position to stabilize their income through the family life cycle...; 5) afforded widows and single women...an opportunity to maintain their own households rather than live with kin (Hareven and Modell 1973: 473–474).

These economic aspects of boarding show the potential complexity of motivations and are worthy of further attention. Basically these five characteristics can be generalized to three major points: the ability of women to work within the home; the ability to maintain the house and household in situations where it could not otherwise be afforded; and the advantage of income stability through either periodic income shortfalls or life cycle transitions. The nature of boarding as women's work within the home has already been discussed, with the exception of one major feature. Work in the home would have been particularly attractive to women with dependent children. "Taking in boarders offered more independence than most...home work, and it was in many places the only available employment for women who wanted to make money while staying at home to care for their children" (Strasser 1982: 154). While it is not clear how great a concern this was of the corporate boardinghouse keepers in Lowell, it does give some additional insight into individual motivations.

Of greater importance were the more fundamentally economic concerns, especially for the family.

> The boarders were a crucially important factor in the financial plans of many working class households for they paid good money—$2 per week if male, $1.25 per week if female. The wife, who cooked for the boarders and did their housekeeping (which probably included laundry services), could bring in as much as $24 per month by caring for three male boarders—very likely more than the rest of the family earned at the mill (Wallace 1972: 66–67).

While this clearly shows the potential economic advantage to the family, one mistake Wallace makes must be pointed out. He fails to grasp the true economic value of taking in boarders. Unlike bringing home money from a job, the money taken in from boarders was not solely for labor, but also had to cover the additional expenses of maintaining a larger household, a factor Wallace seems to have overlooked.

One interesting aspect of taking in boarders is that, at least for families in Manchester, New Hampshire, it was not necessarily a substitute for female work outside of the household. While taking in a large number of boarders did constitute such a substitution, "wives in male headed households with boarders were more likely to work outside the home than wives in households without boarders" (Hareven 1982: 210). This seems to suggest that, for the individual family, taking in boarders was just one part of an overall diversified commitment to income maximization on the part of the household. This particular feature of boarding is one aspect that helps to draw the conceptual lines between family boarding and the large-scale institutional boarding of the Lowell industrial system. Running a corporate boarding house was a full-time job.

One particularly valuable focus of Hareven and Modell's work that is applicable to Lowell is the discussion of the process of bringing in boarders as a function of the life cycle of the household. The value of this derives from the fact that it helps to provide a way of examining the pattern of who was running the boardinghouses. One feature of the corporations' rhetoric was the claim that boardinghouse keeping was particularly well suited to widows and women with no other economic alternatives, though it is clear from the

demographic information that these were not the only people running boardinghouses (Center for History Now 1985: 96). By recognizing the life cycle advantages of taking in boarders it is possible to see either single women or households as fitting into this pattern. For older women and widows in particular, however, the ability to maintain autonomy was largely based on the ability to have either children or boarders augmenting the household (Hareven 1982: 177). This suggests a way to create a more comprehensive framework for understanding the bases for the decisions made by individuals and households who took in boarders or ran boardinghouses.

The Lowell Boardinghouse System

With this background pointing out the similarities of the Lowell corporate boardinghouses to boarding on a smaller scale, it is appropriate to try to delineate some of the unique features of the situation in Lowell. The overriding difference of the situation in Lowell was the inextricable association of the boardinghouses with the corporations. Both the operatives and the corporations considered inexpensive board as part of the total wage package. One example that clearly shows this fact is the operatives' strike in October, 1836, in opposition to an increase in the board rate, something the workers felt was an attack on their pay (Dublin 1979: 86).

The close ties to the corporations had both some advantages and disadvantages for the boardinghouse keepers. On the positive side, the boardinghouse keepers did not have to invest in a house or take full responsibility for its upkeep. To start up a boardinghouse the keeper needed only enough capital—although this was a far from insubstantial amount—to furnish the house and provide for initial operating expenses (in addition to corporate approval, of course). The economic constraints of this type could have been met by bulk purchases or perhaps by rental of furnishings (Bond 1987: 40). While some upkeep of the facility was undoubtedly required of the keepers, any major repairs would likely have been handled by the corporations. As one mill employee pointed out, "The corporations give employment to nearly 200 men whose only duty consists in repairing and painting the tenements and boardinghouses" (MBSL 1882: 289).

Perhaps an even greater advantage derived from the ties to the corporations was that the keepers had a powerful structure backing up their dealings with their tenants. In a private boardinghouse a keeper could conceivably run into difficulties with obstinate or obnoxious tenants. A rather sad example of this was recorded in Manchester, New Hampshire, where a female operative described the problems her mother encountered while running a private boardinghouse.

> She went bankrupt too...they were getting too much good food for what they were paying...strawberry shortcake and cream pies! She was giving them all her profits. The cigar makers never paid the full amount. They were always behind. They'd miss a meal, and the next time they'd bring a friend to take the place of that meal. That's how cheap they were. She lost (Hareven 1982: 210–211).

While some of the problems this woman had seem to have stemmed from her own mismanagement, she also seems to have had constant problems collecting her boarders' money, which ultimately helped drive her out of business. One advantage for the boardinghouse keepers in Lowell that must be recognized is the power of the corporations (whether implicit or explicit) in maintaining order among the tenants. Further, the corporate boardinghouse keepers in Lowell never had to worry about collecting board fees because it was taken out of operatives' pay before they ever received it.

On the other side of this same issue, there were also disadvantages inherent in working for the corporations. The fact that the boardinghouses were owned by the companies meant that a keeper who, for whatever reason, wanted to quit, was not just leaving a job, but also a house. This provides an interesting parallel to the workers, who were often in the same situation. Additionally, keepers had specific responsibilities in terms of the enforcement of corporate policy, such as evening curfews and abstinence in the boardinghouses (Dublin 1979: 78). Perhaps the greatest disadvantage, however, was that there seems to have been a clear decrease in the profitability of running corporate boardinghouses during the course of the 19th century, leaving the keepers in an increasingly tenuous situation (Center for History Now 1985: 125). This ultimately led to some changes in the system, such as opening meals to outsiders and control of more than one unit by a single keeper. Nonetheless, in a period of declining profitability the boardinghouse keepers were not really able to adapt to the market on their own, but were constrained by the policy decisions of the corporations.

It is possible to be even more specific about certain aspects of the economic structure of the boardinghouses. The boardinghouse keepers were involved in two-way economic relationships with the corporations, the boarders, and other

individuals and businesses in the community. While it is often difficult to understand the complex patterns of these relationships, several points do appear. To start with the corporations, the boardinghouse keepers were employees of the corporation whose work augmented the wages of the operatives by providing inexpensive room and board. They also acted as an intermediary between the corporation and the workers within the predominant living environment. While the duties of these people in terms of enforcing company policy and creating a "moral" living environment have been partially delineated, the actual economic relationship to the corporation has been neglected. Trying to gain a better understanding of these issues helps to create a fuller picture of the boardinghouse system. Throughout this discussion it must be realized that the generalized patterns being described undoubtedly had variations and exceptions.

Relationships with the Corporations

The corporations hired the boardinghouse keepers, set the board rate they would receive, and established policies on the services they would provide. One policy of the company was different board rates for males and females. For example, corporate board rates in Lowell in 1881 were $1.85 per week for females and $2.90 per week for males. Men were consistently charged more, presumably with the expectation that they would eat more food. What makes this so interesting, however, is that even assuming a difference in the amount of food consumed, women seem to have been undercharged for board. This is clearly seen in a report on boarding services in Lawrence:

> There is no reason why men should pay so much more for board than women, and the rates should be equalized; for it is the general testimony of the boarding-house keepers that they would as soon keep men for the same price, but have to charge men more to help pay for the girls (MBSL 1875: 419).

It seems likely that this was, in part, an attempt by the corporations to attract female operatives to the boardinghouses. In the situation described above, the artificially low rate for women was made up by overcharging the male boarders. This is only part of the story, however, because it appears as if the corporations sometimes made it a policy to preferentially supplement the board of female employees by making payments to the keepers. In Lawrence in 1874, the rate was $1 per month per person, and in Lowell in 1881, the rate was $0.05 for each day the woman worked in the mill (MBSL 1875: 419, 1882: 295–296). Even by the 1870s and 1880s, when immigrant family labor had largely supplanted single female labor the corporations still maintained policies that were preferential towards female operatives.

It would be inaccurate to imply that only female boarders were given artificially lowered board rates. Since the corporations wanted inexpensive board at their houses, they had to support the keepers in some manner, a fact that was not lost on the operatives. One Lowell operative explained:

> They [the corporations] pay their help well, and reduce their boarding expenses by assuming a portion of it themselves. All the mills pay their boarding house keepers a certain sum to aid in maintaining the excellence of the table, and reduce the workingman's expenses (MBSL 1882: 288).

This seems initially to have taken the form of direct payment by the corporation to the keeper of a certain sum per person over and above the set board rate (Center for History Now 1985: 126). As the boardinghouse system changed during the 19th century, the manner of supplementing the boardinghouses seems to have changed as well. An "old" operative described the changes:

> The keeper...[used to] receive twenty-five cents per head for each boarder. But finally the dissatisfaction...became so great, owing to the fact that those who could not find accomodation in the corporation houses were compelled...to pay a higher rate of board, that the corporations then leased them to the keepers for merely nominal rent, and gave them fuel and light, and the operatives were charged a rate from eight to ten dollars a month: on this plan the houses are now run (MBSL 1882: 288).

Though the changes that took place in the boardinghouse system were complex and related to a number of issues, several things are clear from this commentary. In this instance it appears as if a preliminary step in the corporate divestiture of the boardinghouses was a process of relaxing control of the facilities and putting them more clearly under control of the boardinghouse keepers, who rented the houses from the corporation and charged a more market-oriented rate of board. Nevertheless, subsidy of these facilities still took place, though less directly, with the corporate supply of fuel and light, and the collection of only nominal rents from the keepers. The practice of corporate subsidy of the boardinghouses was only a small part of the total economic relation between the company and its keepers, but an understanding of these practices helps to address an important aspect of the corporate relationship with its employees.

Services to the Boarders

The services provided within the boardinghouses is another topic that has not received adequate attention. Little mention is made of the day-to-day provision of food, laundry, and lodging services, the inherent purpose of the boardinghouses. Attempting to delineate more clearly some of the structure of these services can add a great deal of insight into the physical conditions of life in the boardinghouses. A fascinating example that serves to point out just how much variation existed in the quality of services provided to boarders is a description of a special boardinghouse run by the Merrimack Corporation.

> The design was to supply, at an advanced price, better rooms, and better food and attendance, and see if the operatives would pay the increased price. The house was filled without trouble and when visited, some fifty names were recorded of parties who wished a room as soon as there was a vacancy. The price for men is $3.50, for women $2.90, and includes room, food, washing, and attendance, and the use of a bath-room, there being one of the latter on each floor (MBSL 1882: 295).

For purposes of comparison, the weekly board rate in this house can be compared with rates of $2.90 for men, and $1.85 for women, which were the general corporate rates in Lowell at that time (MBSL 1882: 292). What is so worthwhile about this account is that it highlights the fact that boarding in Lowell was not just a question of finding a place to live, but was very much a situation of paying for services and amenities whose price and quality could vary. This adds some depth to the understanding of the boardinghouse system. Further, it provides a starting place for looking at the various services provided in the boardinghouses.

The best and most expensive boarding situation provided a room, food, laundry, attendance, and had an indoor bathroom on each floor. Of all of these, only the last two were features that do not seem to have been at all available in regular corporation boardinghouses at the same time. Indoor plumbing and increased attendance were very likely amenities that helped to fill the waiting list for this boardinghouse. The other services are harder to judge because the difference from other boardinghouses are solely qualitative, as all the boardinghouses provided rooms, and most provided food service and laundry. Even attendance can be thought of as something of a qualitative difference, as boardinghouse keepers were expected to provide a certain amount of individual room cleaning for the boarders (MBSL 1882: 292). Laundry service, however, does seem to have varied among houses. In some cases, description of laundry service referred to "usual washing" or "ordinary washing" (MBSL 1882: 292, 1875: 420). This refers, in all likelihood, to the washing of work clothes and bed linens, with the washing of dress or other clothes left up to the boarder. In some rare instances it seems that laundry was not included in the board. At the Pemberton boardinghouses in Lawrence women generally did their own wash, even though their board rate does not seem to have been lower (MBSL 1875: 420). Even with this very short discussion it is clear that the boardinghouses in Lowell provided a potentially multifaceted range of services. Qualitative and quantitative variations in the services available to boarders made a boardinghouse more than just a place to sleep. An examination of the boardinghouse services must be considered as part of any attempt to delineate the features of the boardinghouse system in Lowell.

Conclusions

The 19th century was a period of rapid change as urbanization and industrialization contributed to changes in the nature and perception of work and home. Boarding was one type of living arrangement that expanded greatly during this period and was important not just as a living arrangement, but also as a source of employment for women, especially in the larger urban areas and growing industrial towns. One of the most interesting aspects of boardinghouse keeping is how it fit into changing conceptions of work and home and the middle class conceptions of appropriate work for women. In a certain way, running a boardinghouse was socially acceptable work for women because it was an expansion of women's work in the home. Societal concerns were also mediated through the portrayal of boardinghouse keepers as surrogate parents for the boarders.

The massive institutionalized boardinghouses of the Lowell system represent one extreme of the range of possible types of boarding situations. The boardinghouse keepers in Lowell were involved in an economic situation with both explicitly and implicitly defined relationships to the corporations and their tenants. The patterns these relationships took were influenced by a variety of different factors, including the publicly stated policies of the corporations about the living arrangements they provided for their employees. To look at this system only in this manner, however, ignores the individual

decision-making processes of the boardinghouse keepers. The decisions they made are clearly related to social and economic factors that influenced not only them, but the individual households taking in boarders as well. Ultimately, the similarities in the situation to which these people were responding were related to a broader framework of urban and industrial expansion that was putting strains on the household and causing changes in people's living and working environments.

Chapter 5

ARCHEOLOGY IN THE BACKLOTS OF BOOTT UNITS 45 AND 48: HOUSEHOLD ARCHEOLOGY WITH A DIFFERENCE

by Mary C. Beaudry and Stephen A. Mrozowski

Introduction

The Archeology of Urban Lots

One of the joys of archeological research occurs in those moments when thought can be given to the nature of a place like the rear yard of a 19th-century company boardinghouse, a place where a hot summer evening might be spent washing cloths or peeling potatoes or smoking a pipe—passing time with countless stories. It was in places like this that the domestic side of the Industrial Revolution was played out, away from the noise and clatter of the mills and factories. Perhaps here, workers, having finished their day's labor, might find time to relax after their evening meal to talk with people from different parts of New England—or different parts of the world, for that matter. Small though they were, the boardinghouse yards were important places.

There is a certain quality that the boardinghouse backlots of Lowell share with similar spaces in other cities, in other times and in other places. It is the intensity of use that is so characteristic of urban areas that links the yards of 19th-century Lowell with the tenement yards of cities in Great Britain—e.g., 19th-century Manchester, or 12th-century Dublin, Southhampton, or Durham. In spite of the differences that separate the urban industrial centers of the 19th century and the preindustrial cities of the preceding millennia, they share curiously similar archeological records.

This stems in large part from the conditions that are endemic to urban areas, where space is limited and communities characterized by high population density. What open space there is is utilized for work, gardening, keeping livestock, and for leisure (Braudel 1981: 495 ; Biddle 1976; Macphail 1981; Hohenberg and Lees 1985; Pendery 1978; Mrozowski 1987b). It is, in fact, this intensive land use that some archeologists have pinpointed as the characteristic that best defines what separates urban from non-urban communities (e.g., Staski 1987). The reliance upon yard space as work space continues today in many parts of the world. In many Asian countries, for example, urban areas contain fairly substantial tracts of land devoted to food production (Douglas 1983). Even in the industrialized nations of the west, urban gardens dot the landscape of many major cities.

There are, of course, differences in the ways urban space is used in the west today and the ways it was utilized just a century ago. In this instance, however, we are dealing with a question of degree, not absolutes. Today's use of urban yard space for recreation or gardening is qualitatively different than the type of intensive use similar space received in preindustrial cities. One major dissimilarity surrounds the use of yard space as a primary disposal area for human waste and other refuse. In fact, one of the more interesting aspects of the archeology of Lowell is that it captures that period of major transition in the history of cities when responsibility for water and waste management shifted from the individual to corporate or municipal entities. Considering how ubiquitous waste and water management facilities were in preindustrial cities (e.g., Carver 1987; Hall and Kenward 1982; Beaudry 1986), the importance of the shift should not be overlooked (cf. Honerkamp and Council 1984). And, as our previous research in Lowell has demonstrated, there are other changes in the way yard space was utilized that appear to have accompanied the transformation of urban society during the second half of the 19th century (Beaudry and Mrozowski 1987b).

There are additional qualities that characterize the archeological record of urban communities. One of the most important is that urban deposits are often the direct result of short-term events (Schofield 1987; Beaudry 1987; Beaudry and Mrozowski 1987b; Mrozowski 1984; Praetzellis, Praetzellis, and Brown 1980). In many instances these events are associated with periods of domestic transition, when one household replaces another, for example (cf. Moran, Zimmer, and Yentsch 1982; Mrozowski 1984; Beaudry and Mrozowski 1987). In other cases they can stem from community-wide events such as plagues, fires, or the introduction of new domestic technologies. So, while the archeological record includes deposits resulting from the long-term accumulation of refuse, that record is often punctuated by the residues of rapidly occurring events.

The role of human agency in shaping the archeological record of urban communities is

paramount, but it is not total. The non-human members of the urban environment are also active participants in the formation of archeological deposits. This is one of the reasons we have employed an interdisciplinary approach to the study of Lowell's urban lots. Beyond what palynology can say about plant communities, it is also one of the most important tools the archeologist has to examine archeological formation processes. Another example is faunal analysis. The analysis of animal remains should justifiably focus on the issue of foodways at the boardinghouses, but it should not ignore the remains of other species. The presence of rodent skeletal material and rodent-gnawed bone of other species furnishes important evidence concerning the character of the urban environment and the conditions that obtained in the boardinghouses themselves (Mrozowski et al. 1989). These are but two examples of how the cross-fertilization of different analytical techniques can serve to illuminate the intricacies of the archeological record of an industrial city like Lowell.

Urban Lots as Micro-environments

Besides the analytical rigor an interdisciplinary approach can bring to urban archeology, it also fosters an appreciation for the social and ecological complexity of the urban environment. Students of the city have always recognized the social and spatial dimensions of urban communities, but have had less affinity for studying the city as an ecosystem except as a metaphor (e.g., Park [1916] and Wirth [1938] reprinted in Sennett 1969; cf. Douglas 1983). Cities are in fact complex ecosystems which are the product of human action and human values. As such they are the material embodiment of human values. At the same time our methods alert us to the distinction drawn by Schiffer (1972, 1983, 1988) concerning the effects of both cultural and natural forces on the formation of the archeological record (cf. Dincauze 1987). Only by looking at the urban lots of Lowell, or for that matter any city, as the product of social and ecological forces can we hope to forge a link between the archeological record and human behavior.

Use of Backlots and Formation of the Archeological Record

We have several lines of evidence to pursue in arriving at expectations of what the archeological record of backlots such as those of the Boott boardinghouses ought to be; the same lines of evidence assist in interpreting what is found. Perhaps the most compelling record is photographic. Progressive reformers and others made use of photography to underscore writings about the conditions of workers' housing in late 19th- and early 20th-century industrial communities. Margaret Byington's classic study, *Homestead: The Households of a Mill Town* (1910), is illustrated with photographs taken by Lewis Hine, who specialized in capturing the lives of working people on film. Two of the Homestead, Pennsylvania, scenes are especially poignant reminders that, despite their necessary function as centers of a wide variety of domestic chores and even of leisure activities, boardinghouse backlots could be far from pleasant places.

Figure 5-1 shows what was meant to be a typical wash day at a boardinghouse. A woman scrubs clothes on a washboard in a large wooden tub set atop a smaller tub. Dirty laundry lies scattered on the ground, which has an ersatz paving of planks and miscellaneous boards. Litter has accumulated against the back of the building, beneath a crude wooden bench, and along the fence line of the narrow passage leading from the street into the backlot. Two children sit quietly on the steps, cowed, no doubt, by the presence of the photographer.

Figure 5-2 shows the back stoop and a portion of the rear yard of another Homestead boardinghouse. Here, again, boards cover areas prone to traffic, and litter has accumulated in almost every open spot. A tired-looking woman eats a piece of fruit, and a child gazes solemnly at the photographer. The scene is squalid, yet at the window of the lower apartment there are lace curtains and a flowerbox—and the woman, with dignity and beauty despite her surroundings, wears a flower in her hair.

John Coolidge, author of *Mill and Mansion* (1942), photographed backlots of New England mill housing in the late 'teens and early '20s. Most of these photographs have not been published, however, but the negatives are in the archives of the Museum of American Textile History in North Andover, Massachusetts. In Figures 5-3, 5-4, and 5-5 we have a sequence of backlot scenes, the latter two of the same scene several years apart. All are of workers' housing in Somersworth, New Hampshire. Figure 5-3 shows a row of detached wooden housing, possibly tenement duplexes. Each free-standing house has two backlots fenced with a fairly open and insubstantial post, pale, and rail picket fence (none recently painted); every lot has an umbrella-type carousel clothesline mounted on a single post set into the ground. Each

Figure 5-1. Lewis Hine photograph of washday in a Homestead, Pennsylvania, boardinghouse backlot. (Reproduced from Byington 1910).

Figure 5-2. Lewis Hine photograph of a Homestead, Pennsylvania, boardinghouse backlot. (Reproduced from Byington 1910).

Figure 5-3. John Coolidge photograph of backlots of mill housing in Somersworth, New Hampshire. These free-standing wooden boardinghouses have two backlots apiece, each with a clothesline, many with gardens, all with weedy growth of some sort. (Courtesy Museum of American Textile History.)

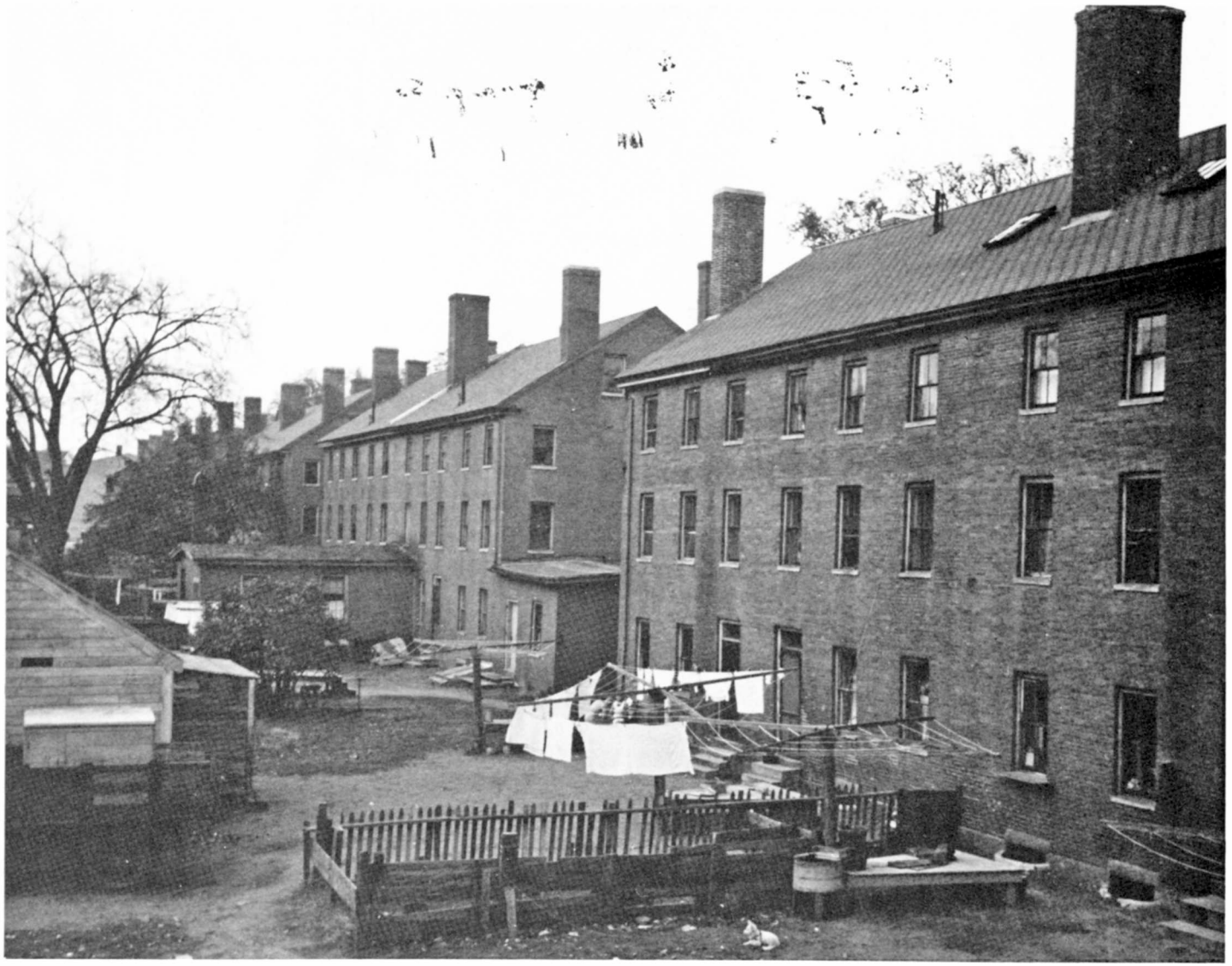


Figure 5-4. John Coolidge photograph of backlots of brick mill housing in Somersworth, New Hampshire. Behind these blocks of housing are clotheslines, sheds, and, in the foreground, an animal pen. Note also the accumulated refuse as well as weedy growth along buildings and fence lines. (Courtesy Museum of American Textile History.)

Figure 5-5. The backlots shown in Figure 5-2 sometime later. Note that the animal pen has now been partly roofed over with corrugated tin sheeting held down by planks and stones; a number of tubs and crocks are lined up against the enclosure. (Courtesy Museum of American Textile History.)

clothesline has a wedge-shaped apron raised above the ground, serving as a platform to stand on while hanging clothes. It is interesting to note gardens and even fruit trees in some of these lots, along with board-lined walkways and ubiquitous weedy growth along fence lines and untrafficked areas.

Figures 5-4 and 5-5 show the same seen a few years apart. Here brick boardinghouse blocks have open, unfenced yards, but the territory allotted to each unit is indicated in part by the regular placement of clotheslines. In the foreground is a pen of some sort, an enclosure for a pig, perhaps (it would do little to keep chickens or dogs in place—Figure 5-4 shows a dog tied to the pen). Litter has accumulated against the buildings and outbuildings as well as along the perimeter of the enclosure. Such locations tend also to have weedy growth; this is especially obvious in Figure 5-5. In the later scene, a series of crocks and tubs with various ill-fitting coverings are lined up along the fence of the pen; these presumably served in some food or water storage capacity. The later scene also shows more broadcast litter.

The photographic evidence corroborates what we would expect: boardinghouse backlots were intensively used, utilitarian space. They served a wide variety of functions; they were seldom attractive, lacking in upkeep, and most often muddy traps for lost and discarded items. They nevertheless served social functions, as women gathered to gossip (cf. the background of Figure 5-4) and children played near where their mothers worked. Hence if women spent a great deal of time doing chores in the backlots, children probably spent considerable time there as well. Time spent by men in the backlots was far more likely to be leisure time—drinking and card playing, perhaps—but might also have included gardening, some animal tending, and, in this century, tinkering with automobiles. The importance of calling to mind the range of activities that may have taken place in these small spaces is to link the behaviors responsible for the formation of the archeological record with the various sorts of data recovered from the backlots; it is too easy to lose sight of the human dimension of people's day-to-day lives when considering such abstract topics as 'socioeconomic status' or 'minimum number of vessels.' Our aim is to link the data with behaviors responsible for formation of the archeological record; a site structure approach permits us to interpret the archeological record with a focus on the people who helped to create it.

Boardinghouse Archeology

Quite a few historical archeologists have excavated at urban boardinghouse sites in North America, but the literature on such sites remains ephemeral. For the most part, the analytical approach to such sites has not differed from that applied to other types of domestic sites. This has involved attention to materials, ceramics for the most part, excavated from sealed features in the backlots of former boardinghouses; the focus has been largely on evaluating the socioeconomic status and/or ethnic affiliation of residents of such structures.

DeCunzo's (1982, 1987) excavations of tenements and boardinghouses in Patterson, New Jersey, involved exhaustive documentary research to establish the demographic and ethnic make-up of the neighborhood in which her site was located. The analysis of artifacts from privies behind residences occupied by different ethnic groups did not reveal ethnic differentiation in ceramic purchase and use; De Cunzo attributes this to the nature of the material—ceramics were mass-produced, mass-marketed, and relatively affordable to all. They do not appear to have served as ethnic markers, and their affordability means they do not in and of themselves reflect socioeconomic standing of consumers. Further, these issues become very blurred in situations of mixed and multiple residence at the same site, especially in places such as boardinghouses. These were not only home to many (families and otherwise), they were often subject to high rates of transience. Hence tying the archeological record to a particular group or affiliation is difficult indeed.

Rockman, Harris, and Levin (1983) excavated features behind what had been a private boardinghouse in 19th-century New York City. They report on the construction details of a cistern containing fill from the boardinghouse period of occupation and present a detailed analysis of ceramics from this feature. The analysis is aimed chiefly at interpreting the socioeconomic class of the boardinghouse residents, but addresses the question of boardinghouse cuisine as well (Rockman, Harris, and Levin 1983: 257). At this New York boardinghouse, the ratio of serving bowls to plates was small, perhaps reflecting a lack of elaboration in table service—a phenomenon also noted by Dutton for the Boott Mills boardinghouse (Chapter 6, this volume). They state in summarizing their analysis that in order to understand such deposits properly, additional comparative assemblages are needed. Sadly, the present volume cannot offer directly comparable material, for the majority of the

Boott Mills material dates to the latter part of the 19th and early 20th centuries.

Faulkner et al. (1978) conducted test excavations at the site of a mid- to late 19th-century Newburyport, Massachusetts, waterfront boardinghouse that was occupied by Irish immigrants. Artifacts were recovered from deposits in what had been an alley rather than from sealed features (cf. Figure 5–6). The authors (Faulkner et al. 1978: 80) note that

> The household goods found in the alley trash were modest. ...Most of the table setting was imported from England, although some pieces evidently came from Ireland.... Most is plain, white ironstone.... Generally the appearance of the pottery is functional, antiseptic, and even institutional. These were commonplace, mass produced items with not a hint of elegance.

The faunal remains from the Newburyport boardinghouse included a great deal of fish bones, which the authors link to the Catholic background of the residents. Meat was represented by commercially-butchered bones that had been sawn or chopped into relatively small pieces; these included many soup bones as well as more choice cuts of meat. Also present were a variety of personal objects and children's toys. The material remains from this site reflect the lifestyle and diet of people who were not well off but who had hopes of moving up the economic ladder into a more comfortable existence.

The chief difference between private boardinghouses and those owned by large corporations—apart, of course, from the scale of operation—is likely to have been the nature of residency. For the most part, the Lowell company boardinghouses did not house families. This was probably true of many private boarding situations, but private houses often were family homes in the first place. This was not the case in Lowell. Comparison between private boardinghouses and company boardinghouses cannot be made without attending to these differences. There are, however, some studies that treat corporate boardinghouses. In our first report on the Boott Mills study (Beaudry and Mrozowski 1987a), we noted the work of Robert Schuyler and his students at other Lowell boardinghouses.

Jed Levin's on-going analysis of material from this project is producing interesting results on the economic basis of class development in mid-century Lowell (e.g., Levin 1989). His study will eventually result in a full treatment of the artifacts recovered from deposits much earlier than those we report on in this volume. The sites were corporate boardinghouses, however, and hence in this regard will provide suitably comparable data for the present study.

As noted in the introduction to this volume, we found it useful to develop a model for interpreting the Boott boardinghouses as a particular form of household. Following is a discussion of the rationale for interpreting the Boott boardinghouses as corporate households sharing many features of conventional households yet possessing some unique characteristics engendered by the special conditions at Lowell.

The Boardinghouse as a Corporate Household

Archeological study of the backlots of the Boott Mills boardinghouses in Lowell, Massachusetts, presented a special challenge for household analysis. We approached them both as reflections of corporate policy and as the arenas for workers' domestic and leisure activities. The latter aspect of the study has tackled the concept of the household as it applies to corporate living arrangements such as the situation found in company boardinghouses. The following discussion is drawn from Beaudry and Mrozowski 1988 as well as from work in progress.

It is of course true that the residential make-up of a boardinghouse can seldom be viewed in the familial sense normally employed to characterize households. The problem is one of how appropriately to define the *corporate* household. As with other sorts of households, it probably is best viewed in terms of its structure (i.e., its internal composition and the relationships among its residents) and the activities it performs. Seldom, however, is kinship the significant variable in the residential composition of the boardinghouse, although related individuals may be present. Laslett's analytical synthesis of ideas about families and households reveals that scholars have tended to avoid a definition of the household as being tied strictly to kinship because there is considerable variation in family form both within cultures and cross-culturally (Laslett 1972: 1–89). Therefore the definition of the household as a "co-resident domestic group" of "those who share the same physical space for the purposes of eating, sleeping, taking rest and leisure, growing up, childrearing, and procreating" (Laslett 1972: 24) is for the most part, as applicable to the corporate household as it is to that of more conventional domestic groups.

Laslett further attempts to avoid confusion between the terms *family* and *household* by

Figure 5-6. John Coolidge photograph of alley-facing mill housing in Lowell. The refuse accumulated in the unpaved alley and overflowing from the trash barrels is creating an archeological record not unlike that uncovered by Faulkner et al. in an alley outside a waterfront boardinghouse in Newburyport, Massachusetts. (Courtesy Museum of American Textile History.)

introducing a new term, *houseful*, to refer to the presence under one roof of lodgers, boarders, and visitors, whom he terms *inmates*, in conjunction with family members. Thus a houseful "means all persons inhabiting the same set of premises," or "the crew of a single building" (Laslett 1972: 36). In Laslett's scheme the boardinghouse is a houseful, because it is in no way a family. Yet in the sense that a boardinghouse was a co-resident group whose members "share the same physical space for purposes of eating, sleeping, and taking rest and leisure," it was a household. Further, its membership shared in contributing to the economic viability of the household. Although the boardinghouse often had a fluctuating composition because of worker transience, the nature of its composition changed very little as a result of such fluidity. Transience in residency may have been a characteristic of these 'housefuls,' but the keeper, the household head, often enjoyed a very long tenure and provided continuity in the midst of change. Thus while recognizing the ways in which boardinghouses differed markedly from conventional households, this study conceives of them as *corporate households* as a means of providing a conceptual and theoretical framework in which to interpret them from an archeological perspective. In this way boardinghouses can be examined in terms of how their company-controlled structure affected the domestic lives of their residents and the nature of boardinghouse keeping as a social and economic activity.

The structure of the corporate households of the Lowell boardinghouses was very consistent in most regards. In the early years—the 'mill girl' era—it was common for a single unit to house only women and, in a few instances, only men. Mixed residency was not prevalent until late in the 19th century. The result was more often than not a female-headed household made up almost solely of females. Although their ages might vary considerable, the women making up these households worked at quite similar jobs, and thus there was little occupational variation (and hence only small differences in income). The household residents contributed equally to what may be termed household income; that is, each person living in the boardinghouse had the cost of room and board subtracted from her weekly pay before she or he received it. The keeper in turn received a lump sum from the corporation and was expected to run the household on this income alone and to keep detailed, accurate accounts of all household expenditures.

The boardinghouse keeper functioned as head of household and, whether male or female, was responsible for feeding household members, for day-to-day care and cleaning of the premises, for maintaining order and discipline, and for upholding morality within the boardinghouse 'family.' The keeper was the primary decision maker when it came to household purchasing patterns; the nature of the boardinghouse system prompted keepers to economize in every possible area (e.g., in purchasing and preparing food, in selecting glassware and dishes from which to serve meals, and in purchasing or renting the furnishings for the boardinghouse). This is where kinship often played an important role, for boardinghouse keepers took advantage of networks formed through kin ties in the larger community. In other words, they transacted business with a brother who was a provisioner, a brother-in-law who was a grocer, and so forth (Landon 1987).

For these reasons, patterns of consumer behavior for the corporate household were an adaptation to a rigidly-defined system that engendered a somewhat unique social structure, but one that nevertheless resembled conventional households in many ways. Personal (e.g., of clothing, hats, jewelry, patent medicines, and so forth) as well as corporate (e.g., of food, serving wares and utensils, and furnishings) purchase and consumption patterns can be delineated. What is more, evidence for the two contrasting areas of consumer behavior can be recovered archeologically in the form of faunal remains, glass fragments, pottery sherds, etc., for the latter pattern and in the form of beads, buttons, costume jewelry remains, hair combs, smoking pipes, marbles, and so forth for the former. The corporate pattern was initiated by the keeper, an individual whose choices were governed by the nature the boardinghouse system. If the keeper hoped to make a go of a boardinghouse, she or he had to stretch the allotment from the corporation as far as it would go. Clever and careful keepers could turn a profit by economizing on household purchases and by bending or flouting company rules when they could.

On the other hand, the personal objects recovered archeologically reflect individual choices—purchases made by residents of the corporate household. They do not serve as indicators of status or economic position, for, as mentioned above, the nature of the corporate household provided little or no room for such internal variation in the co-resident domestic group. Our analysis of such materials has

focused on leisure time and worker response to the corporate environment (cf. Jones 1977; Bond 1988). The contrasting patterns of corporate and personal purchase and use of material culture revealed through analysis of items recovered from the boardinghouse backlots can illuminate poorly-documented aspects of workers' lives and prevent us from succumbing to the "temptation to translate archival silence into historical passivity" (Jones 1977: 163).

Excavation Strategy

Summary of Previous Archeology

As part of the residential component of the project, initial archeological investigations in the Boott Mills study consisted of a brief phase of exploratory testing in the fall of 1985 in the Locks and Canals parking lot destined to become the Lowell Boarding House Park. Four 1 m x 3 m test trenches were placed at locations determined by juxtaposing the 1892 Sanborn Fire Insurance map over a modern map of the parking lot layout (while designed to encounter boardinghouse features, the test trenches nevertheless had to coincide with existing parking spaces; see Beaudry and Mrozowski 1987a for a full discussion of the results of testing). Measurements made off of the restored boardinghouse in accord with the scale of the Sanborn map proved highly accurate as indicators for placing test units that could target features beneath the parking lot surface. Figure 5–7 shows the footprints of the former Boott boardinghouses superimposed on a map of the Locks and Canals parking lot (since turned into the Lowell Boarding House Park) and indicates the areas of testing and excavation.

During the summer of 1986, a two-week investigation in the backlot of the Massachusetts Mill side of the Kirk Street Agents' house duplex provided an opportunity for detailed investigation of the rear yard of a middle-class supervisor's home. Despite the brief field season, approximately 30% of the backlot was explored. No sealed features (e.g., pits or privies) relating to occupation by agents' families were discovered, but the built-up soil strata of the backlot proved rich in artifactual material as well as contextual data derived from pollen, soil chemistry, phytolith, and macrofossil evidence.

The contextual data were used in two ways. First the pollen, plant macrofossil, and phytolith data were used to reconstruct changes in plant communities over time in the yard of the Agents' House. These data, combined with the results of soils analysis, provided important information concerning the development of yard deposits and, by extension, the archeological record. This has proven to be indispensable to efforts to correlate individual strata with particular households.

The fact that a great deal of information about successive households and land use at the Agents' House could be gleaned from soil strata helps to dispel the widespread notion that, at urban sites, only the contents of sealed features are of analytical or interpretive merit. The data derived from the investigations are presented in detail in a full-length monograph on the excavations (Beaudry and Mrozowski 1987b).

Archeology in the Boardinghouse Backlots

In the fall of 1986, the Boott boardinghouse backlots again became the focus of archeological attention. This five-week effort involved exposure of two complete backlots, that of Boott unit #48, an end tenement for supervisory personnel, as well as that of #45, a 'typical' boardinghouse. These two lots were chosen both because they offered a contrast between yard use behind the boardinghouses versus that behind family-occupied tenements and because the boardinghouse block in which these units were located had been torn down earlier in the 20th century than most of the other blocks. Thus, it was reasoned, they had been part of the archeological record longest and, more important, had not seen extended use as apartments or warehouses, as had many of the other boardinghouse blocks.

Each boardinghouse and each rear tenement had an enclosed backlot with a woodshed housing a privy and used as well for storing wood, coal, and garbage awaiting collection. The small yards (ca. 10 m deep by 8 m wide), two of which were fully exposed and sampled during the archeological project, were used chiefly for service purposes such as laundering and drying clothes. Residents of boardinghouses had access to the privy through a rear door in the building's service area (in the case of unit #46, for example, excavation revealed remains of a rough brick-paved path apparently leading from the rear of the house to the privy shared by units #45 and #46). Most boarders were responsible for personal laundry, although the keeper provided linens and so forth. Presumably the keeper and her helpers made most use of the boardinghouse backlots, even though boarders had ready access to them. The tenement backlots were more likely the domain of overseers' or skilled workers' wives when the

prescribed arrangement (i.e., occupation by a nuclear family) obtained; unit #48, however, initially housed an unmarried man and two other males. In such situations it seems likely that the men employed a non-resident housekeeper to do the cooking and cleaning.

The broad area exposure (i.e., of two 10 x 10 m blocks, designated as Operation A and Operation B, respectively) revealed the backlots fully, allowing for all features—pits, postholes, ell foundations, privy, well, drains, etc.—to be recorded in plan (Figures 5–8, 5–9 and 10). Some of these features were fully excavated, while others were sampled, and samples of yard deposits, where they existed, were taken.

The asphalt surface of the parking lot was broken up with a backhoe; a bobcat was used to remove the rubble and to scrape off some of the sand bedding for the asphalt. When Operation A was opened, the bobcat operator gouged too deeply in places (the deposits were right below the sand). When Operation B was opened, he was directed to remove asphalt only and we shoveled off the sand. Yard deposits seemed more intact in Operation B than in A, but the difference in opening them is not wholly accountable for this; the Operation A backlot appears to have been subjected to more scraping that the Operation B backlot. Good evidence for this was that in B, a layer of window glass formed a surface that sealed off the deposits; no such demolition-produced seal was found in A, nor did A have any appreciable accumulation of soil or other material (e.g., refuse) above the substratum. Therefore some differences between the lots are attributable to the razing of the houses ca..1934, use of the area as a coal yard until ca. 1950, and subsequent preparation of the area for a parking lot.

Once the parking lot surface was removed, the sand bedding was shovelled off; subsequent strata were trowelled or shovel-schnitted and screened through 1/4-in hardware mesh. As noted above, our aim was to provide broad area exposure in order to map the features of the backlots, hence we concentrated on uncovering and recording features rather than excavating them. In Operation A, we excavated several features or portions of features; fewer features were explored in Operation B because we ran out of time. This was especially disappointing, as the Operation B backlot was much richer in yard deposits than A, and these had been sealed by a layer of window glass deposited either during demolition or, more likely, when the windows were boarded up during conversion of the block to a warehouse. Another disappointment was that we were unable to take overall photographs of Operation B. On the last day of fieldwork, the area was cleaned and the crew awaiting the National Park Service cherry picker loaned to us before we closed Operation A when word was received that Congress had failed to pass a holding resolution to permit the government to operate without an approved budget. All Park Service employees were sent home at noon that day, and we were left with a very tidy site we could photograph only from atop our ladder or van. The plan map of Operation B, along with a few close-up photographs of features, provide the illustrations for our discussion of this area.

Following are summary descriptions of the features uncovered in each excavation area. The discussion first treats Operation A, the backlot of Boott tenement #48, and then moves to a discussion of Operation B, the backlot of Boott boardinghouse #45. It should be noted that features were numbered as they were encountered, beginning with the testing phase in 1985, so the numbers do not follow a sequence within the excavation areas. Features 1-14 were all uncovered during the initial testing phase and are discussed in Beaudry and Mrozowski 1987a. Operation A is illustrated in plan in Figures 5–8 and 5–9; Operation B in Figure 5–10.

Operation A

Feature 15, ØN2W, level 1: Cobble Surface (?)

This grouping of stones was tentatively identified as a cobble surface when first uncovered. It consisted of five stones roughly in line extending north-south for ca. 1 m along the southern edge of this unit. This feature lies ca. 2 m outside of the tenement backlot, south of its former fence line, in an area that would have been the walkway along French Street. Whether this alignment of stones formed portion of a bedding for the walkway, served as a rough curb along the edge of the street, or is simply redeposited material resulting from utility installations along French Street is unclear.

Feature 16/42 , 8N2W, level 3: Cess pit (?)

Feature 16 was identified as a rubbish pit in the northwest corner of unit 8N2W. It measured ca. 52 x 53 cm; its fill was a dark greyish brown (10YR 3/2) fine sand with pebbles, some wood, and a great deal of coal. The excavator noted that some of the rotten wood appeared to have been logs or planks running north-south and used to cover the artifact-rich deposit. This feature lies directly behind a brick drainage feature (feature 36), possibly a cesspit. It is

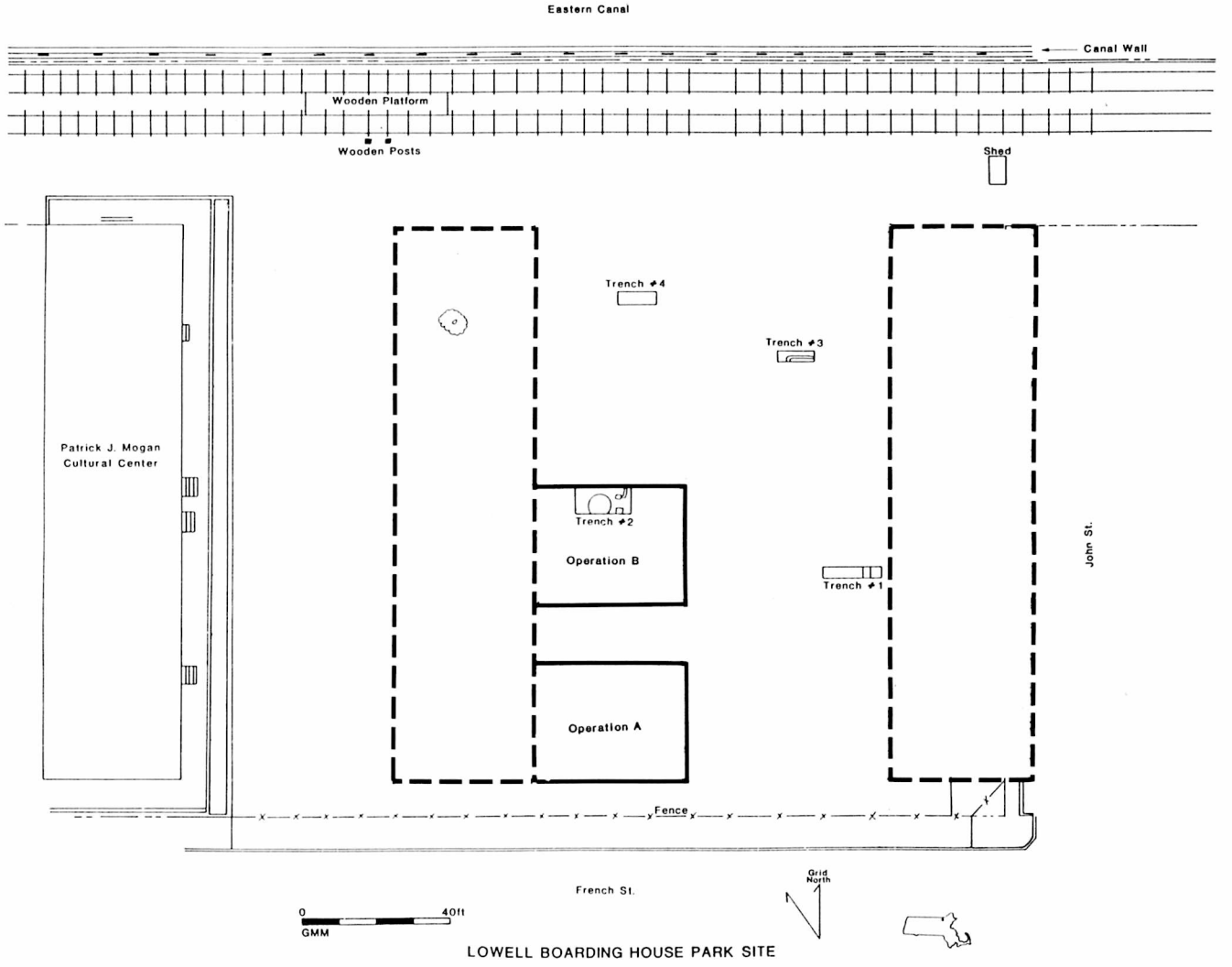


Figure 5-7. Plan of 1985 test trenches and the 1986 excavation units in the Locks and Canals parking lot adjacent to the restored boardinghouse (now the Patrick J. Mogan Cultural Center). The dashed lines represent the footprints of two demolished boardinghouses located through comparison with the 1892 Sanborn map. (Drawing by Gerald MacComber and David H. Dutton.)

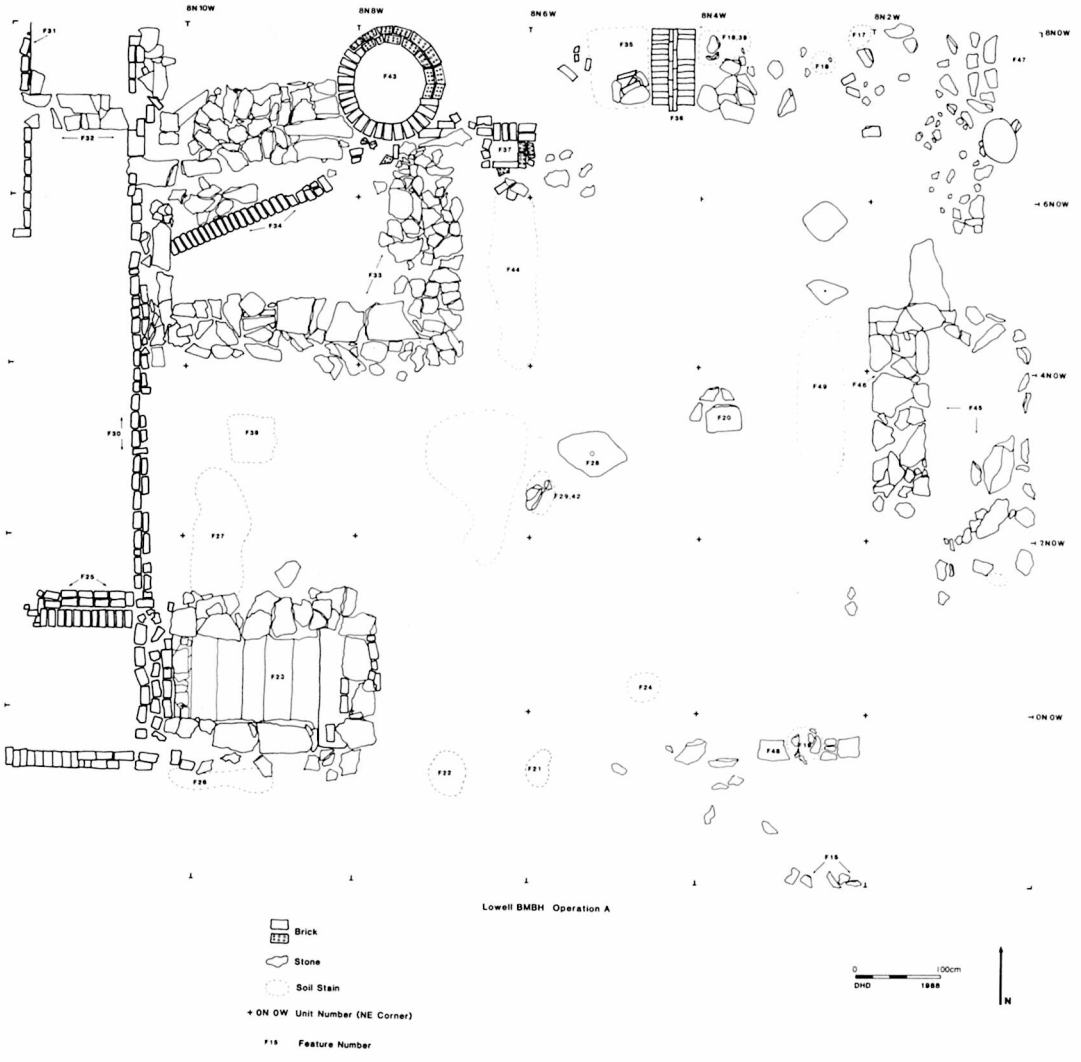


Figure 5-8. Plan of Operation A, the rear yard of Boott unit 48, a supervisors tenement. Residents of the street-facing tenement did not have direct access to the backlot and its privy but had to enter through the gate opening (features 21 and 22, bottom center, are post holes of this gate) onto French street. (Drawing by David H. Dutton.)

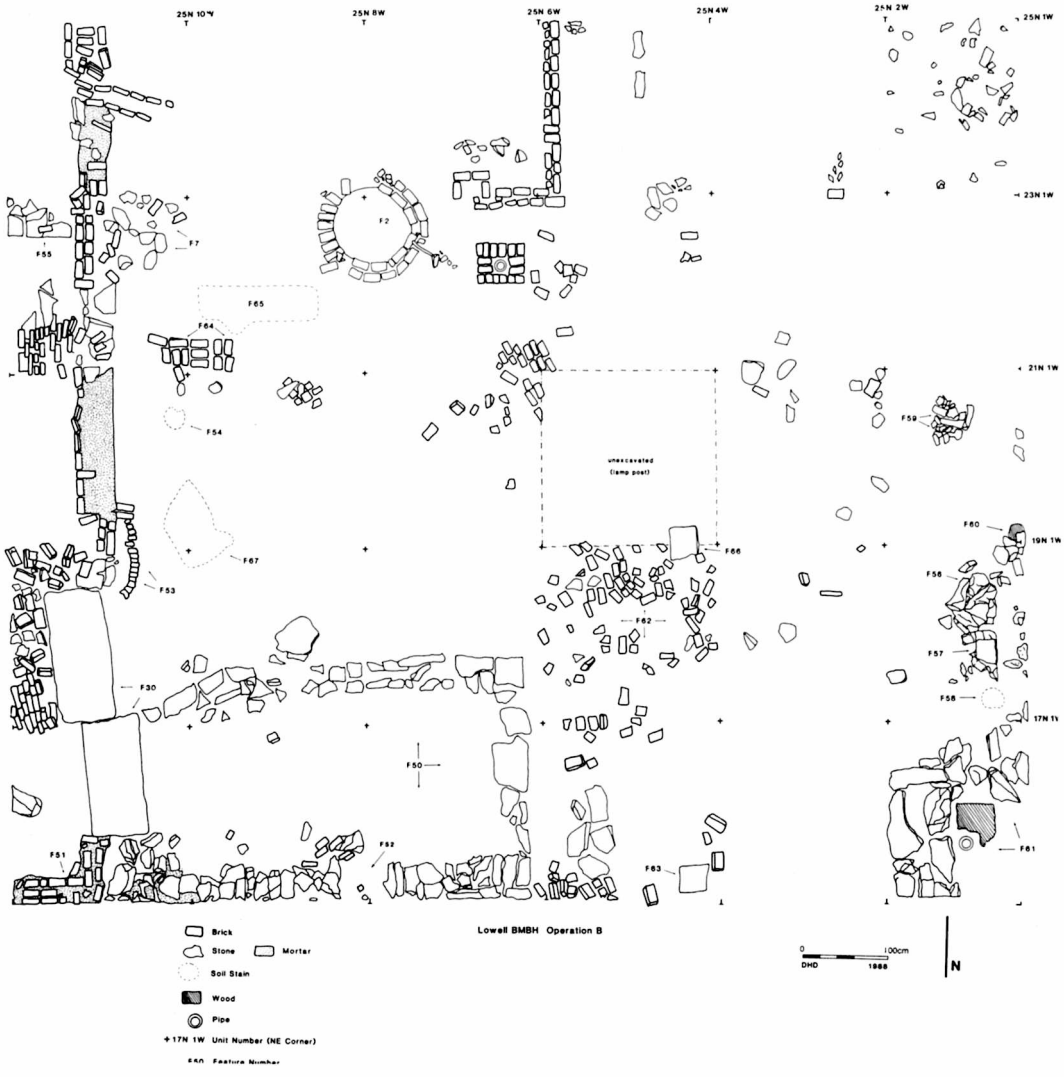


Figure 5-9. Plan of Operation B, the rear yard of Boott unit 45 and a small portion of unit 44 (at top); both were boardinghouses. (Drawing by David H. Dutton.)

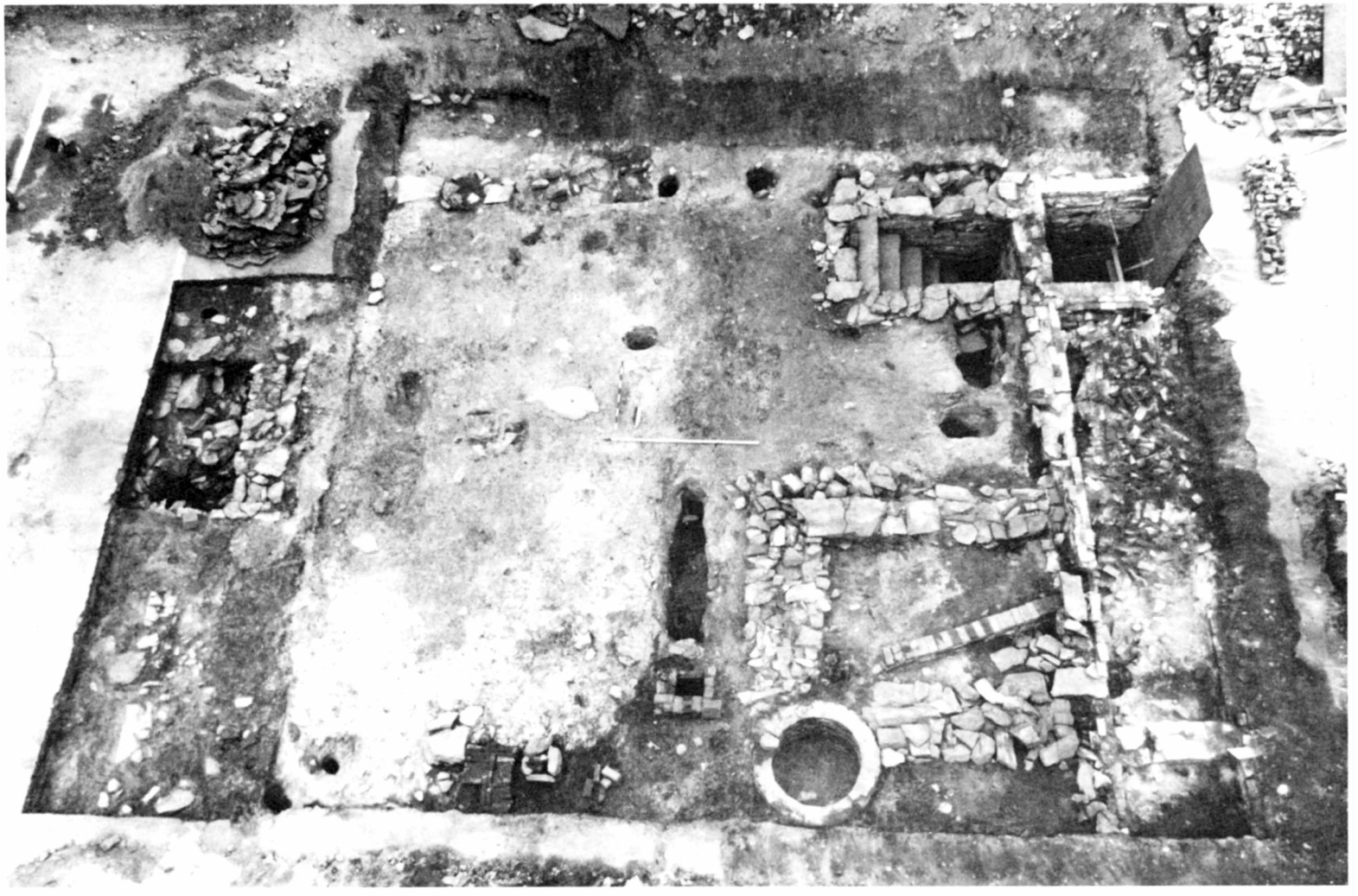


Figure 5-10. Overhead view of Operation A. The rubble-filled cellar is at the right; the bulkhead entry and ell project from this. The well incorporated into the ell foundation was shared with adjacent unit. A stone-line privy (upper left) was housed in a woodshed at the rear of the yard. Various drainage features, post holes, and planting holes can also be seen. Camera faces south. (Photograph by Paul S. Giblin.)

located in the same area of the backlot as the cess pool of the Bay State boardinghouses shown in plan in Figure 7–11.

It further seems likely that it was inside of the former woodshed. The stones directly south of it may have been part of the woodshed 'foundation,' if such a term can be employed to describe what was in fact a most flimsy and ephemeral construction. Hence the wood may have been part of the flooring for the woodshed (if indeed it had a floor—the presence of the privy suggests it might have). This would mean the artifacts accumulated beneath the woodshed in a crawlspace. On the other hand, if it lay outside the shed, the wood may have served as some sort of covering for the cesspit or as a platform or surface to permit foot traffic in an otherwise mucky area.

Feature 17, 8N2W, level 3: Rubbish pit/posthole (?)

This feature, in the northeast corner of the unit, was a round pit ca. 18 x 40 cm in size. It had two zones of fill; the upper fill was a fine, very dark greyish brown silty sand (10YR 3/2) with pebbles, while the lower zone consisted of a fine pale brown sand (10YR 6/3). The two zones were separated by a lens of ash. A contiguous column of 17 pollen samples was taken from this feature but not analyzed for the present report. It is unclear whether this filled-in hole or pit once held a post, as no clear post mold showed up in the profile. It does lie along the boundary separating the tenement backlot from that of the adjacent boardinghouse, however, and this would have been a likely spot for a post support either for the end of the tenement section of the woodshed or for the fence separating the two yards.

Feature 18, 8N2W, level 3: Rubbish pit/post mold (?)

This round pit measured ca. 65 cm in diameter and contained what seemed to be a post mold ca. 15 cm in diameter. The fill was a mixture of find brown sands. This may had been a post support for the western edge of the woodshed (it aligns roughly with features 19 and 48 some 7.5 m to the south, as well as with feature 46). If so interpreted, this permits the woodshed a total depth of only ca. 2.5 m; it seems more likely that features 16/39, 20, and 24 are evidence of the western edge of the shed.

Feature 19, ØN2W, level 2: Posthole

Features 19, 21, and 22 all were postholes that had once held posts for the fence enclosing the tenement; the southern run of the fence had a gate permitting access to the backlot from the street. Feature 19 had held a regular post, while features 20 and 21 had held gateposts. The feature, ca. 15 cm in diameter, was not excavated. The top of the posthole showed stones set in a matrix of dark brown sandy silt mottled with orange and grey sand.

Feature 20, 4N4W: Stone post support

This flat rectangular rock, ca. 30 x 40 cm, had been quarried. It appeared to have served as a base for a post supporting the woodshed superstructure; surrounding the rock was a dark brown sandy matrix (10YR 4/3) with a great deal of rotten wood, charcoal, and chunks of what appeared to be marine clay.

Feature 21, 1N4W: Posthole

This large posthole, the southern gatepost, was roughly oblong in shape, measuring ca. 25 x 33 cm in plan and extending ca. 80 cm in depth below grade. The fill of the post hole was a mottled yellow-grey silty sand with dark brown mottling and contained a large number of brick fragments. The lack of a clearly visible mold indicates that the post probably had been pulled out, although a few bits of rotten wood were recovered, and the excavator noted that bricks and stones seemed to have been packed around what had been the post.

Feature 22, 1N6W: Posthole

This posthole, the northern gatepost, was essentially round (ca. 40 cm in diameter) and was dug into the sandy substratum. Its fill consisted of dark brown silt (10YR 3/3) with tan clay inclusions as well as brick and stones. The excavator interpreted the latter as support packing for the post. A discoloration that may have been a post mold showed up at the top of the feature but did not continue through the entire profile; this presumably means that the post was removed before it decomposed fully.

Feature 23, 2N8W, 2N6W, 1N8W: Bulkhead entry

The stairwell for the bulkhead entry into the cellar and its fill was designated as feature 23.

Figure 5-11. Feature 23, the bulkhead entry. Note that entry into cellar has been blocked up. Camera faces west. (Photograph by Paul S. Giblin.)

Figure 5-12. View of feature 23, bulkhead entry, also showing features 27 and 38, planting holes. Camera faces west. (Photograph by Paul S. Giblin.)

(Figures 5–8, 5–9, 5–11, and 5–12). The stairwell, an opening measuring ca. 1.96 m x 2.7 m, was constructed of dry-laid quarried granite; it had been filled completely with coal ash/slag and furnace scale of a dark greyish brown color. A series of six granite steps extended downwards to the cellar opening, which had been blocked up with firebrick and stone at some time before the building was destroyed (the fill of the bulkhead contained a great deal of the firebrick razed from this partition when the structure was demolished). Presumably the entry was blocked up to prevent break-ins and pilferage when the building was converted to a warehouse.

Feature 24, 2N4W, level 1: Shallow depression or lens

This shallow lens (ca. 3 cm in depth, ca. 15 cm in diameter) of dark sandy silt with charcoal (10YR 3/2, very dark greyish brown) contained a high concentration of artifacts (e.g., ceramics, stoneware, glass, a button) and a peach pit (see Mrozowski, Chapter 12, this volume). It seems to have been a hollow depression in the yard surface that became filled with debris.

Feature 25, 2N10W, ØN10W: Cellar fill

The area of cellar fill behind the blocked-up bulkhead entry (feature 23) lay south of an internal partition wall of the cellar and provided a relatively safe area in which to sink a test into the cellar fill (Figures 5–8, 5–10, 5–13). The excavated portion of cellar fill measured ca. 1.30 m north-south by ca. 1.50 m east-west by ca. 70–80 cm in depth below grade. The fill had very little soil and consisted chiefly of rubble: bricks; mortar; slate fragments; plaster; window glass; and various corroded iron objects, including portions of gutters, downspouts, and pipes from the building's plumbing system. The excavation revealed that while the cellar foundation was set on a footing of granite (cf. Beaudry 1987: fig. 7–9), the cellar floor was nothing more than fine white glacial sand.

Feature 26, ØN10W: Builder's trench

This feature was interpreted as a portion of the construction trench for the bulkhead entry; it ran east-west along the southern edge of feature 23; only the portion lying outside the stone apron surrounding the bulkhead was excavated. This area measured ca. 20 cm wide x 2 m long; the fill was a very dark greyish brown sandy silt (10YR 3/2) and contained very few artifacts.

Feature 27, 2N8W, 4N8W: Planting hole

This irregularly-shaped feature (ca. 60 cm x 110 cm x 60 cm) near the corner formed by the juncture of the bulkhead entry and the back wall of the boardinghouse, was a planting hole (Figures 5–8, 5–10, 5–13). It was filled with dark brown (7.5 YR 3/4) sandy loam with orange mottles and some small fist-sized stones. In addition to many ceramic fragments, it contained the remains of an extensive root network from the plant or plants that had grown there.

Feature 28, 4N4W: Clothesline support?

A large rock deemed a probable base for a post or pole supporting a clothesline or other yard feature, feature 28 had a ca. 5-cm diameter hole bored into its center. The hole contained corroded iron fragments. The stone itself was light grey granite, ca. 48 cm x 77 cm. It is possible that the pole or pipe inserted into the drilled hole supported a flimsy version of the umbrella-style carousel clotheslines that can be seen in Figures 5–2, 5–3, and 5–4.

Feature 29/42, 4N4W: Posthole and post mold

This posthole still contained the deteriorated remains of a wood post in its center (it is labeled 42 on Figure 5–5). The post hole measured ca. 27 cm x 39 cm in top plan (it was not excavated). The upper fill was observed to be a very dark greyish brown (10YR 3/2) fine sand. The post/post mold was surrounded by various cobbles and bricks. This posthole was placed almost exactly in the center of the backlot. It also is a likely candidate for a clothesline support. Directly west of this feature was a large area of darkened soil; this was not given a feature designation and was not explored in any detail, but it may have been a pit of some kind or simply an area that had been repeatedly trodden during use of the clothesline. Note that in Figures 5–2, 5–3, and 5–4, there are special platforms beneath the clotheslines. These would have made it easier for women to hang out washing when the ground beneath the line was unpleasantly muddy to stand on. The platforms no doubt also permitted shorter people to reach the lines without stretching on tip-toe.

Figure 5-13. View of the back wall of the boardinghouse; rubble fill of the cellar is at the top; the gate posts (features 21 and 22) are at the left; from left to right can be seen the bulkhead entry (feature 23, two planting holes (features 27 and 38, the rear wall of the boardinghouse (feature 30), the ell (feature 33), a drain (feature 34), and the well (feature 43). Below the ell lies a drain box and pipe trench (features 37 and 44), and in the lower right an unexcavated feature (35) thought to be a cesspit. Camera faces west. (Photograph by Paul S. Giblin.)

Feature 30, 10W range of units: Back wall of boardinghouse block

The back wall of the boardinghouse was given a feature designation that was also applied to fill west of it over the rubble fill of the cellar foundation (Figures 5–8, 5–10, 5–13). Two bricks wide, the wall measured ca. 60 cm wide at this level (the granite sills and the foundation proper being much wider—see Figure 5–9, where feature 30 included some displaced sill stones). The rubble was exposed but not excavated; the matrix in which the bricks, mortar, plaster, etc., occurred was a mottled sand and loam, with dark orange, red, dark brown, and light olive grey soils as well as glass fragments, pottery and ceramics, and rodent bones (see Chapter 9).

Feature 31, 8N10W: Internal partition wall

This brick wall segment appeared to be a portion of an interior partition wall inside the tenement and in Boott Unit #46, which was adjacent to the #48 tenement and shared its well (Feature 43; Figures 5–8, 5–10, 5–13). The partition was at least two brick courses wide, running north-south; it extended south from feature 32, the party wall between the two units, before turning a right angle and heading west. It is unclear what function this wall served in terms of internal room divisions in the building; it does not appear to have been a bearing wall.

Feature 32, 8N10W: Party wall

This stone and brick segment of the party wall between the tenement and boardinghouse #46 was designated as feature 32. Feature 31 abutted this wall north and south. The part wall was 40 cm wide; granite stones provided the level bearing surface upon which bricks had been mortared (traces of mortar remained on the exposed stones) to form the above-grade portion of this wall.

Feature 33, 6N6W, 6N8W, 8N8W: Ell foundation

This ashlar construction, essentially a crude assembly of unmortared stones in a shallow trench, served as the foundation for the ell of the tenement (Figures 5–8, 5–10, 5–13, 5–14) There was no evidence of vent holes for a crawlspace, but there undoubtedly was some open space beneath the floor of the ell in which refuse had accumulated. This ell is what Clancey (1987a: 25) described as a "stubby ell" when discussing the sequence of ell construction for Boott workers' housing. Note that the ell (feature 50) behind #45, the boardinghouse, was of greater length in plan.

Feature 34, 6N8W, 8N8W: Brick drainbox

This feature ran diagonally southwest-northeast across the ell, linking the well with the back of the boardinghouse. It was a brick drainbox, ca. 18–19 cm wide, formed of strechers mortared together atop brickbats placed on edge to form the box. The drain carried a 1-in lead pipe from the well, presumably into the tenement kitchen or a cistern below it. The pipe had been installed as part of the original construction of the well and boardinghouse complex.

Feature 35, 8N4W: Pit

This feature was roughly oblong in shape, with a number of stones measuring ca. 20–25 cm x ca. 10–15 cm in its southeast corner. The fill of the feature was a highly organic loam (10YR 3/3, dark brown); it appeared to have been lined with grey clay. Although it was not fully excavated, a portion of the fill was sampled,. Artifacts were numerous in this fill. This feature is most likely a cesspit or a portion of the cesspit complex; see discussions of features 16/39 and 36.

Feature 36, 8N4W: Brick drip paving

This feature consisted of two rows of brickbats set flat and sloping inwards toward two rows of brick set lengthwise on end. It measured 40 cm x 50 cm and apparently had served as a drip paving flanked on either side by cesspits (feature 16/39 to the east and feature 35 to the west; see discussions of each of these features).

Feature 37, 8N6W: Brick drain box

This rectangular brick drain box was a downspout for collecting roof runoff, probably from the ell. It measured 52 cm x 61 cm external dimension, 31 cm x 24 cm internal dimension. The downspout fed into a stoneware utility pipe 1.3 m below grade. Its fill, which contained many artifacts (including a broken cast iron coal grate, crown bottle caps, and a peach pit), was a black sandy loam (10YR 2/1).

Figure 5-14. Detail of Operation A showing features 33, 34, 43, 37, and 44. Only a portion of feature 44 was excavated; the trench continues around the corner of the ell foundation and is cut by feature 38, a planting hole. Camera faces south. (Photograph by Paul S. Giblin.)

Feature 38, 4N8W: Post hole/Post mold

At its surface this feature appeared as a thin deposit of brick chops and mortar with an occasional half brickbat, ca. 65 cm x 80 cm. After being taken down a bit, it still had no clear edge definition; a possible post mold did show up in the center of the hole, which became better defined as the excavation proceeded deeper. The hole/mold narrowed down to 33 cm x 40 cm at its base. The presumed post mold actually consisted of olive yellow (2.5Y 6/6) fine sand with small gravel and pebbles; the fill of the hole was a mottled "strong" brown (7.5YR 5/8). This may have been a post hole for a scaffolding of some kind, perhaps a crude trellis. It cut into feature 44 (see discussion below), which may account for difficulties over definition of its boundaries during excavation. Feature 38 may also have simply been a planting hole.

Feature 39, see feature 16 discussion

Features 40, 41, lenses that proved not to be features

Feature 42:, see feature 29 discussion

Feature 43, 8N6W: Well

This circular brick well had an inside diameter of 91 cm. Its fill was excavated to a depth of 1.06 cm below grade in arbitrary 20-cm increments (levels A, B, C, D, E). The matrix was a mottled olive grey and dark yellow brown silty sand. It contained a fair number of artifacts, but these amounted to nothing when compared to the artifact-laden fill of the well behind the boardinghouse (feature 2, described in Beaudry 1987: 90–98). A lead pipe extended down into the well after entering it ca. 50 cm below grade; the pipe fed into the tenement through feature 34, a brick drain box. This well had been filled with clean fill rather than the refuse and coal ash used to fill feature 2. Seemingly this is evidence that whoever the corporation employed to fill the tenement well abided by the orders of the Lowell Board of Health's regulations regarding such fill (cf. Bell 1987a: 62)

Feature 44, 6N6W, 8N6W: Drain pipe trench

This feature was the trench dug to install the drain pipe leading from the downspout drain box (Feature 37) around the corner of the ell and into the back of the tenement. The fact that the trench extended this far was not recognized until we were able to view the site from the cherry picker when closing photographs were taken. This in part is why it was not fully excavated; time constraints would not have permitted full excavation in any event. The trench was ca. 50 cm in width; the excavated portion extended for ca. 1.30 m north-south, parallel to the rear wall of the ell. The trench fill was very mixed, but consisted chiefly of a dark yellow brown sand with gravel and pebbles. It also contained many artifacts, including glass bottle fragments, ceramics and pottery, nails, crown bottle caps, and broken ceramic drain pipe fragments. The drain pipe was encountered 30 cm below grade; as noted above, the pipe was glazed stoneware. A hole in the top of the pipe had been "patched" by wedging two bricks into the hole. How effective this was is open to question.

Feature 45, 4NØW, 4N2E: Privy vault

This stone-lined privy consisted of a rectangle, ca. 1.90 m x 2.50 m, filled with coal cinder, furnace scale, and ash, and an assortment of early 20th-century artifacts as well as large stones pushed in during demolition of the upper portions of the feature. Two cast-iron vent pipes emerged from the depths of the feature, which also had a large wooden support beam in its northwest corner. It was excavated in three levels. Level A was the coal cinder and ash from the top of the feature down to 70 cm below grade. Beneath this lay many large blocks and orange grey sand. The excavator noted that the fill of coal ash appeared to be interspersed with household sweepings. The wooden post may have been the back of the woodshed, or the support for the rear part of the privy superstructure.

Level B contained ashlar rubble, large slag and cinder fragments, and medium brown soil. One concentration of cinders in the northwest corner contained a number of whole whiskey bottles, a woman's shoe sole fragment, tar paper, and tin can fragments, as well as an intact enamelled tin chamber pot. Level C, the base or bottom of the privy, encountered at 2.10 m below grade, was a grey sand interbedded with grey silt.

Some idea of the appearance of such accommodations as this Boott privy can be gotten by examining a photograph included by

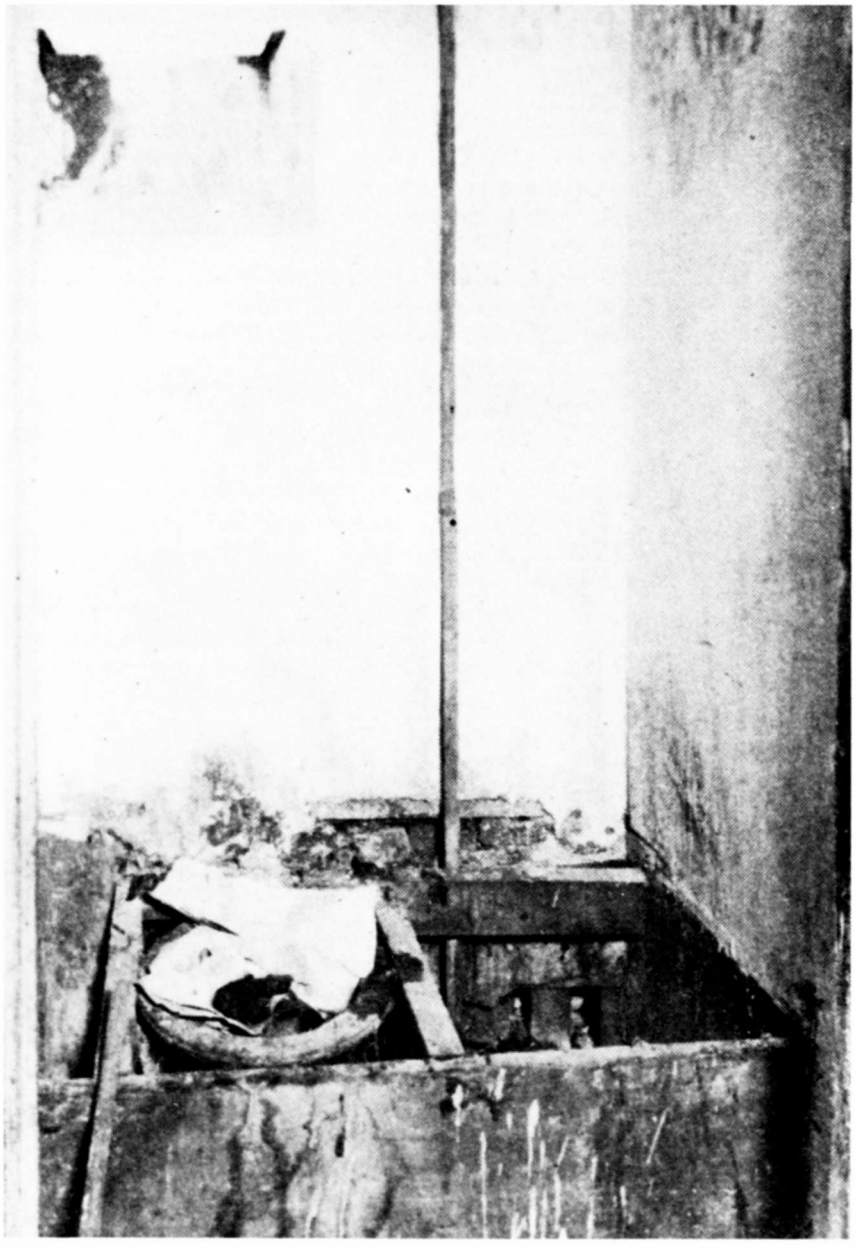


Figure 5-15. Early 20th-century photograph of the interior of a tenement water closet in Lowell worker housing. (Reproduced from Kenngott 1912.)

Kenngott in *The Record of a City* (1912; Figure 5–15); it needs no commentary.

Feature 46, 4NØW: Bottle dump outside privy

Just west of the privy foundation, a small cache of four bottles (Figure 7–1; see Chapter 7 for a detailed discussion of the bottles) was uncovered; it was given a separate feature designation. It would appear that the bottles had been deposited in a hollow, beneath the floor of the woodshed or under a step leading into the privy vault chamber. The bottles were in a triangular area, ca. 40 cm x 1.26 cm x 16 cm, of dark yellowish brown fine sandy loam (10YR 4/6) with very dark greyish brown mottles (10YR 3/3) and bits of decayed wood. The feature also produced charcoal, coal ash, oyster shell, whiteware, wire nails, two buttons, and lamp chimney and window glass.

Feature 47, 8NØW: Flat stone footings

A feature number was given to a concentration of flat stones in the northeast corner of the operation; several of these formed a line ca. 25 cm wide by ca. 1.5 m long. These were in a varied matrix of dark brown sand and silt (10YR 3/3) with decayed wood. Presumably the stones had formed part of the footings for the woodshed.

Feature 49, 4N2W, 6N2W: Rectilinear pit

This elongated, rectilinear soil stain extended north-south through the midline of units 4N2W and 6N2W. The south 1/3 was bisected and removed in an attempt to learn its function/purpose, but excavation did little to shed light on this. The feature was ca. 49 cm wide by ca. 1.16 m long; its fill was very mixed, hard packed for the first 20 cm, loose and crumbly further down. It consisted of innumerable small lenses that looked like shovels-full thrown in from a mixed back dirt pile or the like. The fill seemed sparse in artifacts, but it contained window glass, clear and brown bottle glass, clear lamp chimney glass, nails, small ceramic sherds, wood fragments, mortar, coal, brick, and a tin can (as well as some very large boulders) at the base of excavation. Excavation was halted at ca. 90 cm below grade—this did not appear to be the absolute bottom, but time did not permit further work (and the excavator could reach no deeper into the pit, even with the long-handled ladle used to remove the last 10 cm of fill).

Operation B

Feature 50, 17N 6W: Ell Foundation

This feature is the foundation for the boardinghouse ell. It was constructed of slate with two small vent holes placed in the north and south walls. (Figures 5–9, 5–16). The vent hole placed in the southern wall of the foundation was designated Feature 52 because it contained a number of shoe fragments. Although there is a slight curve in the section of the northern foundation wall closest to the rear wall of the boardinghouse (Figure 5–16), this has been interpreted as having no architectural significance and probably represents demolition activity. The overall quality of construction is markedly different than that characteristic of the boardinghouses themselves. The original plans for the boardinghouses did not include ells which may be one reason for the difference in construction technique. One further note of interest concerns the vent holes. Although they provided access to the crawl space beneath the ell, this included unwanted guests such as rats. At the same time it afforded boardinghouse dwellers with a convenient storage space for secreting items such as liquor bottles.

Feature 51, 17NØW: Party wall

Feature 51 is the remains of a party wall which formed the southeastern corner of unit #45 (Figures 5–9, 5–17). The wall, which was constructed of brick and mortar, appears in the lower right corner of Figure 5–17.

Feature 53, 19N10W, 21N10W: Window well

Feature 53 was a small, semicircular window well (Figure 5–9, top center of Figure 5–17). It consisted of a single course of brick and appears to have been poorly mortared. It may have served as a source of light for the boardinghouse cellar, although the window itself was bricked up. This may have been because of the introduction of an alternate light source or perhaps as a preventative measure against pests or pilferers after the block was converted to a warehouse. It could also have helped with drainage in the rear yard.

Feature 54, 21N10W: Post hole (?)

This post hole, 90 cm x 60 cm in size, was discovered along the rear wall of the boardinghouse (Figure 5–9). It is located close to feature 67, which may be a planting hole. The

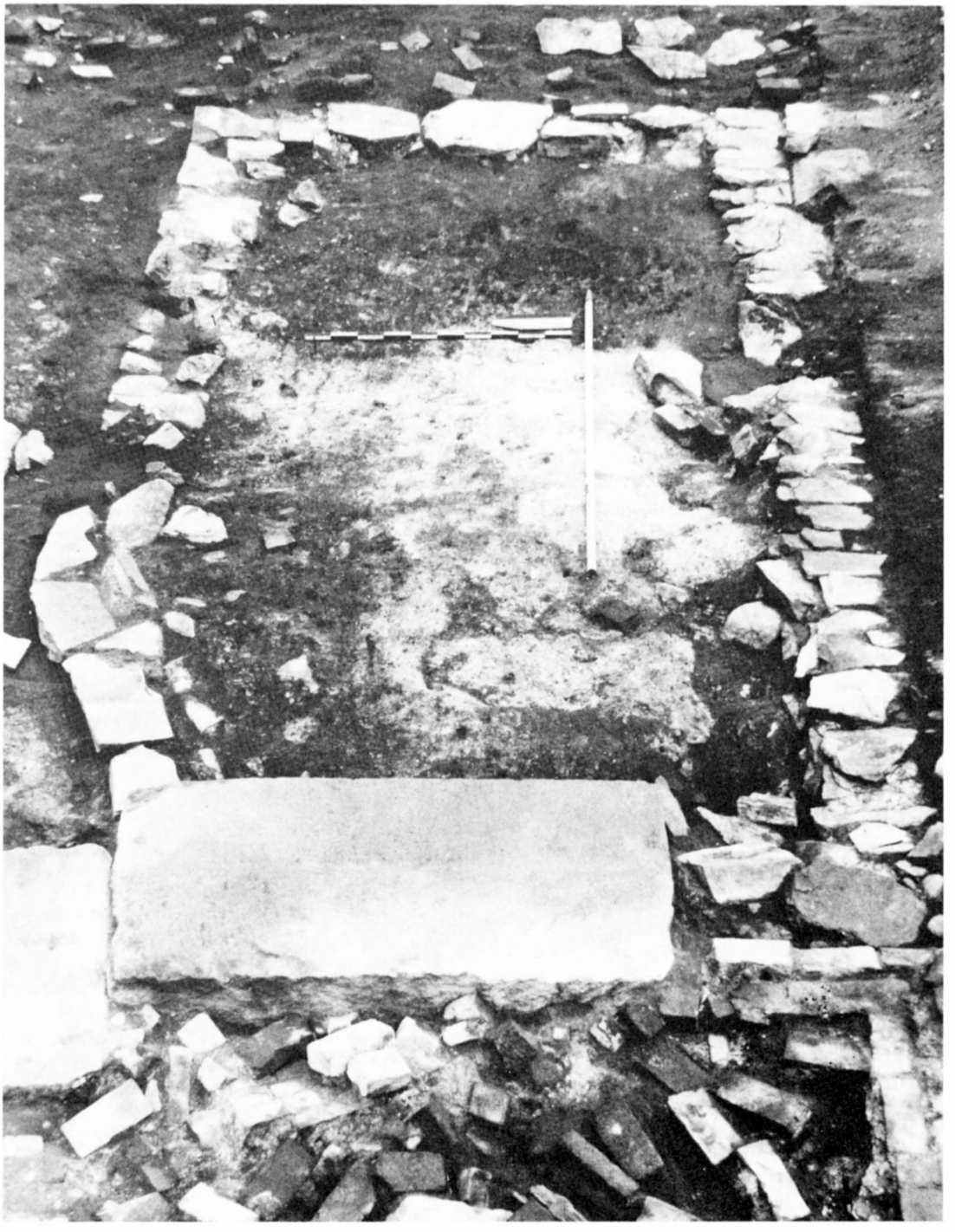


Figure 5-16. Feature 50, an ell foundation in Operation B. A line of stones at the top of the photograph may have been part of previous ell foundation. In the foreground can be seen two of the granite sills used atop the boardinghouse foundation. The darker areas of soil in this photograph are indicative of the highly organic nature of the deposits in this backlot. Camera faces east. (Photograph by Paul S. Giblin.)

Figure 5-17. View along the rear wall of units #45 and 44, Operation B. Camera faces south. (Photograph by Paul S. Giblin.)

feature matrix was a sandy loam similar to that found throughout the rear yard area. The feature contained a number of artifacts including pipestem and bowl fragments which appear to date the fill to the late 19th century. It is possible that the feature could have been a small planting hole or supported a post.

Feature 55, 23N10W: Party wall

Feature 55 was the remains of a party wall that would have divided units 45 and 46.(Feature 5–9). It was constructed of slate stone and mortar. It was rather small in size, measuring only 40 x 70 cm. It is interesting to note the difference in the material used for this feature and feature 51, which also served as a party wall. No reason for this difference or whether it is significant can be offered at this time.

Feature 56, 19NØW: Post support

Feature 56 consisted of a circle of stones that appears to have helped support a post (Figure 5–9). It is located along with a number of other features that may be associated with feature 61, the boardinghouse privy, or perhaps with the boardinghouse woodshed. The post hole itself was filled with a fine, silty sand.

Feature 57, 19NØW: Post support

This stone post support is located in the same area as feature 56 (Figure 5–9) and appears to have served a similar purpose.

Feature 58, 19NØW: Post hole

This post hole was found in the same area as features 56 and 57 (Figure 5–9). It was filled with a dark black soil that contained slag and ash. This material is probably residue of the period when the area served as a coal yard. Like the features discussed above, with which it was associated, it would appear to have supported the superstructure of either the boardinghouse privy or the woodshed.

Feature 59, 21NØW: Post support

This feature is located directly north of features 56–58, but appears to be associated with them (Figure 5–9). The feature consists of a circle of stones that helped to support a post that was probably one of the structural members of the boardinghouse woodshed. The feature matrix consisted of coarse sandy loam, light yellow-orange in color with traces of grey mottling. Like the other features of this type it is unclear whether the stones associated with the post hole served as post supports or merely represent accumulated debris. Based on how common this association is across the backlot it seems plausible to conclude that the stones served at least a casual purpose.

Feature 60, 21NØW, 19NØW: Post

Feature 60 (Figure 5–9) was the remains of a wooden post. The post was partially intact, but was badly decayed. Its location suggests it was associated with the rear wall of the boardinghouse woodshed, but it could also have been part of the yard fence.

Feature 61, 17NØW, 19NØW: Privy vault

Feature 61 was the remains of the boardinghouse privy (Figure 5–9). It was constructed of slate stones and when fully exposed measured approximately 2.3 m x 1 m.(Figure 5–18). In addition to the slate stones the feature also contained several pieces of wood, which appear to have been associated with the privy's use, as well as a cast-iron vent pipe. The soil matrix at the top of the feature was a mixture of shades of gray to black. The dark coloration of the soils reflect the materials used to fill the privy which was associated with deposits from the coal yard period of the site. Three primary layers of fill were identified in the feature.[1] Level 3 contained coal ash and slag that contributed to the dark color of the soils. Level 2, which was separated from Level 3 by a layer of wood, consisted of a mixture of soils and decomposed wood. Level 1 consisted of glacial sand below the privy levels; this level, however, was not excavated except for pollen samples, which were collected from the level. A more detailed description of each level is provided below.

[1]During actual excavation the upper most levels of Feature 61 and all other features and individual strata were designated Level 1. However pollen samples and Kelso's description of the results are discussed in reverse order with the layer deepest from the surface being designated Level 1. So in the case of Feature 61, the upper-most layer was designated Level 3 and the lowest layer Level 1. Therefore for the purposes of the discussion of Feature 61 the latter system will be employed.

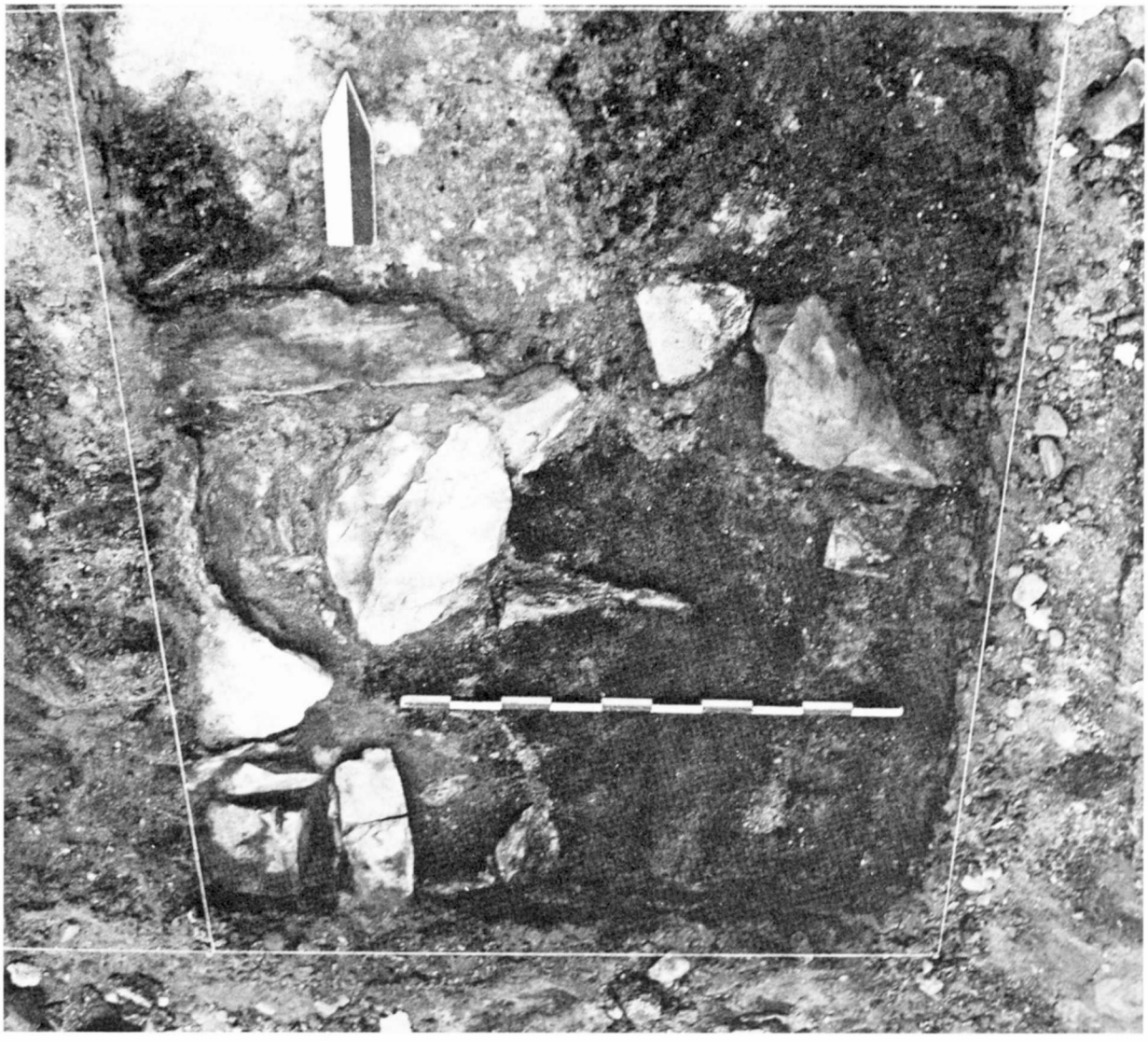


Figure 5-18. Feature 61, the Operation B privy, when first uncovered. The blackened area to the left is a deposit of coal dust; the stones have been pushed into the fill of the feature. Camera faces north. (Photograph by Paul S. Giblin.)

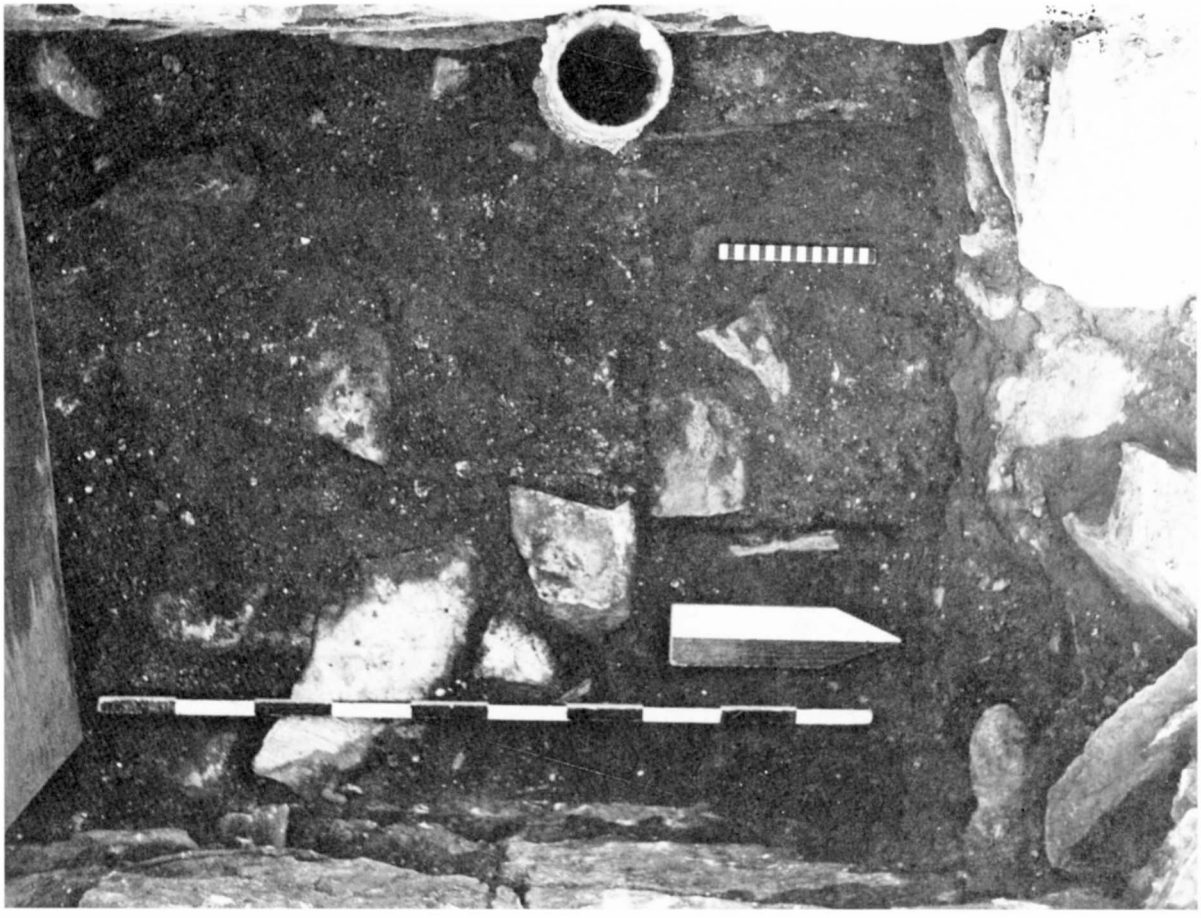


Figure 5-19. Feature 61 after excavation, looking straight down into the privy vault. Portions of a wooden box or internal partition can be seen on the right; at the top is a cast-iron vent pipe. Camera faces west. (Photograph by Paul S. Giblin.)

Feature 61, level 3

When excavation of the feature began the deposits of coal ash and slag were thought to be an ephemeral layer, however, as more material was removed it became apparent that this debris was part of the feature fill. In addition to the coal ash and slag several boulders were uncovered that seem to have been part of the privy foundation wall. It was clear from comparisons with the stones that comprised the intact portions of the privy foundation that the boulders in the feature fill had been associated with the privy. The fill from the layer was dominated by coal ash and slag, but also contained a fairly large sample of cultural material. The latter included ceramics and glassware, window glass, faunal remains, several iron and copper objects, and some clay marbles.

Level 3 was rather thin, measuring ca. 15–20 cm below the surface. The coal ash and slag began to slacken at a point where the remains of a wooden frame were discovered. This wood frame appears to have been associated with the earliest phase of the privy's use. At this same point there was a distinctive change in soil color and texture from a dark black to a dark grey-brown coarse sand with pebbles. This layer was designated level 2.

Feature 61, level 2

The interface of this level and that of level 3 was marked by a change in soil color and texture and the presence of wood. In addition to the wooden frame discussed above there were also the remains of several wooden planks. The planks appear to have formed a cap of some kind for the feature. The difference between levels 3 and 2 was quite distinct with a clear drop in cultural material in level 2 as compared with the previous level. The level itself was mottled with more pebbles and gravel located in the eastern portion of the feature.(Figure 5–19). Next to the air vent there was a small pocket of fine sand which extended to ca. 60–70 cm below the surface. Further pieces of wood were found at this point. Although pollen samples were collected from this layer, designated level 1, excavation ended with the bottom of level 2 (Figure 5–19).

It would appear that both levels 3 and 2 are fills dating to different cleaning episodes with the former representing the post–1910 period when the feature went out of use. Based on observations made in the field it was unclear whether level 2, which appears to be the primary occupation-period layer, contained any fecal related soils. Parasitological and plant macrofossil analysis (see Chapter 12) do provide some evidence which indicates there may have been some fecal material as part of residue left when the feature was cleaned out.

Feature 62, 19N4W: Brick paving

This feature appears to be the remains of brick paving or pathway that would have run through the center of the backlot. It may have served those using the woodshed and privy or just as an all-purpose walkway. As illustrated in Figure 5–9, it seems to have been disturbed by the construction of the large lamp post, although the portion to the north of the post appears to have retained some integrity. The presence of such a feature would certainly be in keeping with the image provided by photographic evidence that indicates mud would have been a constant problem in boardinghouse backlots.

Feature 63, 17N4W: Post support

This feature consisted of a flat, square rock that appears to have served as a support for one of the woodshed's corner posts (Figure 5–9).

Feature 64, 23N10W, 23N12W: Brick paving

Feature 64 appears to the remains of another brick paving (Figures 5–9, 5–17). It is located directly outside the rear door of the boardinghouse and may even have been connected at some point with Feature 62.

Feature 65, 21N8W: Pit or planting hole

This rectangular pit was first located during our initial investigations of the boardinghouse backlots (Beaudry and Mrozowski 1987a). At that time it was designated feature 8. During the more recent phase of excavation the feature was more clearly defined as a small pit associated with Kirk Boott's occupation of the site (Figure 5–9). The pit is approximately 1 m x 50 cm in size. The feature matrix consisted of very mixed yellow-brown sand with traces of grey sand as well. It contained four different layers, all of which well relatively mottled. It may have initially served as a planting hole in Kirk Boott's garden. Based on the ceramics and other material recovered from the feature, it clearly dates to the pre-boardinghouse occupation. This is further confirmed by pollen analysis (see Chapter 12).

Feature 66, 19N4W, 21N4W: Post support

This feature appears identical to Feature 63. It is a flat, square stone that probably functioned as a corner post support for the boardinghouse woodshed (Figure 5–9). Its proximity to feature 62 also lends support to the interpretation of this feature as a walkway to the shed.

Feature 67, 21N8W, 21N10W, 19N8W: Planting hole

This triangular feature ca. 50 x 50 cm in size appears to have been a planting hole. The feature matrix consisted of dark brown sand that contained cultural material including ceramic and glass fragments. The feature also contained several badly corroded iron artifacts. It is curiously similar to feature 27 in Operation A, which also appears to have functioned as a planting hole. This is based on the general shape of the feature and its orientation to the rear wall of the boardinghouse.

Summary

Although the backlots explored in Operations A and B contained essentially the same complement of features, there were many differences between the two. Both backlots showed the effects of razing and subsequent uses (coal yard, parking lot) to a greater or lesser degree, with perhaps most damage having been done to Operation A, although large sections of Operation B seem to have been gouged out during coal loading and unloading.

Yard deposits in Operation B, however, seemed much more intact, although there was little opportunity to explore these. Operation B turned up considerably more refuse and possibly held more planting holes. Naturally, as a boardinghouse yard used heavily by large numbers of people over a long period of time, it would have likely accumulated more refuse than a tenement yard. The latter was occupied in the main by single families rather than by unrelated groups, a factor that may have contributed in part to relative yard tidiness. The tenement well had been filled with comparatively clean fill, and the privy contained coal ash but no genuine privy deposits. In Operation B, the fill of the well was replete with household trash, and the privy did have remnants of fecal matter left after its last cleaning. Trashy deposits were common here, and there is a fair amount of evidence of attempts to provide firm footing in the way of brick paving and so forth. Both yards may have been unkempt, with weeds at their margins, but both also were softened somewhat by plantings of some sort.

The excavations did give us a plan view of each yard—at least of its archeological plan. These, and the sampled and excavated features, begin to tell the story of workers' lives in the Boott boardinghouses, but we must turn to the detailed analysis of material culture and environmental data in the chapters that follow in order to gain a more genuine and lively picture of what the archeological record can tell us.

Chapter 6

"THRASHER'S CHINA" OR "COLORED PORCELAIN": CERAMICS FROM A BOOTT MILLS BOARDINGHOUSE AND TENEMENT

by David H. Dutton

Introduction

An ever-growing body of research in American historical archeology has focused on the task of correlating archeological patterns with behavioral distinctions among different socioeconomic strata (Deagan 1982: 163–167; Geismar 1982; Otto 1984; Paynter 1982). Because refined ceramic wares are especially sensitive to sociotechnic dimensions, they are often the most commonly used artifact type in status studies in historical archeology. Other artifact groups such as drinking glass, silverware, silverplate, and clothing accessories have also been used in efforts to determine the socioeconomic level of a household. It is, however, the mere quality and variety of ceramics found at a historical site that makes them a reliable indicator of a household's relative economic level (Miller and Stone 1970: 98).

Ceramic vessels assume a wide variety of forms, and a careful analysis of these forms will yield information regarding a vessel's function in food processing, preparation, consumption, and other foodways related activities. With any ceramic vessel serving in a foodways function, the quality, decoration, and price are related to the ability of the household to afford them, as well as to the function of the vessels in displaying social status to guests on occasions such as tea or dinner.

The purpose then of this study is to identify and determine those patterns associated with ceramic purchase, use, and discard that are a result of household composition, and socioeconomic status. The ceramic vessel assemblages from a Boott Mills boardinghouse and tenement backlot will provide the basis for this analysis.

Ceramics in Socioeconomic Studies

The patterns associated with the purchase of ceramics by the consumer from the wide variety of wares available in the market economy are frequently among the major cultural processes responsible for the formation of the archeological record (Schiffer 1977). The 19th-century market economy was a significant cultural subsystem that affected the acquisition of household ceramics as well as the frequency of use and selective discard of the ceramic wares (Spencer-Wood and Heberling 1987: 56). The differences in price frequently affected the quality of consumer goods that a household could afford, and it was this relationship that can be associated to socioeconomic status. Research in anthropological archeology has sought to link the unequal distribution of goods among sites to the economic and social differentiation within the society (Hodder and Orton 1979: 183–197; Rathje 1971; Sabloff and Rathje 1975). Further, economic anthropologists and archeologists agree that social status differences that are a result of economic roles are major factors in unequal access to goods (Clark 1969: 217; Douglas and Isherwood 1979: 25).

The underlying assumption of ceramic economic scaling studies is that members of a household will only purchase ceramics that reflect their relative socioeconomic level. As with all assumptions, caution must be exercised, as the initial findings in the data may not always be valid. For instance, a particular household may not choose to display its wealth by purchasing and using more expensive ceramics. Likewise, the socioeconomic level of a household is not static and may be subject to frequent changes over a relatively short period of time. Here the risk lies in assigning a relative value to a collection that actually reflects the previous rather than current socioeconomic level of the household being studied (Garrow 1987: 218).

It must, however, always be remembered that the price or value of the ceramic item is only one factor that is involved in the complex web of consumer choices. The actual cost of the ceramics should be considered a minimum criterion, but knowing whether or not a site's occupants had the wherewithal to purchase transfer printed wares and teawares does not tell us enough about peoples' choices, restrictions, and, ultimately, how they lived (Leone and Crosby 1987: 402).

19th-Century Tableware

The most commonly used items in a household would have been ceramic vessels employed in the preparation, service, and consumption of food. By the 19th century, women had a wide variety of choices available for dinner sets and other dining room furnishings (see Mrozowski 1988 for a discussion of the assumed link between women and ceramic purchase in 19th-century America). In fact, just choosing the type of ware and number of pieces needed to set a table could often prove to be quite a task. For women who were purchasing ceramics with limited financial means, the experience could be particularly trying. Indeed, "shopping, especially to those for whom a purchase represented months of saving, could be a treacherous adventure" (Williams 1985: 59).

Different sets of tableware were made available by manufacturers in order to fill the needs of various dining situations. A typical family's tableware for the last half of the 19th century would have included settings for dinner, tea, breakfast, and dessert (Williams 1985: 80). By the mid-19th century, the array of components comprising a dinner set was relatively standardized regardless of the ware. The number of pieces purchased, however, would have differed from family to family as economic means, family size, and personal preferences would have more than likely governed such decisions.

A typical dinner setting is probably represented in a purchase made by Captain Richard H. Tucker of Wiscasset, Maine, in November of 1858. His dinnerware consisted of 1 1/2 dozen dinner plates, 1 1/2 dozen breakfast plates, 1 1/2 dozen tea plates, 1 dozen soup plates, 2 sauce tureens, 2 sauce boats, 1 soup tureen, 4 oval covered vegetable dishes (2 sizes), 7 oval meat dishes (assorted sizes), 1 round pudding dish, 2 oval deep dishes, 1 butter plate, 1 dozen custards, and 1 gravy dish (Williams 1985: 82). The variety and sizes of dinnerware available to consumer was indeed great and is further illustrated by a 1920 catalog entry for the Homer Laughlin China Company of East Liverpool, Ohio, listing common and trade shape names. Among the entries are listed five types of plates, ranging in size from four inches to eight inches, two types of soup plates, four forms of vegetable dishes, pitchers, and gravy boats (Gates and Ormerod 1982: 9).

By the 1850s, tableware services were larger and more functionally specific than ever before. Technological innovations in the ceramic industry, such as mechanically decorating earthenwares by means of transfer printing, dramatically lowered the price of tableware while at the same time increasing the range both of form and decoration. Because of the ceramic industry's expanded production capabilities and distribution networks, the last half of the 19th century was characterized by a wide selection of dinner, tea, glass, and flatware services that were available to all socioeconomic levels.

The Archeology of 19th-Century Ceramics

With the advent of the 19th century came a series of developments in the ceramic industry that forced potters and ceramic merchants to attend less to ware-type in describing their products. The standardization of the manufacturing process reduced the distinctions that could be made among glazes and pastes. The differences among the *wares* manufactured were practically unobservable compared to earlier periods. Furthermore, unlike their earlier counterparts, who could refer to ceramics by ware types and their various subdivisions without confusion, 19th-century potters and wholesalers marketed their ceramics on the basis of decoration—chiefly because greater effort and expense was now invested in decorating than in producing pots—moreso than by other characteristics (Miller 1980).

Many of the systems used to categorize and analyze 19th-century ceramics are derived from, if not directly related to, ware-based systems of classification. Miller (1980) notes that because researchers in the 1960s were concerned predominantly with 17th- and 18th-century sites, the analysis of ceramics was dependent on a division based on ware types, which separated ceramics into earthenwares, stonewares, and porcelain. These groups were further subdivided according to contemporary terminology used by manufacturers, merchants, and consumers. For example, earthenware would have encompassed creamware, pearlware, and Rockingham ware, to mention just a few. It was, therefore, natural for archeologists working on 19th-century sites to extend the use of ware-based classificatory schemes to the analysis of ceramic materials they recovered (Miller 1980: 2; Majewski and O'Brien 1987: 105).

Aside from changes in production, the most obvious and oftentimes least dealt with problem in ware-based classification systems is the disagreement by archeologists over the definitions of ware such as pearlware, whiteware, and ironstone (Majewski and O'Brien 1987: 105). Miller further illustrates this point when he

states, "if an assemblage of ceramics from the first half of the 19th century is placed before six archaeologists and they are asked for counts of creamware, pearlware, whiteware, and stone china wares, the results will probably be six different enumerations" (Miller 1980: 2). The reference here is to early 19th-century ceramics; one could only imagine the outcome of such an exercise with late 19th- and early 20th-century wares.

In response to a need for a more effective classification scheme for 19th-century ceramics, Miller (1980) developed a decoration-based system of analysis. Because of his interests in economic and status-related issues, Miller developed a four-level classification system that was arranged in increasing order by consumer cost. Characteristics were determined by examining 19th-century price fixing lists, account books, bills of lading, and newspapers, in order to understand how ceramics were marketed. By using documented prices of ceramic vessels, "cream-colored-index values" were created enabling the researcher to calculate the relative cost of an item above that of cream-colored vessels. This, in turn, allows the assemblage to be scaled in terms of expenditure on ceramics.

Decoration-based systems, however, are not without their own problems. Rarely does an archeologist recover a complete vessel from an excavated site. Fragments that researchers deal with represent only a small portion of the original vessel. Frequently only the undecorated sections of a vessel are recovered, lowering the mean ceramic assemblage value when in reality it ought to be somewhat higher. Likewise, decoration-based schemes cannot account for undecorated vessels such as semivitreous white-bodied wares (ironstone) and vessels that have at most an unpainted band of relief decoration around the rim. By 1850, ironstone wares were considered equal in price to transfer printed vessels. Creation of another level in Miller's decoration hierarchy would therefore be necessary for assemblages post–ca. 1850. A second weakness is a result of the fact that 19th- and early 20th-century ceramics were frequently marketed by decoration *in addition to* ware or pattern (Henry and Garrow 1982a: 323).

Miller's (1980) argument that ware-based systems of classification are useful only in examining social and economic aspects of pre-1800 ceramic assemblages is widely accepted, and his method for categorizing 19th-century vessels according to decoration has met with increased usage. Problems arise, however, when analyzing assemblages from the second half of the 19th century. The appearance and popularity of undecorated whitewares after 1850 makes a dependence solely on Miller's system unreliable.

Considerable debate has centered around the definition of the category whiteware. Several researchers have tried to develop an objective means for distinguishing among the white earthenwares (Lofstrom et al. 1982; Henry and Garrow 1982a; Worthy 1982) while others such as Gates an Ormerod (1982: 7) and South (1977) have elected to use the term "whiteware" to refer to any type of pottery or porcelain that is white or nearly white in color. Because of technological improvements in the ceramic industry, white-bodied ceramics came to coexist throughout the 19th and into the 20th century with nonvitreous- and semivitreous-bodied earthenwares. Ceramic body types manufactured during this time period merely reflect points along a continuum of ceramic body development. To make a fine-grained distinction would simply compound the problems archeologists have in identifying and analyzing 19th-century ceramics. Therefore, for the purposes of ware-type divisions, ironstone, nonvitreous, and semivitreous wares were all grouped in a category labelled *white earthenware.*

For this study it was deemed best to use a combination of both the ware- and decoration-based systems of classification. For heuristic purposes, ceramics recovered from the Boott Mills excavations were first grouped according to ware type (e.g., pearlware, creamware, whiteware, stoneware, yellow ware, redware, porcelain, etc.) and then by decoration which was based on an analyses of the vessel surface. Any form of human alteration, such as molding, inscribing, handpainting, glazing, or transfer printing, etc., were classified as forms of ceramic vessel decoration. Vessels exhibiting similar characteristics were grouped accordingly. These categories were analyzed in an attempt to arrive at conclusions concerning household composition, socioeconomic behavior, and purchasing patterns for the boardinghouse and tenement.

The Homelot as a Unit of Analysis

The basic unit of archeological excavation is often the houselot associated with a domestic structure and its related outbuildings. The majority of artifacts recovered archeologically from primary deposits in a houselot fenced in or separated from adjacent structures and activity areas can reasonably be assumed to have been

deposited by the residents of the house that controlled the yard (Deagan 1982: 161). Therefore, it stands to reason that some of the ceramics used by the residents may have been lost or discarded in the yard while some materials may have been deposited elsewhere by the household. The ceramics recovered archeologically, however, will at best represent only a partial sample of the ceramics used in the household. In addition to the archeological biases attributable to the recovery methods employed, some ceramics may remain in the cultural system of a household for a longer period of time than others, further skewing the sample. Vessels may be transplanted to other locations in the cultural system through such mechanisms as recycling, inheritance, gift-giving, barter, and resale (Spencer-Wood and Heberling 1987: 57).

The archeological materials that are recovered and associated with a particular structure can usually be related to the collective behavior of all the residents of the house in one time period. The behavior of any subdivisions of either economic or social units within a household may prove difficult if not impossible to determine, however. These smaller economic or social units that comprise the household include servants, boarders, or multiple families. The accepted definition of a household, in archeological terms, is a "co-resident domestic group" that is made up of those individuals who occupy and share the same physical space for the activities of eating, sleeping, taking rest and leisure, growing up, childbearing, and procreating (Beaudry 1984a: 1).

Many forms of household composition can be identified by the types of relationships, both economic and social, that are found to exist among the members of the household group (LeeDecker et al. 1987: 236). In 19th-century urban America the most commonly found household types were the nuclear family household, the extended family household, the augmented family household, the boardinghouse, and the solitary individual household (LeeDecker et al. 1987: 236).

The practice of boarding individuals was widespread in the late 19th century in both rural and urban settings. Research conducted by Modell and Hareven (1977) has demonstrated that for American families, approximately one in every five urban households took in boarders during the period 1860 to 1920. Boarding soon became associated with lower-class immigrants, and, by the turn of the century, the progressive moralists had labeled it as "the lodger evil," as middle class values became more stringent (Modell and Hareven 1977: 165–166). In essence, the boardinghouse system brought about the commercialization of the household (cf. Landon, Chapter 4, this volume).

Corporate Housing in Lowell

Two types of housing were provided for the operatives by the corporation: boardinghouses and tenements. Boardinghouses provided room and board for the single male and female operatives at the mill. Run by keepers hired by the mill agents, boardinghouses provided a means for the corporations to extend company supervision and discipline of workers outside the mill into the home (Dublin 1979: 76). Tenement housing was offered to skilled workers and their families, as well as to households with two or more individuals employed in the mills. In addition to providing shelter, tenement housing served to keep skilled workers housed close to the mills in relatively inexpensive housing, in turn reducing the chances of employees seeking more convenient employment (Anonymous 1888: 315).

Boardinghouses were operated mostly by widows or older women with young children. It was their duty to enforce strict company policies on behavior in the boardinghouses such as the 10 p.m. curfew, required church attendance on Sunday, and the prohibition of smoking and gambling (Hareven 1982: 55). In Lowell, as well as other industrial towns, the boardinghouse keeper was often regarded as a surrogate parent and the operatives as minor children (Dublin 1979: 79). In this way the keepers, and in turn the corporations, sought to assure young women workers and their parents that the boardinghouses mirrored and observed the values that parents guarded in rural life.

In addition to maintaining order and harmony within the boardinghouse, keepers were required to obtain all of the necessary articles for furnishing and operating the establishment. Purchases for the boardinghouse would have been made by the keeper, or her domestics, and would have included furniture, food, tableware, and other numerous household articles. The economic limitations placed upon a keeper needing to make these purchases for outfitting a boardinghouse might have been met by purchasing items in bulk or by renting furnishings (Bond 1987: 40). There were several purchasing options available to the new boardinghouse keeper, or one needing to replace damaged, broken, or missing items. She could purchase articles that were damaged in transport, out of fashion, or odd pieces of an

incomplete set, such as that advertised in the Lowell *Sunday Arena* on February 12, 1893. French & Puffer, an establishment operating in Lowell as early as 1878, was listed in the Lowell business directory as dealers of crockery, china, and glassware (*Lowell Directory* 1878, 1888). The firm was located at 127–131 Central Street. Its advertisement for the sale of odd pieces stresses a great opportunity for restaurants and boardinghouse keepers to acquire or replenish a set of ceramic ware (Figure 6–1). In the same paper, A. G. Pollard & Co., located at Merrimack, Palmer, and Middle Streets, advertised the sale of damaged quilts (Figure 6–2). The merchandise was displayed in the basement, and housekeepers, hotel keepers, and boardinghouse keepers were urged to take advantage of the specials. Clearly businesses in Lowell were aware of the economic constraints under which boardinghouse keepers were operating. The newspaper ads suggest that, in addition to purchasing or renting items in bulk, boardinghouse keepers bought and replenished their stock with factory seconds or leftover merchandise. Local merchants encouraged this practice through direct appeal to boardinghouse keepers in their newspaper ads.

Tenement dwellers presumably led lives like other "normal" nuclear families and thus seldom attracted the attention of 19th-century writers so keen to document boardinghouse life. Most working-class families, however, lived in poverty or near poverty and the economic survival of the family frequently depended on the contributions of individual members and the marshalling of collective family resources (Hareven 1982: 189). It was quite common for children to work and to contribute most of their earnings to the family. In fact, a survey of several New England textile towns revealed that this was the predominant pattern throughout the industry (Hareven 1982: 189). The key to survival for working-class families, such as those who lived in the Boott Mills tenements, was interdependence and a collective effort. Thus, the economic strategy of the family often took precedence over individual choices and priorities. A brief examination of the census data from tenement, unit #48 (Bond 1987: Appendix B) illustrates that unlike most working-class mill families, the residents from unit #48 had few children who were eligible for the work force. It is possible that the wives of the respective families worked but these data are unavailable. On the whole, the residents of the tenement had one primary income, that of the husband, thus, limiting the purchasing power of the household.

ODD PIECES.

We have a small quantity of odd pieces of Crockery, some belonging to dinner sets, and odds and ends of other kinds. They are all desirable, and will help out a broken set in fine shape. Here's a

Great Chance for Restaurants or Boarding-House Keepers.

Tea Plates, 5c.

Breakfast Plates, 6c.

Dinner Plates, 7c.

This is cheaper than the white ware can be bought for, and besides these odd pieces are all excellent quality, nicely decorated and fine shapes. They cannot be duplicated in this city or elsewhere for these prices. In the lot are

Cups, Saucers, Dishes

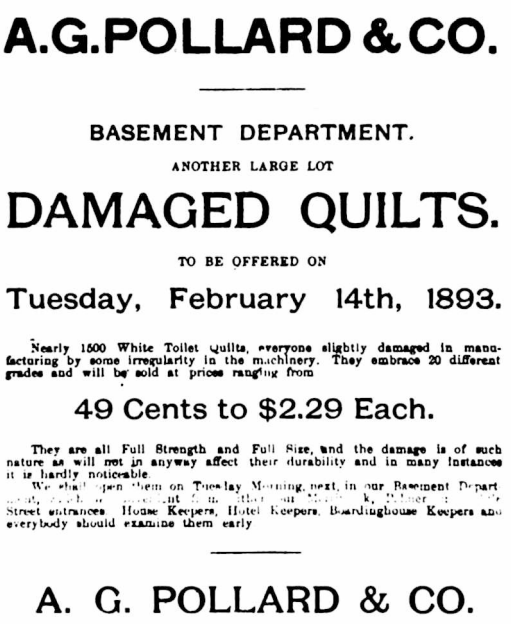
Of various kinds, and other things of value. They are all put into the low price list for next week.

Anyone who keeps house, and especially owners of restaurants, boarding-houses, etc., should not let this opportunity slip.

French & Puffer,

127 to 131 Central Street.

Figure 6-1. French & Puffer advertisement from Lowell *Sunday Arena* February 12, 1893. (Photograph by Richard S. Kanaski.)



A.G.POLLARD & CO.

BASEMENT DEPARTMENT.

ANOTHER LARGE LOT

DAMAGED QUILTS.

TO BE OFFERED ON

Tuesday, February 14th, 1893.

Nearly 1500 White Toilet Quilts, everyone slightly damaged in manufacturing by some irregularity in the machinery. They embrace 20 different grades and will be sold at prices ranging from

49 Cents to $2.29 Each.

They are all Full Strength and Full Size, and the damage is of such nature as will not in anyway affect their durability and in many instances it is hardly noticeable.

We shall open them on Tuesday Morning, next, in our Basement Department, [illegible] Street entrances. Home Keepers, Hotel Keepers, Boardinghouse Keepers and everybody should examine them early

A. G. POLLARD & CO.

Figure 6-2. A. G. Pollard & Company advertisement from Lowell *Sunday Arena* February 12, 1893. (Photograph by Richard S. Kanaski.)

The tenement residents were operating under similar economic conditions as the boardinghouse keepers. They had, however, more freedom to furnish their homes as they pleased and to make purchases characteristic of a nuclear family arrangement according to their personal preferences and financial means. No doubt they patronized local merchants, but merchants did not target them as a special consumer group. Because these households were usually composed of single families who were not under the supervision of a keeper, they enjoyed more autonomy over their lives than single workers living in the boardinghouse.

The corporate housing at the Boott Mills represented two types of household composition operating under similar financial constraints. The ceramics purchased by the residents are expected to reflect the differences in household arrangement and possibly minor socioeconomic levels within the working classes. Ceramics purchased by the boardinghouse keepers should reflect the service and consumption of food on a large scale similar to other establishments providing the same services, e.g., restaurants and hotels. The presence of undecorated wares, unmatched vessels, and fewer specialized tablewares, especially those associated with status display, are expected to characterize the boardinghouse ceramic assemblage. Tenement vessels, on the other hand, should illustrate the purchases indicative of a nuclear family arrangement. Their ceramic assemblage is expected to place a greater emphasis on porcelain wares, matched table settings, and status related wares, such as matched tea- and coffeeware, in an effort to display to the public the family's upward mobility and to distinguish them from their neighbors in the boardinghouse.

Research Framework

Archeologically excavated materials from backlots of Boott Mill units #45 (boardinghouse) and #48 (tenement) provide a rare opportunity to view 19th-century workers' material culture and provide a basis for comparison between life in the boardinghouses and corporate tenements. The recovery and analyses of household materials enables differentiations to be made between the distinctive behaviors that identify members of different classes. The purpose of this study is to illuminate the general characteristics of household material culture—more specifically, ceramics—that can be reliably related to family organization and socioeconomic standing.

Shepard's work on status variation in antebellum Alexandria, Virginia (1987), has defined three variables affecting ceramic assemblage composition that can be identified and measured in the archeological record: quantity; quality; and variety. The degree of expression for these categories will reflect the accessibility and preference of the item by the consumer.

The variable *quantity*, as used in this study, refers to the number of items making up a material assemblage. As household income is the strongest determinant for the size of a material assemblage (Schiffer et al. 1981), individuals with a greater income ought to have more household items, as a result of their purchasing power, than families in lower income brackets. Likewise, the size and stability of a household will affect the number of household goods acquired by a family.

Quality is determined by the value of an item and is usually expressed monetarily in terms of price. Scarcity of the materials needed to manufacture the object, along with its desirability, frequently function as major variables in determining value.

Variety is calculated by looking at the number of items within an assemblage that have different or specialized functions. Deetz has determined that households with low incomes would not be able to afford more expensive ceramic wares and that different foodways practices between classes would result in discernable differences in the ranges of forms for ceramic vessels used (Deetz 1977: 51). Thus, it can be expected that families with limited financial resources would purchase basic ceramic forms needed for food preparation, service, and consumption and fewer luxury items, while more affluent families would have purchased the basics in addition to an array of non-necessities.

Appearance of the variables quantity, quality, and variety in a ceramic assemblage is affected by social and economic factors. It has been noted that households with the same income, but from different social classes, will display quite different spending strategies (Coleman 1961: 176). Members of a social class are products of their respective socialization process through which they learn what objects are desirable, proper and acceptable, and undesirable.

The ceramic assemblages from the Boott Mills excavations represent two forms of households with approximately the same class affiliation but occupying different socioeconomic ranks within the working class (e.g., unskilled vs. skilled operatives). A comparison of these two assemblages addresses the issue of whether household composition (corporate boardinghouse vs. nuclear family) and relative socioeconomic level—admittedly a fairly minor distinction in this instance—within a class affects ceramic purchase, use, and discard.

A set of expectations, framed as hypotheses, have been generated to test for the differences between the social and economic behaviors of the residents of boardinghouse #45 and tenement #48 of the Boott Mills.

Hypothesis Testing for Quantity

1. The tenement assemblage will have a greater number of vessels per person as compared to the boardinghouse assemblage.

Hypotheses Testing for Quality

1. The tenement assemblage will have a greater percentage of porcelain and transfer-printed wares than the boardinghouse assemblage, which will show the opposite pattern.

2. The tenement assemblage will have a higher percentage of matched vessels within the total transfer printed ware, total porcelain, and undecorated whiteware as compared to the boardinghouse assemblage, which will show the opposite pattern.

3. The tenement housing assemblage will have a higher mean ceramic assemblage value as compared to the boardinghouse assemblage.

Hypotheses Testing for Variety

1. The boardinghouse assemblage will have a greater percentage of tableware, storage ware, and tea- and coffeewares as compared to the tenement assemblage which will show the opposite pattern.

2. The boardinghouse assemblage will have a greater percentage of serving flatware and serving bowls within the total tableware as compared to the tenement assemblage which will show the opposite pattern.

3. The tenement assemblage will have a greater percentage of transfer-printed flatware and a smaller percentage of banded bowls and undecorated flatware than the boardinghouse assemblage which will show the opposite pattern.

4. The tenement assemblage will have a larger ratio of numbers of different shapes to total number of vessels within the total ceramic assemblage as compared to the boardinghouse assemblage which will show the opposite pattern.

Methods

Vessel Count

The identification of vessels within the ceramic assemblage forms the basis of analysis for research questions centered on variety and quantity. In addition to providing the archeologist with an indication of the number of vessels used on a site, questions regarding food consumption activities and the function of vessels used in this process may also be addressed.

Vessel counts were generated from the Boott Mills data by quantifying sherds or mending sherds that exhibited a ware, type, variety, and/or form that was different from other mended or single sherds. The remaining ceramic fragments that could not be identified as part of a vessel, either because they did not mend with other sherds, or because they were likely part of another already identified vessel, were counted and grouped according to ware, type, and variety and placed in a secondary category.

Two ceramic vessel counts were calculated: Total Vessel Count (TVC) and Identified Vessel Count (IVC). The Total Vessel Count was compiled for use in determining the quantity of ceramic vessels within the assemblages, as well as arriving at percentages of porcelain, transfer printed ware, whiteware, undecorated ware, and minimally decorated wares.

Identifiable Vessel Counts included those vessel forms that could be identified according to function. The IVC was used to obtain percentages of tableware, storage ware, and coffee- and teaware, in addition to calculating the percentages of serving flatware, serving bowls, transfer printed flatware, banded bowls, and edged ware. The variety of vessel forms within each assemblage was also determined using the IVC, as well as the calculation of mean ceramic assemblage values.

Dating

Dates were assigned to ceramic vessels recovered from the boardinghouse and tenement backlots on the basis of decorative styles and elements and manufacturer's marks. Because the methods and techniques of decorating earthenwares and porcelain changed through time, some more so than others, ceramic vessels can frequently be assigned to fairly short time spans. Those vessels datable based on decorative styles and elements, were combined with identifiable manufacturer's marks (discussed below) and used in conjunction with dated glass vessels to arrive at *terminus post quem* dates for appropriate features.

Results

Archeological excavation of the Boott Mills boardinghouse and tenement backlots yielded a total of 7,183 ceramic fragments. The nature of the assemblage was extremely fragmentary, indicating that considerable post-depositional activity in the form of grading, use of the backlots for coal storage, and pavement of the area for a 20th-century parking lot resulted in considerable damage to archeological materials. Of the vessels recovered, only one was 90% intact and that was a redware flowerpot found in a planting hole behind the tenement (Figure 6–3).

The total number of vessels retrieved archeologically was 305. This relatively low number is unusual for assemblages associated with households containing several individuals over a period of time, such as the tenement and boardinghouse. The introduction of municipal refuse collection in 1871 (Bell 1987a: 60) undoubtedly had a direct impact on the quantity and quality of materials that were deposited in the backlots. Similarly, the vessel count may reflect ceramic assemblages that were limited in size because of economic constraints on consumers. At best, the vessel counts offer only a limited view of the number and types of ceramics used by the boardinghouse and tenement residents.

A total of 86 vessels was recovered from the Boott Mills tenement (#48). A breakdown by ware type, shown in Table 6–1, illustrates that the most frequently acquired wares were whitewares, redwares, and porcelain. The boardinghouse (#45) assemblage consists of 191 vessels and reflects a similar ware type preference, with whiteware, redware, and porcelain being the predominant categories.

Table 6–1. Summary of ceramics by ware type.

	Tenement		Boardinghouse	
Ware Type	#	%	#	%
Bennington	0	0.00	1	0.52
Creamware	1	1.16	5	2.61
Earthenware	0	0.00	1	0.52
Pearlware	2	2.32	1	0.52
Porcelain	11	12.79	8	4.18
Redware	12	13.95	12	6.28
Stoneware	3	3.48	11	5.75
Whiteware	56	65.11	149	78.01
Yellow ware	1	1.16	3	1.57
Total	86	100.00	191	100.00

Figure 6-3. Redware flower pot recovered from tenement backlot. (Photograph by Richard S. Kanaski.)

The tenement assemblage contains over twice as many porcelain vessels (12.7%) as the boardinghouse collection (4.1%) suggesting a preference for finer manufactured vessels, porcelain being used predominantly for the production of fine table- and teawares. The heavy reliance on whitewares by both the tenement (65.1%) and boardinghouse (78.0%) indicates that their purchasing patterns were not in line with, and indeed somewhat lower, than the more prosperous classes of the late 19th century. By the last decades of the 1800s, the term "Thrashers China" was frequently used by members of the more affluent industrial middle class to refer derogatively to the inexpensive and utilitarian whitewares. Such wares were still commonly used by the rural folk, however, long after the majority of Americans had purchased colored porcelain to set their tables (Wetherbee 1985: 33).

An examination of the types of vessel forms for the boardinghouse and tenement assemblages is presented in Table 6–2. The data reveal that the range of vessel forms for both households are very similar. The most discernible differences are in the percentages of tea- and coffeeware, with cups representing 15.1% and saucers 20.9% of the tenement assemblage and 11.5% and 18.9%, respectively, of the boardinghouse vessels. Certain specialized forms present in the boardinghouses are absent from the tenement, such as ale bottles, gravy boats, jugs, teapots, and basins.

An evaluation of the decorative forms is illustrated in Table 6–3. Immediately evident is the similarity of the two assemblages. For both the tenement and boardinghouse, the most

prominent forms of vessel decoration were plain or undecorated, transfer printed, and molded.

Table 6–2. Summary of ceramics by vessel type.

	Tenement		Boardinghouse	
Vessel Form	#	%	#	%
Ale bottle	1	0.52	0	0.00
Bowl	18	20.93	50	26.17
Chamber pot	1	1.16	0	0.00
Crock	1	1.16	2	1.04
Cup	13	15.11	22	11.51
Flower pot	3	3.48	5	2.61
Gravy boat	0	0.00	1	0.52
Jar	4	4.65	4	2.09
Jug	0	0.00	1	0.52
Plate	10	11.62	30	15.70
Platter	3	3.48	10	5.23
Pot	4	4.65	1	0.52
Saucer	18	20.93	36	18.84
Tea pot	0	0.00	1	0.52
Wash basin	0	0.00	1	0.52
Unidentified	11	12.79	26	13.61
Total	86	100.00	191	100.00

Table 6–3. Summary of ceramics by decoration.

	Tenement		Boardinghouse	
Decoration	#	%	#	%
Decal	1	1.16	4	2.09
Dipped	0	0.00	3	1.57
Edged	6	6.97	11	5.75
Gilded	9	10.46	8	4.18
Handpainted	9	10.46	8	4.18
Lead glazed	6	6.97	10	5.23
Molded	9	10.46	29	15.18
Overglazed	1	1.16	0	0.00
Salt glazed	1	1.16	5	2.61
Sponge	3	3.48	6	3.14
Transfer print	12	13.95	32	16.75
Undecorated	28	32.55	74	38.74
Wash	1	1.16	1	0.52
Total	86	100.00	191	100.00

Blue-edged ware comprised 40.0% of the identifiable plates recovered from the tenement and 36.6% of the boardinghouse plate assemblage. A detailed study of the impressed rim patterns demonstrates that none of the molded patterns matched, indicating that the plates must have been purchased one or two at a time rather than in sets (Figure 6–4). England produced green- and blue-edged plates from the late 18th century into the 19th century, with the blue-edged plates being marketed well into the 1850s and perhaps even later (Miller 1974: 204). Merchants frequently purchased ceramics from wholesalers and bought whatever green or blue-edged plates were available. As a result, seldom did the edgeware of one season match that of the next (Miller 1974: 204). Therefore, anyone who purchased their ceramics by the piece rather than by the set could only hope to match the plates on the basis of color and basic design elements.

Transfer printed plates were the largest category of decorative flatware for the tenement (30.0%) while only 10.0% of the boardinghouse plates were printed (Figure 6–5). The tenement assemblage contains one fragment of a blue willow pattern plate in addition to one brown floral and one green geometric pattern printed plate. The boardinghouse printed plates, on the other hand, display two brown floral patterns and one green floral print.

Unlike the edgeware, there appears to be no attempt made by the tenement or boardinghouse residents to obtain matching patterns of printed ware. No two plates appear similar in any manner other than color. Because of the speed with which transfer printed patterns rose and fell in popularity, it was probably quite difficult to obtain similar patterns for breakage replacement. It appears that the occupants of both the boardinghouse and tenement were purchasing transfer printed plates, not as a substitute for broken plates within a set, but as supplements to an already existing collection of tableware.

Undecorated plates represent the second largest category of flatware, next to edgeware, for the boardinghouse (36.6%) and the third most popular group, 10.0%, for the tenement. Three times the number of plates for the boardinghouse were undecorated as compared to the tenement assemblage suggesting that there was indeed a possible concern for similarity among dinnerware patterns. The plain whiteware would have been easier to acquire, thus making replacement with like wares more feasible (Figure 6–6). Mrs. Blanche Graham, a resident of a Boott Mills boardinghouse as a child, remembers that the china she helped carry to the table was undecorated whiteware, "solid stuff" (Bond 1987: 42). Likewise, a photograph of a boardinghouse dining room, ca. 1908, displays place settings that appear to be undecorated whitewares, as no printed vessels are evident (Figure 6–7).

Tea- and coffeeware (cups and saucers) reinforce many of the conclusions drawn from the plate sample. Comprising 32.5% of the tenement total ceramic assemblage and 29.3% of the boardinghouse vessels, the large percentages of tea- and coffeeware illustrates the importance of coffee and tea consumption in the tenement and boardinghouse.

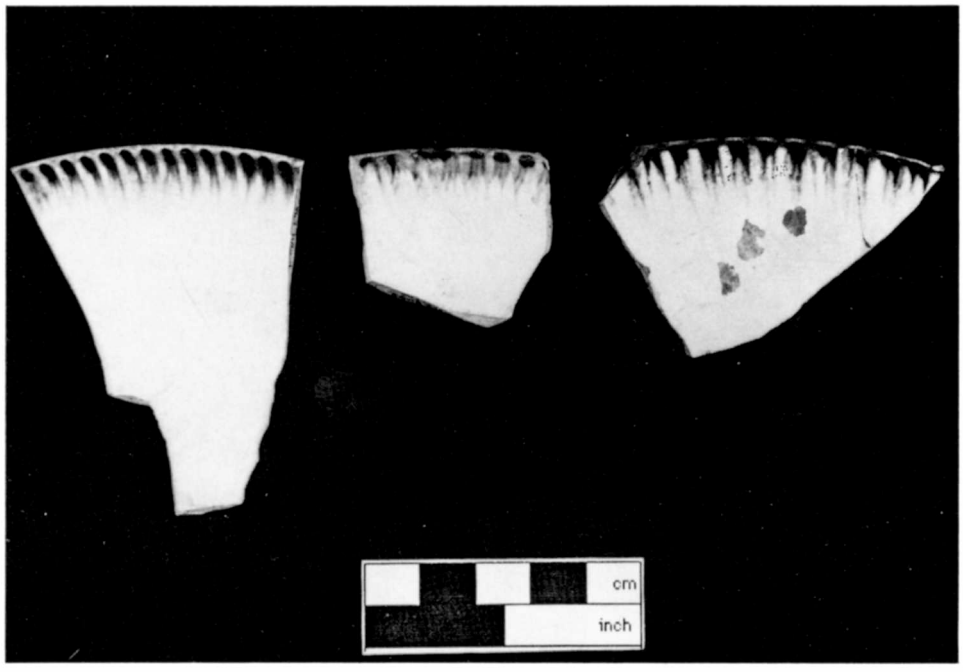


Figure 6-4. Impressed blue shell edged pates from the boardinghouse and tenement backlots (1830-1850). (Photograph by Richard S. Kanaski.)

Figure 6-5. Brown floral transfer printed plates from the boardinghouse and tenement backlots (1880-1910). (Photograph by Richard S. Kanaski.)

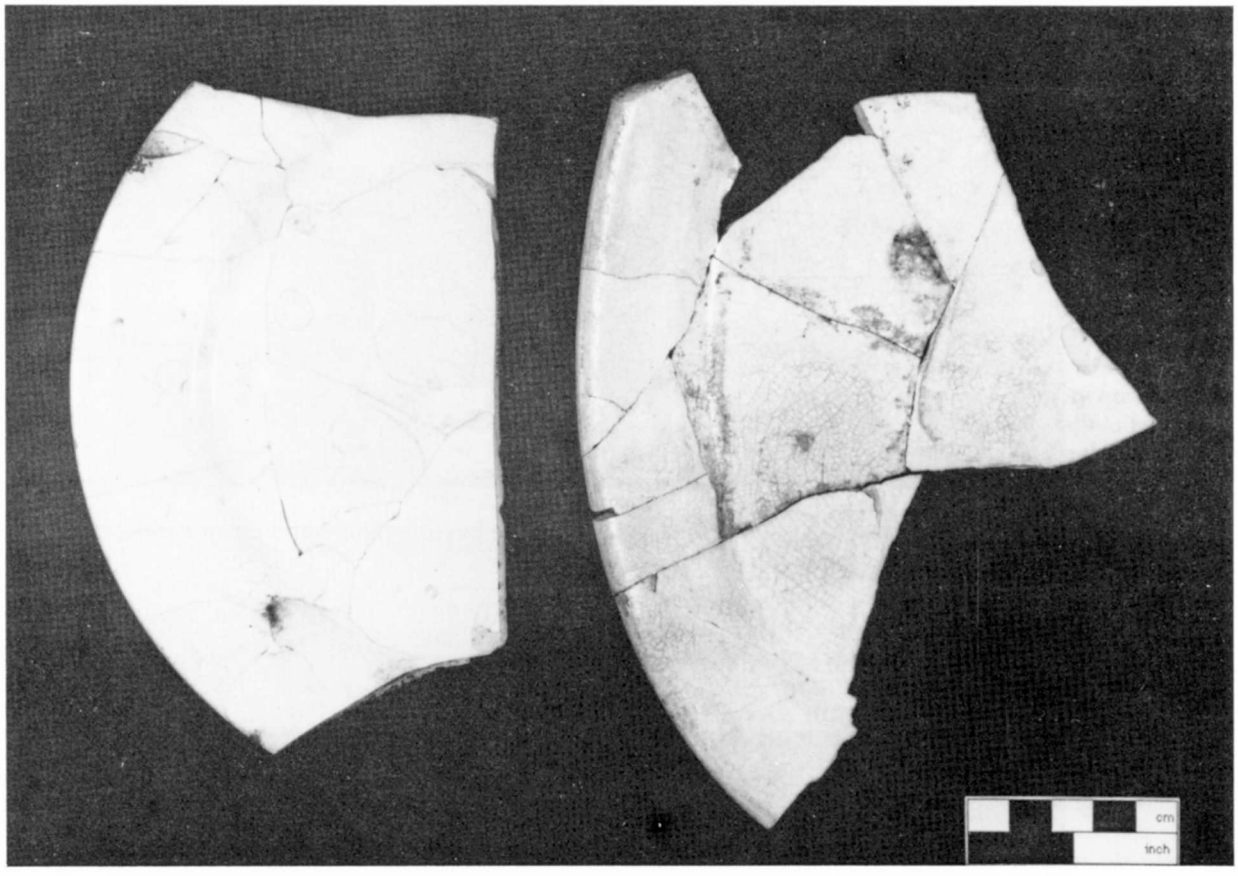


Figure 6-6. Undecorated whiteware plate (left) from the tenement and platter (right) from the boardinghouse. (Photograph by Richard S. Kanaski.)

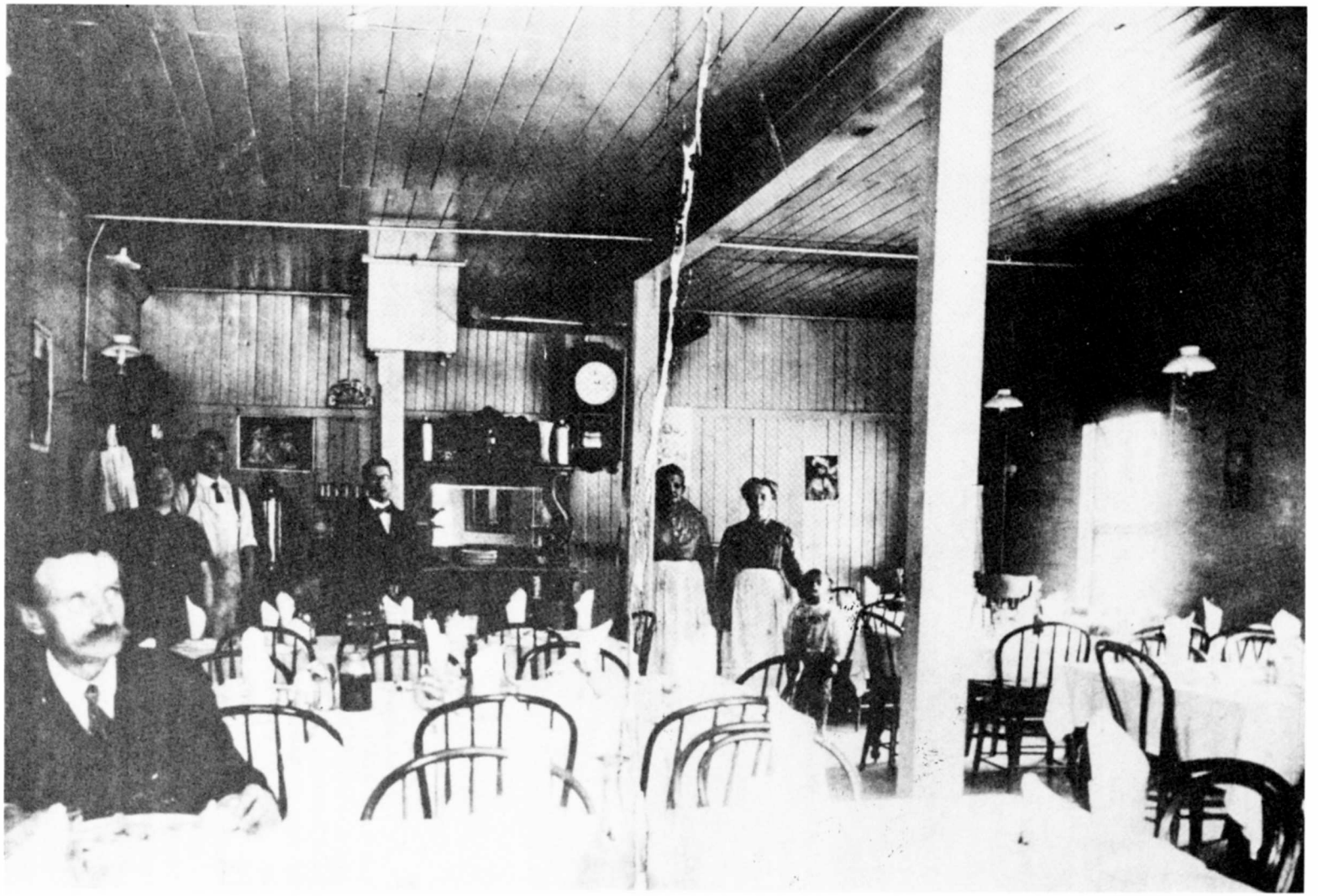


Figure 6-7. Photograph of boardinghouse dining room ca. 1910. (Courtesy of Lowell National Historical Park)

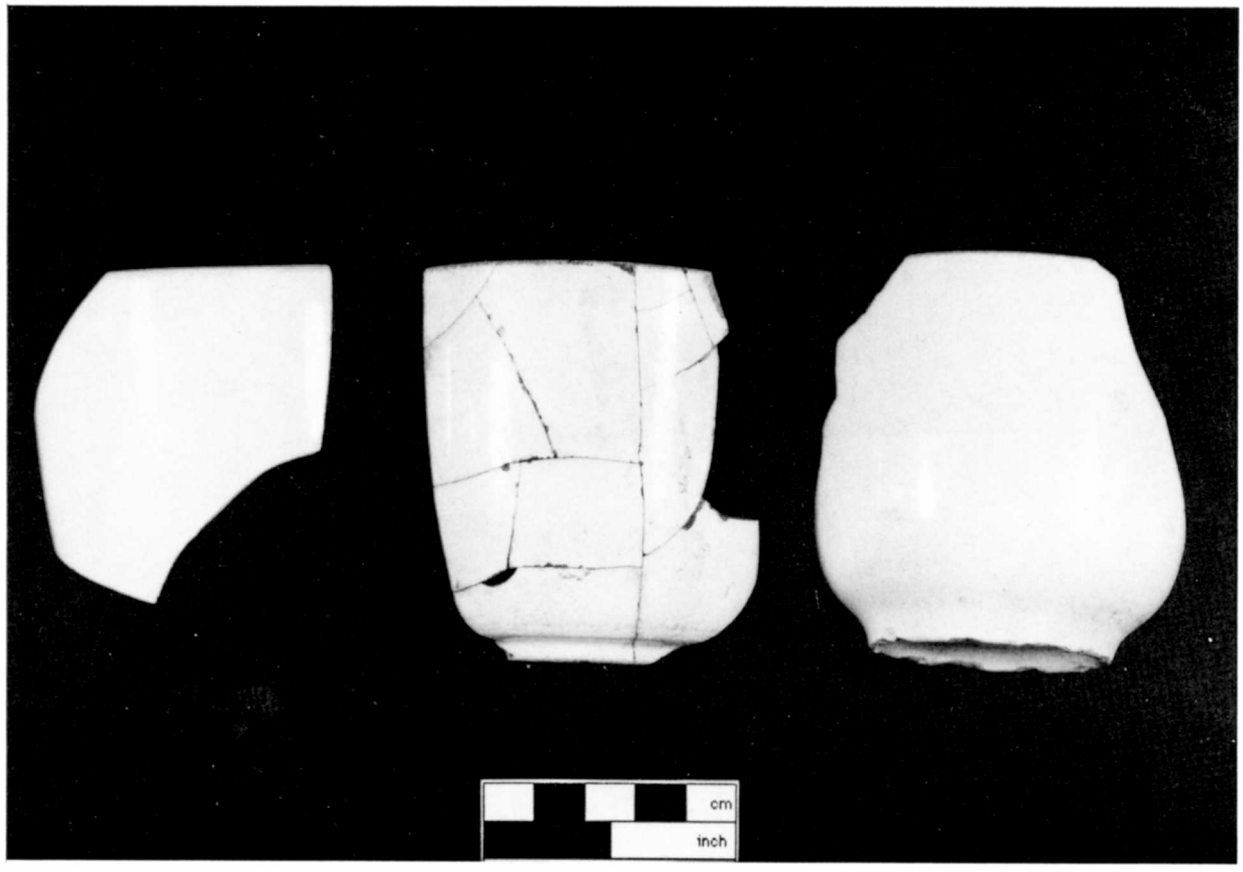


Figure 6-8. Undecorated whiteware tea/coffee cups from the boardinghouse and tenement backlots. (Photograph by Richard S. Kanaski.)

A brief survey of an extant boardinghouse menu reveals that coffee or tea was served at all three meals (Hareven 1982: 24), indicating that these were the beverages of choice. A standard tea set frequently included a teapot, sugar and creamer, waste bowl, six cups with saucers, and dessert plates (Wetherbee 1985: 29). Evidence for the presence of specialized teawares in the two assemblages is very limited. In fact, the only specialized tea- or coffeeware vessel present was a Bennington ware tea pot. It seems that tea- or coffeewares at the tenement and boardinghouse served more in a functional capacity than as status display items.

Half (50.0%) of the tea or coffee cups in the boardinghouse assemblage were undecorated. Similarly, undecorated cups, 30.7%, formed the largest group for the tenement ceramics (Figure 6–8). Transfer printed cups for the two assemblages are all unique, no two patterns being alike. The tenement has slightly more printed cups, 15.3%, as compared to the boardinghouse with 9.0%. Romantic prints in brown and an oriental print in blue dominate the color and theme elements.

Of the saucers represented from the two assemblages, no two vessels appear similar in pattern except for the undecorated wares, which account for 28.5% of the boardinghouse saucers. Printed saucers equal undecorated saucers for the boardinghouse ceramics. Blue, brown, red, and green printed patterns dominate, with the common designs being floral and geometric. None of the patterns match, but of the 10

Figure 6-9. Handpainted saucers from corporate housing backlots (1840-1860). (Photograph by Richard S. Kanaski.)

printed saucers, nine exhibit floral patterns, indicating that perhaps some attempt was made, if not to obtain the exact pattern and color, to at least stay within the same design elements.

On the other hand, only 11.1% of the identifiable saucers recovered from the tenement backlot displayed transfer print patterns. The prints were blue floral patterns that are unrelated.

A rather large percentage of saucers from the tenement, 22.2%, was handpainted (Figure 6–9). The dominant decorative elements were floral motifs painted in the sprig style. This design, consisting of small floral elements scattered over a plain background, was popular from the 1840s until the 1860s (Majewski and O'Brien 1987: 157). The typical motif included a thin hairline black stem with small green leaves and stylized red and blue flowers with berries (Lofstrom et al. 1982: 9).

Although none of the sprig decorated saucers match in style or color, it appears that efforts were made by tenement residents to acquire tea- or coffeeware in a similar pattern. Because of the nature of sprig painted designs—large portions of the vessel being left undecorated—it is quite possible that some of the undecorated cups from the tenement assemblage are represented only by unpainted portions of the vessel. It is likely that there was some evidence of matched sets, but unfortunately this information has not been recovered.

Of the bowls recovered, 20.9% were from the tenement backlot and 26.1% from the boardinghouse backlot. The most numerous decorative styles were transfer printed and undecorated wares. In fact, bowls used as tableware in the tenement assemblage were either printed or undecorated. The printed patterns were similar only in exhibiting floral

motifs, but, once again, none of the patterns matched, further indicating a replacement purchase pattern. The majority of bowls from the boardinghouse collection tended to be either undecorated (38.0%), printed (20.0%), or molded (20.0%). As with the tenement vessels, a floral theme is common in all of the printed patterns with colors ranging from blue and brown to green. However, no two bowls match. Likewise, the molded patterns all represent individual design elements with floral, dotted, and ribbed motifs dominating. As with the tenement assemblage, the boardinghouse bowl data supports a practice of purchasing bowls as replacements rather than in complete sets.

Service-related vessels, such as large bowls and platters, accounted for 26.7% of the tenement's total vessels and 29.3% of the boardinghouse total ceramics. Both assemblages showed a preponderance of undecorated service bowls (Figure 6–10). Only one attempt at matching service bowls was identified, and this was with two sponge decorated vessels from the tenement assemblage. Even though the vessels were clearly not from the same set, they both displayed a similar blue sponge design that covers practically the entire vessel and appears somewhat smudged (Figure 6–11). This type of decoration was found on a variety of tableware forms in addition to mixing bowls, heavy pots, and other kitchenware. It was frequently found on stonewares and nonvitreous to semivitreous wares produced by English and American potteries, particularly those operating in New Jersey and Ohio from 1860 to 1935 (Ketchum 1983: 178, 228–229).

All serving platters from the boardinghouse assemblage were undecorated. The tenement serving platters displayed molded, undecorated, and transfer printed designs with no two vessels being alike.

It appears that the tenement residents placed more emphasis on decorated service vessels while the boardinghouse occupants tended to rely mainly on undecorated whitewares. This suggests that perhaps meal time in the tenements was characterized by more serving vessels being taken directly from the kitchen to the table, while the boardinghouse relied on fewer serving vessels, thereby reducing the number of vessles carried to and from the kitchen. This would have cut down on washing-up and meant boardinghouse keepers did not have to buy lots of extra china that would inevitably just get broken. In fact, country hotel keepers were discouraged from serving "a spoonful or two of everything in little individual dishes sprinkled all around a guests plate" (Lane 1901: 17). Indeed, the were urged to abandon the practice, as "it is almost impossible to economically set a good table when this method is employed" (Lane 1901: 17).

Mean Ceramic Assemblage Values

In recent years, several studies have used Miller's (1980) ceramic indices as occupational or status indicators (Spencer-Wood 1987; LeeDecker et al. 1987). The underlying assumption behind these studies is that variations in the mean value of ceramic assemblages can be related to changes in status, and furthermore, to occupation.

Miller's (1980) indices were calculated by using prices for decorative types of whiteware cups and saucers, plates, and bowls for their year of manufacture and primary sale. Price lists from British potters and American distributors were used to arrive at ratios reflecting the cost of decorated whitewares in relation to cream colored ware which was the least expensive. Separate price indices were constructed for cups, saucers, plates, and bowls using price lists for years representing almost every decade: from 1770 to 1880 for cups and saucers; from 1787 to 1874 for plates; and from 1802 to 1858 for bowls. Mean ceramic assemblage values are calculated by selecting an index year and multiplying the ratios of whiteware prices by the quantity of each decorative type in a given assemblage. The sum of the these products is then divided by the total number of vessels, which provides the weighted mean cost ratio of the archeological sample.

Most studies involving the use of Miller's (1980) ceramic indices concentrate on ceramics recovered from clearly defined deposits such as refuse dumps, wells, and privies (Shepard 1987; DeCunzo 1987). Because of the limited number of vessels identified for both the tenement and boardinghouse assemblages, analysis was not restricted to vessels recovered from the richest deposits but was broadened in scope to encompass all vessels recovered from the respective backlots. Even though this method introduces some problems in arriving at reliable mean ceramic dates, it does provide a larger, more representative sample of the types and variety of ceramics used by the household residents.

Both the tenement and boardinghouse were within the same temporal range of 1835 to 1918. Mill records indicate that the boardinghouse was designated as a storage structure by 1917 and the tenement likewise by 1918 (Bond 1987:

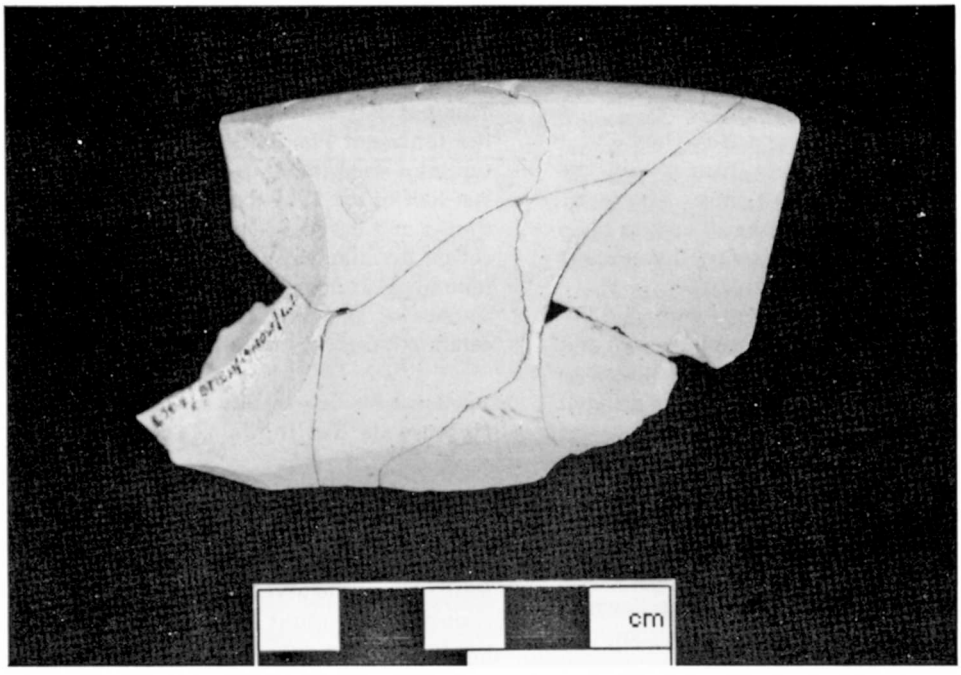


Figure 6-10. Large undecorated yellow ware bowl from the boardinghouse backlot. (Photograph by Richard S. Kanaski.)

Figure 6-11. Sponge decorated stoneware bowls from the backlot excavations (1860-1935). (Photograph by Richard S. Kanaski.)

Appendix B). It can therefore be reasonably assumed that no ceramic materials were deposited in the backlots as a result of the occupants' activities post–1917 for the boardinghouse and post–1918 for the tenement.

The ceramics were analyzed using Miller's (1989) latest index values for cups and saucers (1881), plates (1874), and bowls (1858). These values were chosen because they best represented the mean date ranges for the tenement and boardinghouse sites. The latest index value for each type was used, and, in cases where there was a missing value, the closest available value was substituted.

Small differences in price are recorded by Miller in some years for various plate sizes and for handled versus unhandled cups, as well as for unspecified cups and saucers. It was difficult to identify different types of cups and sizes of plates because the majority of sherds were quite tiny, so index values were averaged for all plate sizes in each type and as well as for all forms of cups in an effort to obtain a single value of each type for each year. As the prices between vessel sizes appeared relatively small, it was deemed best to average these values in an attempt to arrive at a more representative price as opposed to randomly selecting values for one plate size or a particular type of cup.

The results of calculating the Miller indices for the total ceramic assemblages from the tenement and boardinghouse are presented in Table 6–4. In order to evaluate the Miller Ceramic Price Index results, it is necessary to determine what can be viewed as a significant difference between the two average index values. This was accomplished by taking the total combined range of index values for the years used in the analysis (i.e., 1855, 1858, 1862, 1874, 1875, and 1881). The calculated range was 1.00–6.00. Therefore, using a level of significance of 5 percent, any value equal to or less than .30 was not considered significantly different.

Table 6–4. Summary of Miller index values.

	Tenement	Boardinghouse
Index Value		
Bowls	1.40	1.49
Cups	3.5	2.44
Plates	1.31	1.23
Average	2.07	1.72

There is a difference of .35 between the average index values for the tenement and boardinghouse. The index values for cups and saucers and plates is slightly higher for the tenement assemblage, with the greatest difference being between the values for cups and saucers. For both the tenement and boardinghouse the highest index values were for cups and saucers followed by bowls and then plates. Only for the cup and saucer category do the calculated indices differ significantly (1.06). This possibly reflects an increased emphasis by the tenement residents on the status value of ceramics used in tea or coffee drinking. By the last half of the 19th century, a wide selection of dinner and flatware services was accessible to all socioeconomic levels. The indices for both the tenement and the boardinghouse reflect the impact of the availability of mass-produced ceramic wares for household use.

Hypothesis Testing

The results of the hypothesis testing indicate that for the variables *quantity*, *quality*, and *variety* there was little variation between the tenement and boardinghouse assemblages. The similarity of the assemblages suggests that even though tenement residents represented predominantly nuclear households and were afforded greater freedom in the purchase of ceramics than the boardinghouse, the economic restrictions placed upon them by mill life and low wages acted as a stronger determinant in household purchases than differences in socioeconomic rank within the working class or in family composition. The following data are presented in support of this conclusion.

Hypothesis Testing for Quantity

The variable quantity was measured by the total number of vessels per individual for both the tenement and boardinghouse. Because the assemblages reflect the ceramics used by different households with a number of associated users, an evaluative technique was devised for making a more accurate comparison between the two values. The number of residents in 10-year increments from 1850 to 1910 were averaged for the boardinghouse and tenement. The total number of ceramic vessels was then divided by this figure, giving the number of vessels per person.

Table 6–5 presents the results for the number of vessels per person. These numbers are somewhat high, but, as expected, there are slightly more vessels per person for the tenement than the boardinghouse. This suggests that a table setting for the tenement would have included more vessels per person, reflecting a more specialized means of food

service and consumption. Foods such as vegetables and other side dishes were likely served separately as opposed to having all of the food served on one plate and brought to the table (or, concomitantly, brought to table on platters or in large bowls and served onto only one plate per person).

Table 6–5. Comparison of number of ceramic vessels per person.

	Tenement	Boardinghouse
Average no. persons	5.0	17.5
Total refined vessels	71.0	168.0
Refined vessels/person	14.2	9.6
Total vessels	86.0	191.0
Vessels per person	17.2	10.9

Hypotheses Testing for Quality

The quality of the vessels was determined by measuring three criteria within the ceramic data. The first test involved the percentage of porcelain, transfer printed ware, whiteware, undecorated ware, and minimally decorated ware within the totals of the boardinghouse and tenement ceramics. The tenement assemblage was expected to have a higher percentage of porcelain and transfer printed wares reflecting an increased awareness for status display in tableware. As Table 6–6 illustrates, however, the results are strikingly similar. The percentages indicate that both assemblages displayed no significant differences in all categories except porcelain. The tenement assemblage contains over three times the number of porcelain vessels than the boardinghouse. This is primarily a result of the large number of porcelain tea- and coffeewares in the tenement, reflecting an increased awareness in the status value of tea- and coffeeware in addition to the opportunity of tenement families to use tea and coffee in status display activities such as serving tea, etc., to guests—an activity not afforded boardinghouse residents.

Table 6–6. Counts and percentages of ceramic types within total vessel counts.

	Tenement		Boardinghouse	
Ceramic Type	#	%	#	%
Porcelain	11	8.80	8	2.56
Transfer print	12	9.60	32	10.25
Whiteware	56	44.80	149	47.75
Undecorated	28	22.40	74	23.71
Minimal dec.	9	7.20	20	6.41
Molded	9	7.20	29	9.29

The second test used in determining the quality of the ceramic vessels was a comparison of the number of matched sets for each ceramic type within the tenement and boardinghouse assemblages. Vessels were identified as matching if they displayed the same decorative design. From both assemblages, the only evidence indicating that a near-successful attempt was made at matching vessels was found in the appearance of a blue sponge decorated bowl and cup from the tenement. No matching vessels were identified from the boardinghouse assemblage. The large number of floral transfer printed tea- and coffeewares, even though in different colors, possibly reflects efforts in providing wares—particularly tea and coffee forms—that were similar in design motif if not in the exact pattern or color for the boardinghouse residents. The presence of several different molded patterns of edged ware in both assemblages indicates that the residents were replacing broken items of certain wares but on the whole were not buying their ceramics in bulk.

The third criterion for determining the quality of the ceramics in the two assemblages is a comparison of the Miller index values. As shown earlier in Table 6–4, the average index values for the two assemblages differ by .35, which was calculated as significant. The highest index values for both the boardinghouse and tenement were for cups and saucers, followed by bowls and plates. This suggests that tea- and coffeeware occupied a central role in the purchase of ceramic vessels. Bowls in both assemblages have the second highest index value. This perhaps reflects the importance of bowls in the preparation and service of meals in both the tenement and boardinghouse.

Hypothesis Testing for Variety

The percentages of various ceramic groupings were evaluated to determine the degree of variety of within boardinghouse and tenement assemblages. The first comparison was among the categories tableware, storage ware, and tea- and coffeeware within the total ceramic assemblage. The results, presented in Table 6–7, illustrate that tableware and tea- and coffeeware were the dominant ceramic groups in both assemblages. The presence of 15% more tableware within the boardinghouse assemblage is the largest discernable difference among the ceramic groupings. Both assemblages have relatively similar percentages in the tea- and coffeeware, serving flatware, and serving bowl categories.

The comparison between serving flatware and serving bowls is interesting in that the percentages for serving flatware are consistently higher than serving bowls for both assemblages.

Table 6–7. Table, storage, serving, and tea- and coffeewares.

	Tenement		Boardinghouse	
Functional Type	#	%	#	%
Tableware	19	24.05	71	36.59
Storage ware	9	11.39	11	5.67
Tea- and coffeeware	28	35.44	56	28.86
Serving flatware	13	16.45	40	20.61
Serving bowls	10	12.65	16	8.24

The most notable difference is with the boardinghouse data. Serving flatware represents 12.5% more of the total vessels than do the serving bowls. The tenement flatware, on the other hand, is more equally represented, there being a difference of only 3.49%. Landon's (1987a and this volume) analysis of the faunal material recovered from the Boott Mills excavations helps shed some light on the food purchasing patterns of the boardinghouse keepers and thus the types of food prepared. An examination of extant Lowell boardinghouse dietaries reveals that beef was by far the most frequently purchased meat followed by pork, fish, veal, and lamb (Landon 1987a: 123–128). Breaking these categories down further illustrates that roast and corned beef were the most common forms of beef served in addition to smaller quantities of stew beef, tongue, and tripe, while ham was the most frequent type of pork (Landon 1987a: 128). As shown, the major types of meat purchased for consumption at the boardinghouses were all cuts that would have been most effectively served on large platters. Thus, the large percentage of serving flatware to serving bowls is consistent with dietary and faunal data.

The results of comparisons made among transfer printed flatware, edged flatware, and banded bowls for the tenement and boardinghouse vessels are presented in Table 6–8. The tenement assemblage had a slightly higher percentage of transfer printed flatware (difference of 3.08%) than the boardinghouse assemblage. The percentages of edged ware were relatively the same with the only noticeable difference being the absence of banded bowls in the tenement. In both cases the percentage of edged ware was equal to or higher than transfer printed flatware, suggesting a preference for less expensive decorated flatware.

Table 6–8. Transfer printed flatware, edged flatware, and banded bowls.

	Tenement		Boardinghouse	
Ceramic Group	#	% *TVC**	#	% *TVC*
Transfer Print	4	4.65	3	1.57
Banded Bowls	0	0.00	3	1.57
Edged Flatware	4	4.65	11	5.75

*TVC = total vessel count

The types of vessel forms represented in each assemblage were calculated using the Identifiable Vessel Count. Because of the large number of small vessel fragments, no distinctions were made among the different sizes of vessels or between handled and unhandled cups. In an effort to provide a meaningful comparison between vessel forms, the total identifiable vessel count was divided by the total number of forms from each assemblage. The closer the results of this calculation are to 1.00, the greater proportion of vessels to forms. Likewise, the higher the number, the smaller the proportion of vessels to forms. The number of vessel forms represented in the boardinghouse is slightly higher than the tenement with the exceptions being the absence of certain specialized forms such as basins, tea pots, gravy boats, ale bottles, and jugs. Table 6–9 illustrates that the tenement had a slightly lower value for the number of vessels per form indicating a greater proportion of vessels per form for the tenement. The differences between the two assemblages, however, is partly a result of a higher vessel count for the boardinghouse and may also be affected by different patterns of refuse deposition in the backlots.

Table 6–9. Summary of vessels per form.

	Tenement	Boardinghouse
IVC*	75	168
Total vessel forms	10	14
Vessels per form	7.5	11.7

*IVC = Identified vessel count.

Summary of Hypothesis Testing

Because of the small number of vessels recovered from the tenement and boardinghouse backlots, use of the chi-square test for significance was not a valid evaluative technique, as vessel totals for many categories fell below five. It was, therefore, deemed best to evaluate the results of the hypotheses testing

based on the relative differences between the percentages of the ceramic groups compared.

Hypothesis Testing for Quantity

Data testing the quantity of artifacts between the two assemblages clearly supports the hypothesis that the tenement will have a greater number of vessels per person than the boardinghouse. As shown, there are more vessels per individual for the tenement than the boardinghouse. Therefore, class affiliation and family structure appear to affect the quantity of vessels purchased by a household's residents with an increase in class status resulting in a greater number of vessels per person.

Hypotheses Testing for Quality

Results of tests evaluating the quality of the boardinghouse and tenement ceramic assemblages were as predicted except in one case. The percentage of transfer printed wares for the boardinghouse was slightly higher than the tenement (2.8%), but, as shown, this difference is far from significant. The number of matched vessels per assemblage is quite small. The appearance of a blue sponge cup and bowl represent the only visible attempts at providing matched sets, and, as sponge decorated ware was quite popular and inexpensive during the 19th century, the two vessels may or may not be from a complete set. The lack of other sponge decorated vessel forms in the tenement assemblage indicates that it was highly unlikely that a complete set of this ware was purchased.

Calculated mean ceramic values for the two assemblages, using the Miller Price Index, yielded the expected results. The tenement assemblage average value was significantly higher (.35) than the boardinghouse assemblage value. This difference is partially a result of the large number of porcelain tea- and coffeewares recovered from the tenement backlot. These wares could have been heirlooms or curated pieces in addition to signalling a purchasing preference for porcelain tea- and coffeewares. Based on the data analyzed, the variable quality does not appear to significantly reflect the ceramic purchasing patterns of different social classes within the mill labor force.

Hypotheses Testing for Variety

Test implications for the variable *variety* yielded mixed results. There is no significant difference for the categories tableware, storage ware, tea- and coffeeware, serving flatware, and serving bowls between the tenement and boardinghouse assemblages. There does, however, appear to be an interesting comparison of serving flatware to serving bowls within the boardinghouse ceramics. The larger percentage of serving flatware reflects the dietary habits of the residents as demonstrated in the faunal data (Landon, Chapter 9, this volume).

The percentage of printed flatware from the tenement was slightly higher than the boardinghouse value but the difference was not enough to be considered significant. As expected, there were fewer banded bowls in the tenement ceramics, in fact none, as compared to the boardinghouse, with the percentages of edged flatware being relatively equal.

The number of vessels per form supports the test implication for variety. Data from the tenement illustrate that there was more variation in the forms of vessels used than for the boardinghouse. Values for both assemblages on the whole reflect little variation among the ceramic vessel forms. This can be partially attributed to the fact that no distinctions were made between different sized plates, bowls, and cups, because of the fragmentary nature of the assemblages.

The results of the hypothesis testing for the variables quantity, quality, and variety within the ceramic assemblages of the boardinghouse and tenement indicate that only the variable quantity can be reliably related to household composition and social standing. Nuclear families, such as those who commonly lived in the tenements, purchased more tableware per person indicating a more specialized meal service and presumably more genteel dining ambiance than in the boardinghouse. Test implications for quality and variety produced no significant results, primarily because both the boardinghouse and tenement residents were operating at different socioeconomic levels within the same class and, though worthy of note, these differences were not great enough to produce significant statistical patterning in the ceramic assemblage.

Dating

Ceramic *terminus post quem* dates were calculated for features with four or more vessels present. Dates were based on decorative styles including molded patterns in addition to manufacturer's marks found within the associated feature (Table 6–10).

Table 6–10. Ceramic *terminus post quem* by feature.

Feature #	*Feature type*	*TPQ**
Tenement		
Feature 25	wall disturbance	1880
Feature 27	planting hole	1900
Feature 43	well	1881
Feature 45	privy	1880
Boardinghouse		
Feature 7	wall disturbance	1880
Feature 61	privy	1900
Feature 65	planting hole	1830

*TPQ = *Terminus post quem.*

Ceramic *Terminus Post Quem* by Feature

Operation A

Four features uncovered in the tenement backlot were assigned ceramic *terminus post quem* dates. Feature 25 was the designation given to the fill of a portion of the cellar of the tenement (see Chapter 5, this volume). A ceramic *terminus post quem* date of 1880 was assigned to this feature based on the presence of an unidentified gold gilded whiteware fragment.

Feature 27 was a planting hole located parallel to the rear wall of the tenement and in between the bulkhead entrance and ell. The ceramic TPQ of 1900 was justified by the presence of a banded plate that had a series of concentric blue and red bands around the rim. This type of decoration was popular on vessels early in the 20th century as evidenced by their appearance in mail-order catalogs of the period (Majewski and O'Brien 1987: 160)

A well located to the north of the tenement well was designated as Feature 43. A ceramic TPQ of 1881 was given to this feature because its fill produced a sherd bearing a Knowles, Taylor and Knowles Company manufacturer's mark. The mark exhibited an eagle crest along with the phrase "Warenteed Granite" which was printed by the company after 1881.

Feature 45, located at the rear of the tenement backlot, was a privy. A porcelain bowl with gold gilding and a decal decoration provided the justification for assigning a 1880 ceramic TPQ for the privy. Decal printed designs often appeared in conjunction with gold gilding (Henry and Garrow 1982b: 468) and were popular on porcelain wares from 1880 to 1920 (Jacobs 1983: 22).

Operation B

The boardinghouse backlot produced 3 features that contained 4 or more vessels. Feature 7 was a trench associated with the ell foundation of the boardinghouse. An unidentified porcelain vessel with a scalloped rim displayed gilding that was identified as liquid gold. This technique of decoration began to appear around 1880, thus, providing the ceramic TPQ (Pittman et al. 1987: 54).

Feature 61, the privy, was located at the rear of the boardinghouse backlot. Its fill produced fragments of a whiteware cup with a pink, green, and yellow decal decoration, along with gold gilding. Decal decoration on earthenwares did not reach popularity until after 1900, thus providing the basis for assigning a ceramic TPQ of 1900 to the privy.

An oblong planting hole was identified as Feature 65 and was located next to the rear wall of the boardinghouse southwest of the well. A ceramic TPQ of 1830 was assigned to the planting hole based on the presence of a impressed blue shell edged plate. The blue decoration was applied around the rim over the impressed shell motif, a technique that began as early as 1830 (Majewski and O'Brien 1987: 151).

The ceramic *terminus post quem* data indicate that all the features analyzed, except for Feature 65, were filled in the last quarter of the 19th century or later. These relatively late dates are a result of the late infilling of features (other artifact analyses suggest even later dates—cf. Chapters 8, 9, and 11, this volume) and the expected lack of survival of earlier deposits (but see Kelso and Fisher in Chapter 13, this volume).

Manufacturer's Marks

Ceramic vessels often have marks on their bases that are referred to as backmarks. These marks are usually either impressed, stenciled, transfer printed, or painted on the bottom of the ceramic vessel. The marks may be applied to the vessel using any of a variety of techniques or a combination thereof, such as incising or scratching the soft unfired clay, impressing one or more stamps into the unfired paste or by painting, transfer printing or stenciling over or under the glaze (Cushion 1980: 5). A careful and thorough analysis of these marks can often reveal information regarding the date of manufacture, company affiliation, and importing practices, as well as other types of marketing information (Majewski and O'Brien 1987: 165).

Many of the backmarks that appear on English ceramics of the 19th century are characterized by sharply defined underglazed black transfer prints. It was not uncommon, however, for vessels with transfer printed decorative patterns to have the backmark

printed on the base in the same color as the transfer printed pattern. There were three commonly used backmarks motifs (i.e., the royal arms, the royal garter, and the Staffordshire knot), to which were frequently added the name of the manufacturer. In addition to the name of the manufacturer, it was also typical for the type of ware to be printed along with the mark (e.g., ironstone, granite) as well as any number of workman's marks or diamond-shaped patent registration symbols (Majewski and O'Brien 1987: 166). Godden points out that other designs that appeared rather frequently included the Prince of Wales' feather crest, crowns, and the eagle (1964: 257). It was a common practice for English potters who were actively pursuing the American market to incorporate the eagle in some fashion into their marks in an effort to appeal to this growing and potentially profitable market.

Unlike English pottery, American ceramics produced before 1850 were rarely marked with any kind of symbol whatsoever. It was not until after 1850 that American potters began the practice of marking their wares. One of the reasons that has been given for the sudden appearance of backmarks on American pottery was an increased effort on the part of American pottery manufacturers to shift the American consumers' interests from the traditional English ceramic market. This trend was particularly evident when familiar English symbols were copied by American potters through the late 1880s (Gates and Ormerod 1982: 9–10).

Printed backmarks on American ceramic vessels generally tend to be blurred and somewhat difficult to read. Overall, American marks are of distinctly poorer quality than English marks. In addition, from the time period of 1875 to 1910, American marks were characterized by either extremely elaborate shapes and designs, or were very simple, exhibiting only the company name, shape, or name of the pattern in script or block letters (Majewski and O'Brien 1987: 167).

Often, a search of the documentary sources on ceramic manufacturers will provide the researcher with enough information to safely assign a time span for the backmark in question; this is particularly true of late 19th-century marked wares. A frequently used benchmark is the enactment of the McKinley Tariff Act in the United States in 1891. In essence, this bill was designed to protect American industries and sought to do so by requiring that manufactured articles of various materials, that were imported into the United States, be clearly marked with the name of the country of origin. As a result, many researchers commonly make the mistake of jumping to the conclusion that all wares that are not marked with the country of origin predate 1891. The McKinley Tariff Act was put into effect on October 6, 1890 (Collard 1984: 323). Therefore, it is true that by 1891, most potters who were exporting ceramic vessels to the United States had begun to mark their wares with the name of the country of origin. As a general rule, when the phrase "Made in England" appears on the base of a vessel, as opposed to "England," the piece was manufactured in the 20th century. As Collard notes, this does not necessarily mean that when the word "England" appears alone that a particular vessel was produced in the 19th century, but on the contrary, that the phrase "Made in England" will only appear on ceramic vessels manufactured in the 20th century (1984: 324).

Two final notes of caution should be heeded when using the enactment of the McKinley Tariff Act as a means of dating ceramic vessel backmarks. First, there were certainly instances prior to the tariff act of 1891 when the name of the country was applied to the mark. One such example can be found in the printed marks used on the wares produced before 1890 by Anthony Shaw of Burslem (Collard 1984: 324). Second, it should be kept in mind that American pottery manufacturers were under no obligation by the tariff act to print the name of the country of origin on their wares. Therefore, it would be quite common for a piece of white ironstone to have no printed evidence whatsoever of the country of origin because it was produced in the late 19th or early 20th century by an American potter.

Extreme care should be exercised when identifying American-made ceramics of the late 19th century, as it was noted earlier that it was quite common for American manufacturers to imitate English marks on their wares in an attempt to increase their marketability. A misidentification of a mark could attribute the mark and the vessel in question to the wrong country, or worse, date the mark earlier than when the vessel was actually made.

Occasionally one will find a date incorporated in the backmark on the base of a vessel, which is oftentimes mistaken for the actual date of manufacture for the piece. As Collard points out, this date more than likely refers to founding of the factory that is associated with the particular mark (1984: 324). Hence the analyst must avoid drawing unsubstantiated conclusions when there is a printed date associated with the backmark.

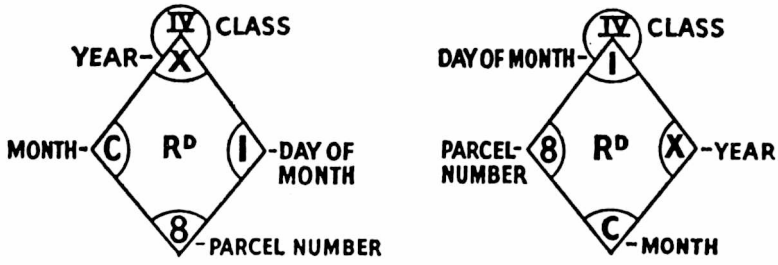


Figure 6-12. Diamond trademark registration. (Reproduced from Godden 1964:527-528)

Another somewhat useful tool for the dating of backmarks on 19th-century ceramics is the use of the word "Limited" or an abbreviation of the same after the name on the mark of the English firm that produced the ware. Marks of this type always date after the mid-19th century, and more frequently, to the late Victorian period (Collard 1984: 324).

Also, the use of the word "Trade Mark" or "Trademark," a direct result of the passage of the Merchandise Marks Act of 1862, can be helpful in assigning dates to backmarks. It was not common, however, for the actual word "Trade Mark" to appear in the backmark of a vessel until after August 13, 1875, at which time the Trade Marks Registration Act was passed (Collard 1984: 324).

One of the most reliable dating methods for 19th-century ceramics is the presence of a diamond-shaped mark that indicates that the vessel form or pattern was registered with the British Patent Office. These marks can be dated with relative ease to within a few years of the pattern's registration. The diamond-shaped marks were either printed under the glaze or impressed into the paste of the vessel and were used from 1842 until 1883 (Collard 1984: 325). In the corners of the diamond are found letters and numbers that form a code giving the actual year, month, and day that the registration was granted (Figure 6–12). At times it is also possible, by referring to the *Class IV Design Index* from the British Public Records Office, to find the patent number and the name of the firm that registered the design (Majewski and O'Brien 1987: 168).

The key to the code for deciphering the dates is shown below, along with a brief discussion concerning its use. The dates indicated by these registry marks simply refer to the earliest possible date that an item could have been produced under that particular registration. The initial registration of a form or design lasted only three years, and, after that time period had elapsed, a new registration had to be obtained. Thus, registration marks can only be used to determine *terminus post quem* dates since a form or design was often re-registered after its initial three-year period.

At the top of the diamond-shaped registration mark is a circle with a Roman numeral inside. This numeral indicates the class of material affected such as wood, metal, glass, or ceramics. All ceramic forms were registered with the Roman numeral IV. From 1842–1867, the number located directly below the circle indicated the year; the letter in the left-hand corner of the diamond represented the month, while the figure in the right portion of the diamond referred to the day of the month. Finally, the number positioned at the base of the diamond corresponded to the parcel number for the particular documents relating to the registration that were filed at the Patent Office.

This arrangement for the letters and numbers was standard for diamond-shaped registration marks until 1868. It was during this year that the positioning of the numbers and letters was changed, and a new code was devised to identify the year of the pattern registration (Collard 1984: 327). From 1868 until diamond-shaped registration marks were discontinued in 1883, the year was represented by the letter in the right-hand corner of the diamond; the month was indicated by the letter at the bottom, with the day of the month appearing directly beneath the Roman numeral IV. The parcel number for

registrations during this period was found in the left-hand corner of the mark.

In 1884, the British Patent Office replaced the diamond-shaped marks with registration numbers (Majewski and O'Brien 1987: 169). These numbers were imprinted on vessel bases and were preceded by an "Rd" or an "Rd.No." By the end of the 19th century, the numbers had already totaled more than 350,000 (Collard 1984: 326; Cushion 1980: 5).

By examining backmarks on ceramic vessels one may glean the name of the company that manufactured the ware, in addition to some approximation of the time frame within which the vessel was produced. Also, the styles and colors of the marks under study often provide information regarding the nature of the ware or the decorative attributes of the particular vessel. For instance, Josiah Spode II around 1800 began the practice of printing the name of the transfer printed pattern used on the bottom of the vessel (Majewski and O'Brien 1987: 169). Little notes that soon after Spode began this practice, pattern names began to appear within ornamental scrolls and that by the period 1830 to 1840, inclusion of pattern names within foliated and flowery cartouches and wreaths was a common practice throughout the ceramic industry (1969: 35, 96). Generally, pattern marks carried no information concerning the company that manufactured the piece; it has been noted, however, that on occasion one might be able to identify the pottery by examining the shape of the scroll or cartouche in which the pattern name was printed (Little 1969: 31).

For the 19th century, the majority of white ironstone wares produced had a maker's mark in some form, along with the company's name, transfer printed in black on the base of the vessel. Other types of decorated wares, such as spatterware, banded ware, handpainted floral or shell edge ware, and the majority of the early soft paste porcelain, were seldom marked (Majewski and O'Brien 1987: 170).

In sum, a thorough and careful examination of backmarks on the base of ceramic vessels can frequently provide valuable information. Often it is possible to determine the date, or at least a relatively precise range, when the vessel was manufactured, the company affiliation, importing practices, as well as other data relating to marketing and purchasing patterns. Even though backmarks seem to provide the archeologist with precise dates, these can at times be misleading and hence should be analyzed within the proper historical context as well as within the contaxt of the overall assemblage in which they occur.

Archeological Data

Excavations of the backlots for the Boott Mills units #45 and #48 yielded a total of 45 ceramic vessel fragments with some portion of a manufacturer's mark visible. In addition to these 45 fragments, two partial marks referred to the name of the particular pattern used to decorate the vessel. None of the sherds had workman's marks that would have been placed on the vessel by the actual individual who made the ceramic item.

Of the 45 sherds with manufacturer's marks, only 17 could be positively traced to the company that produced the vessel and mark. The two transfer printed pattern marks recovered were relatively complete; only one could be identified to the pattern name and manufacturer. Following is a detailed discussion and description, proceeding by operation and provenience, of those marks that were identifiable.

Operation A

Four ceramic vessel fragments with identifiable backmarks were recovered from excavations of the backlot associated with the Boott Mills unit #48, a former tenement. In addition to the three maker's marks, one vessel fragment bore a portion of an identifiable pattern mark.

SAMPSON, BRIDGEWOOD & SON (LTD) 8N10W1

The partial base of a small whiteware plate was retrieved during excavations in Operation A from the provenience 8N10W level 1, inside the foundation of unit #48. Transfer printed on the base is approximately one-half of the remaining manufacturers mark. The actual mark is printed in a light reddish brown color and displays a portion of a crest, alongside the name of the pottery, which appears underneath the crest. Also appearing at the top of the crest are the two letters "PO. . .," possibly referring to pottery (Figure 6–13). This particular mark was identified as being produced by Sampson, Bridgewood & Son (Ltd) of the Anchor Pottery, Longton, Staffordshire (Godden 1964: 101). The pottery was established in 1805 and was known for its manufacture of earthenware and porcelain, which it produced prior to 1887 (Godden 1964: 101). It was not until 1853, however, that Sampson, Bridgewood & Son (Ltd) began printing marks on their ceramic vessels. By 1884, one begins to see variations in the types of printed crests for this company. The actual

mark recovered at Lowell is such a variation, and therefore can be accurately dated to post–1884. Since this particular vessel was manufactured in England, the absence of the word "England" in the maker's mark helps us to date the production of this item much more closely to between the years 1884 and 1891.

AMERICAN CROCKERY COMPANY 2N4W (FEATURE 24)

An identifiable maker's mark was retrieved from feature 24, a dark circular soil stain believed to be a post hole, that was located in provenience 2N4W. This particular ceramic sherd is from an unidentifiable vessel form, and once again, only displays approximately one-half of the transfer printed maker's mark. Printed in black, the mark exhibits the royal arms with the words "IRO[NSTONE CHINA]" printed above (Figure 6–14). This mark was found to belong to the American Crockery Company, Trenton, New Jersey, which began producing bisque and white granite wares in 1876 *Marks of American Potters* (Barber 1904: 59–60). A clue for the dating of this piece was that the American Crockery Co. did not start printing this particular mark on white granite ware in black until ca. 1890 (Barber 1904: 59–60). Thus, we can safely say that this vessel was manufactured sometime after ca. 1890. The use of the royal arms by the American Crockery Co. is a good example of an American pottery imitating British marks. As was mentioned earlier, this practice became quite popular in the late 19th century as American firms attempted various marketing strategies to lure the American consumer away from the traditionally British dominated ceramic market (Gates and Ormerod 1982: 9–10).

KNOWLES, TAYLOR AND KNOWLES COMPANY 8N6W (FEATURE 43 LEVEL E)

A whiteware ceramic sherd with an identifiable maker's mark was excavated from level E of feature 43 in provenience 8N6W. This feature was a well and was not fully excavated because of safety precautions. The fragment is from an unidentifiable vessel form and has a maker's mark transfer printed in black on the base. The mark consists of a crest along with the word "WAR[RENTEED]" printed along the top of the crest and the initials "K.T.[K]" across the bottom with "GRANI[TE WARE]" printed beneath (Figure 6–15). The manufacturer was identified as the Knowles, Taylor & Knowles Company which of East Liverpool, Ohio. The company was established in 1854 by Isaac W. Knowles and Isaac A. Harvey (Barber 1904: 108–109). The two individuals began the pottery works with one kiln producing predominantly yellow wares. In 1870 Mr. Knowles, who by this time had become the sole proprietor, formed a partnership with Col. John N. Taylor and Homer S. Knowles. Approximately two years later the company began their first production of white granite ware (Barber 1904: 108–109). In 1891 Joseph G. Lee and Willis A. Knowles joined the firm, at which time a stock company was incorporated under the name of Knowles, Taylor & Knowles Co. Of the various products manufactured, the most prominent, was the white granite, semivitreous porcelain, and hotel china (Barber 1904: 108–109). The presence of the eagle crest along with the phrase "WAR[RENTEED GRANITE]" indicates that this particular vessel was in use after 1881. The actual date range, however, can be large as Knowles, Taylor & Knowles Co. are still in business today, operating approximately 35 kilns and employing upwards of 700 individuals (Barber 1904: 108–109).

JOHN ALCOCK POTTERY 4N0W (FEATURE 45 LEVEL A)

One whiteware tea cup fragment was obtained from feature 45 level A which was defined as the privy in provenience 4NØW located at the rear of the backlot for the tenement unit #48. The vessel has panelled sides and displays a complete diamond-shaped registration symbol that is transfer printed in black. This particular mark contains the name of the manufacturer, which is printed above the mark, as well as the location of the pottery, which is printed below the mark (Figure 6–16). The vessel was produced by the John Alcock Pottery, Cobridge, Staffordshire Potteries. This particular pottery was in operation from 1853 until 1861 and produced predominantly earthenwares (Godden 1964: 27). The company was later named Henry Alcock & Co. and was known for its distinguishing detail on marks of differing designs (Godden 1964: 27). The vessel's diamond-shaped registration mark can be dated to within three years of the actual date of manufacture, with the aid of a code provided by Godden (1964). For this particular mark, the year of the patent design appears in the upper portion of the diamond under the class IV indicating that this registration was of the kind in use between the years 1842 and 1867. The decoding of the mark points to the date of registration as March 21, 1848 with the actual parcel number being 8. Because enough of the tea cup exists to safely determine that the vessel was undecorated, it can then be inferred that it

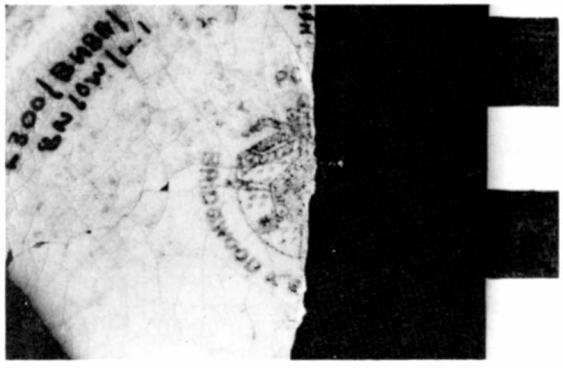


Figure 6-13. Sampson, Bridgewood & Son (LTD) of the Anchor Pottery, Longton, Staffordshire Potteries (1884-1891). (Photograph by Richard S. Kanaski.)

Figure 6-14. American Crockery Company, Trenton, New Jersey (post-1890). (Photograph by Richard S. Kanaski.)

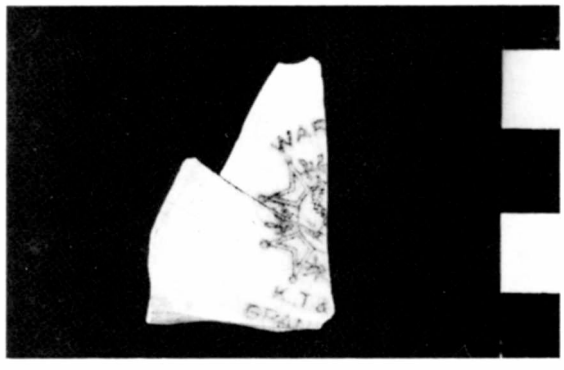


Figure 6-15. Knowles, Taylor & Knowles Company, East Liverpool, Ohio (post-1881). (Photograph by Richard S. Kanaski.)

Figure 6-16. John Alcock Pottery, Cobridge, Staffordshire Potteries (1848-1851). (Photograph by Richard S. Kanaski.)

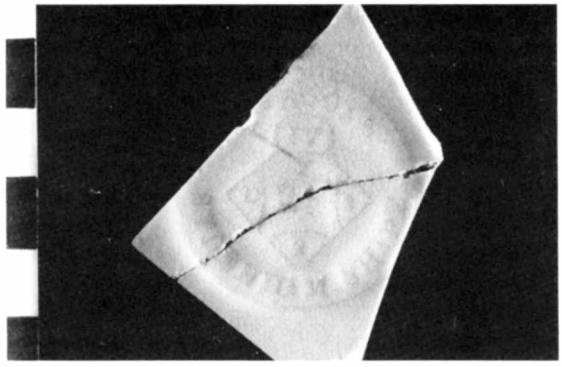


Figure 6-17. U. & R. Boote Ltd, Waterloo, Burslem, Staffordshire Potteries (1853-1856). (Photograph by Richard S. Kanaski.)

Figure 6-18. John Edwards & Company, King Street, Fenton, Staffordshire Potteries (1891-1900). (Photograph by Richard S. Kanaski.)

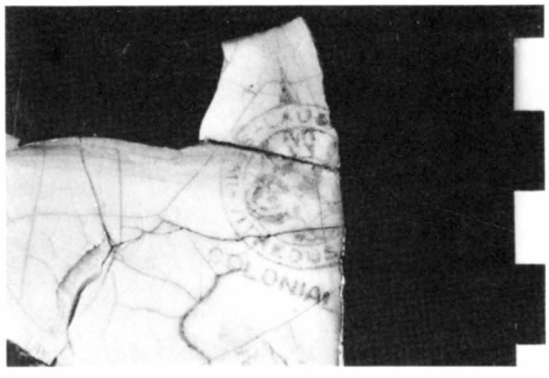


Figure 6-19. Homer Laughlin China Company, East Liverpool, Ohio (1879-1897), pattern mark "Colonial" printed beneath. (Photograph by Richard S. Kanaski.)

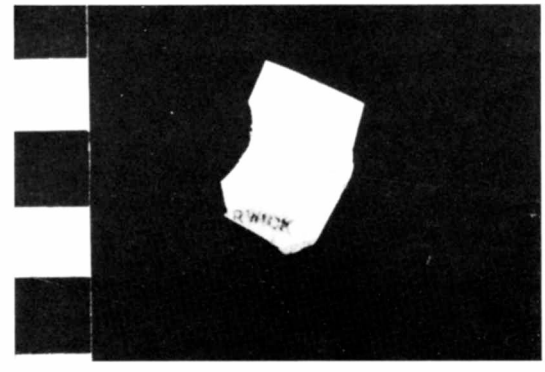


Figure 6-20. Warwick China Company, Wheeling, West Virginia (1879-1900). (Photograph by Richard S. Kanaski.)

was the form of the vessel that was registered with the Patent Office and not the decoration. As Majewski and O'Brien have noted, potters did not register all of their wares, but generally only those that they thought were likely to be copied (1987: 169). Therefore, it is quite probable that this particular tea cup represented a rather popular form during the mid- to late 19th century. Once again, registrations were only valid for three years, thus, this particular vessel was manufactured sometime during the period March 21, 1848 to March 21, 1851.

REGINA PATTERN, ENOCH WOOD & SONS 2N8W (FEATURE 27)

One whiteware plate fragment with a partial transfer printed pattern mark was recovered from feature 27 which is a large oblong dark soil stain believed to be a planting hole located in provenience 2N8W. On the base of the plate near the footring, slightly off-center, appears a partial transfer printed pattern mark in the same color as the floral pattern on the interior of the plate. The actual pattern name is printed on a banner that is draped across a floral design, once again similar to that which is displayed on the interior of the plate. The name of the pattern, "Regina," is printed in block letters with the partial name of the manufacturer, Enoch Wood and Sons, printed underneath. This particular pottery was in operation from 1759 to 1846.

Operation B

A total of 13 ceramic vessel fragments was recovered from Operation B excavations in the backlot of the Boott Mills boardinghouse unit #45. These artifacts will be discussed in the following paragraphs along with descriptions and information relating to the manufacturers.

T. MCNICOL POTTERY 17N0W1, 19N8W1

A single tea cup saucer fragment and a small plain saucer fragment, both with a similar black transfer printed maker's mark on the base were recovered archeologically from proveniences 17N0W level 1 and 19N8W level 1 respectively. The symbol used by the manufacturer consists of a shield flanked by a lion and a unicorn with an eagle overhead. Above this crest appears the word "WARRENTEED" while below is the potter's name. The mark on these particular saucers belonged to the D.E. McNicol Pottery Company which was in operation from 1892 until 1954 (Gates and Ormerod 1982: 185–186). The company came about as a result of a takeover by Daniel Edward McNicol, who in 1892 became the president of McNicol, Burton and Company which preceded D.E. McNicol Pottery Co. (Gates and Ormerod 1982: 185–186). The pottery was most noted for its production of yellow ware, Rockingham ware, and white ironstone which it marketed as "semi-granite" ware. In 1902 the firm purchased a second plant that it devoted solely to the manufacture of Rockingham and yellow wares while it continued to produce ironstone at the original works. In addition to the purchase of a second plant, a new large pottery was built at Clarksburg, West Virginia in 1914 while a fourth plant was added five years later in East Liverpool, Ohio. During the first quarter of the 20th century, the D.E. McNicol Co. produced hotel, dinner, and toilet wares in semi-granite, semi-porcelain, and cream-colored ware. The firm also continued to manufacture yellow ware products as late as 1927, which made them the last pottery in East Liverpool to produce vessels from the local clay (Gates and Ormerod 1982: 185–186). The specialties of the D.E. McNicol Co. were cited as calendar and souvenir plates that were produced in a variety of styles and decorative motifs. The West Virginia plant, on the other hand, concentrated on plain white and vitrified china for " cafes, clubs, hotels, hospitals, institutions, railroads, restaurants, and steamships." The two saucers recovered archeologically displayed manufacturer's marks that were used by the D.E. McNicol Co. after 1900. Unfortunately not enough of the vessels survived to be able to determine whether or not the pieces were decorated, and thus, from which plant they possibly came.

U. & R. BOOTE LTD. 17N0W (FEATURE 61)

Feature 61, which is a stone lined privy located in provenience 17N0W at the rear of the backlot for boardinghouse unit #45, contained one whiteware fragment with an identifiable maker's mark. Unfortunately, there is not enough of the sherd remaining to determine the precise form of the vessel. On the base of this fragment is a circular stamp at the top of which is the partial manufacturer's name, "BOOTE" and at the bottom the name of the style of the vessel, "SYDENHAM SHAPE" (Figure 6–17). The mark was identified as that of T.& R. Boote Ltd. Waterloo, Burslem, Staffordshire Potteries. The firm was established in 1842 and was known for its production of earthenwares, parian wares,

Figure 6-21. Cook Pottery Company, Trenton, New Jersey (post-1894).
(Photograph by Richard S. Kanaski.)

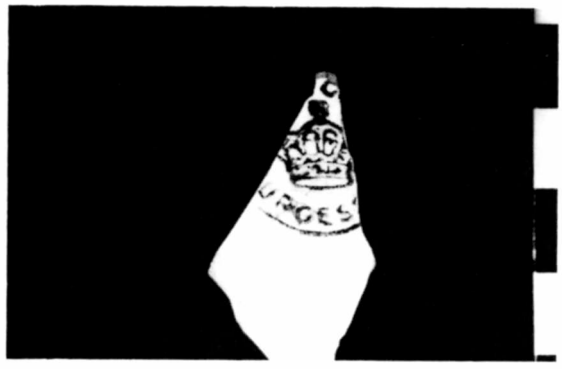


Figure 6-22. International Pottery Company, Trenton, New Jersey (post-1903). (Photograph by Richard S. Kanaski.)

Figure 6-23. Taylor, Smith & Taylor Company, East Liverpool, Ohio (post-1901). (Photograph by Richard S. Kanaski.)

Figure 6-24. Goodwin Pottery, East Liverpool, Ohio (post-1844). (Photograph by Richard S. Kanaski.)

and tiles (Godden 1964: 526–527). In the center of the circular stamp is a diamond-shaped registration mark, indicating that the vessel form was registered with the British Patent Office. This particular ceramic fragment has the code for the year printed in the top corner of the diamond which corresponds with a date for pattern registration of 1853. The other codes indicate that it was actually on September 3, 1853 when this pattern, the "SYDENHAM SHAPE" was registered. The parcel number, which is located at the bottom, is two. As always, one must keep in mind that pattern registrations were good for only three years before they had to be renewed. As a result, this particular vessel was produced sometime between September 3, 1853 and September 3, 1856.

FRENCH CHINA COMPANY 17N2W LEVEL 1

One small whiteware fragment was retrieved from the provenience 17N2W level 1 in the backlot of unit #45. Unfortunately, the sherd is too small to be able to identify the actual type of vessel, however, there is enough remaining of the base with the associated maker's mark to be able to determine the manufacturer of the ware. The partial mark is transfer printed in a light reddish brown color with the letters "FRANC. . ." in script visible. This mark belonged to the French China Company that operated out of East Liverpool, Ohio (Gates and Ormerod 1982: 47–49). The company was organized by the Sebring brothers and began operation in 1898. The firm was locally known as "klondyke" because of its great distance from the center of town (Gates and Ormerod 1982: 47–49). The pottery was best known for its production of semi-porcelain dinner, tea, and toilet wares in addition to "special novelties." In 1901 the company moved its plant to Sebring , Ohio because the owners stated that they were, "...not content to follow the antiquated methods of a past generation..." (Gates and Ormerod 1982: 47–49). At the new plant, they did continued to produce their quality semi-porcelain wares. In 1916 O.H. Sebring formed the Sebring Manufacturing Corporation which functioned as a holding company for French China, Strong Manufacturing Co., and the Saxon China Co., however, it was clear that each company continued to operate independently until 1929 at which time the holding company joined the American Chinaware Corporation. The mark on the fragment recovered from Operation B excavations is an example of the French China Company's mark displayed on semivitreous wares from ca. 1898 until 1916 (Gates and Ormerod 1982: 47–49).

JOHN EDWARDS & CO. 19N4W1

A whiteware ceramic sherd from an unidentified vessel form was recovered during excavations of provenience 19N4W level 1 in Operation B. The mark present on the base of the fragment is transfer printed in black and bears the partial name of the manufacturer, "JOHN EDWARDS," as well as the word "TRADEMARK" and "ENGLAND" (Figure 6–18). This mark was a product of the John Edwards & Co., King Street, Fenton, Staffordshire Potteries. The Edwards pottery began operation in 1847 and ceased producing ceramic wares in 1900 (Godden 1964: 231). The company started marking its wares with various impressed or printed marks of differing designs from ca. 1847 until 1873. At this time, "& Co." was added to the mark for the remainder of the firms operating days (Godden 1964: 231). The actual mark recovered from behind Boott Mills unit #45 offers several clues leading to the determination of a date of manufacture. To begin with, the style of the mark is indicative of that used by the John Edwards Co. for the period 1880 to 1900 (Godden 1964: 231). In addition to the actual style of the mark, the presence of the word "ENGLAND" indicates that this particular vessel was manufactured after 1890 when the McKinley Tariff Act was put into effect. Likewise, the appearance of the word "Trademark" further demonstrates that the piece was produced at least after 1875 when the Trade Marks Registration Act was passed (Collard 1984: 324). This information allows us to say confidently that this fragment of John Edwards & Co. manufactured vessel was produced sometime between 1891 and 1900 when the company ceased to produce ceramic wares.

HOMER LAUGHLIN CHINA COMPANY 19N6W1

The fragments of a small plate were collected from provenience 19N6W level 1 which is located in the backlot of unit #45. The plate fragments have a decalcomania floral decoration on the interior in pink, blue, and green. On the base is evidence of a partial maker's mark that was transfer printed in a light olive green color (Figure 6–19). The mark belongs to the Homer Laughlin China Company which operated from East Liverpool, Ohio. The pottery was founded by Homer and Shakespeare Laughlin and functioned under the name of Laughlin Brothers (Barber 1904: 110–

111). From 1879 until 1897, Homer operated the business alone and in the latter year the name changed to the Homer Laughlin China Company (Barber 1904: 110–111). The factory manufactured predominantly white granite ware, although in later years semivitreous china and higher grade wares were produced. On the white granite wares, the mark used by this company reflected the supremacy of American ceramic wares over British ceramics—an American eagle standing over the British lion. This same mark was also displayed with a ring on semivitreous china toilet and table services with the name of the pattern being printed beneath, such as "COLONIAL," "GOLDEN GATE," and "AN AMERICAN BEAUTY" (Barber 1904: 110–111). The particular plate fragment that was recovered during excavations of Operation B was just such a mark with the pattern name being "COLONIAL."

WARWICK CHINA COMPANY 19N8W1

Provenience 19N8W1, located in a corner between the ell extension and the rear of unit #45, yielded a small fragment of whiteware from an unidentifiable vessel. Printed on the base of this fragment is the partial word ". . .RWICK" in black transfer printed block letters (Figure 6–20). The mark belongs to the Warwick China Company which was located in Wheeling, West Virginia. The pottery was organized in 1887 and produced mainly semi-porcelain toilet and table goods (Barber 1904: 152). The first manufacturer marks used by the Warwick China Co. were characterized by a helmet and crossed swords which was later adopted around 1892 for the marking of novelties in semi-porcelain (Barber 1904: 152). From 1893 until 1898, the "WARWICK SEMI-PORCELAIN" mark was used and from 1898 until the present, the ware has been stamped with the name "WARWICK CHINA" (Barber 1904: 152). Because so little of the actual maker's mark exists, one would be hard pressed to place the date of manufacture for this piece to any time period other than sometime after the founding of the pottery in 1887.

A second whiteware ceramic fragment was recovered from the same provenience, 19N8W level 1. The medium size bowl base sherd displays a green transfer printed mark with a floral wreath and a globe in the center (Figure 6–23). This particular mark was used by the Burford Brothers Pottery Company which was located in East Liverpool, Ohio. The pottery was in operation from 1879 until 1900 and specialized in plain white and decorated semi-porcelain wares (Thorne 1947: 120). During the course of their existence, the Burford Brothers Pottery used a variety of marks such as a shield that was displayed on their general ware, and the word "HOTEL" which was printed on their hotelwares, in addition to several other marks including the one represented in the Lowell assemblage (Barber 1904: 116). Because there are no precise indicators as to the date of manufacture for this particular mark, we can only say that the vessel was produced sometime during the operational lifetime of the pottery, 1879 to 1900.

COOK POTTERY COMPANY 19N10W1

A small whiteware fragment was recovered from the provenience 19N10W level 1 which was located next to the rear foundation wall of unit #45. The sherd is from a vessel whose form is unidentifiable and exhibited no form of decoration save for the maker's mark transfer printed on the base. The mark is a circular pattern with the name of the pottery around the interior of the circle and a small insignia in the center (Figure 6–21). This particular mark belonged to the Cook Pottery Company of Trenton, New Jersey. The company was organized in the early part of 1894 succeeding to the business of Messrs. Ott & Brewer (Barber 1904: 54). The officers of the firm were Charles Howell Cook, President; F.G. Mellor, Vice-President and Treasurer, and James J. Mulheron, Secretary (Barber 1904: 54). Primarily two marks were printed on their porcelain dinner ware, one being composed of three feathers and the other, which is of the type excavated from behind Boott Mills unit #45, was a circle that enclosed the combined names of Etruria and Mellor & Co. (Barber 1904: 54). Once again from the evidence available, we can only safely say that this particular vessel was produced sometime after the organization of the pottery in the early months of 1894.

INTERNATIONAL POTTERY COMPANY 23N4W1

Provenience 23N4W1 yielded a small whiteware fragment bearing an identifiable black transfer printed manufacturer's mark on the base. The mark was determined to be one that was used by the International Pottery Company which operated out of Trenton, New Jersey. The firm was established in 1860 by Henry Speeler and began later in 1868 to operate under the name of Henry Speeler & Sons (Barber 1904: 58–59). In 1879, Edward Clark and James Carr purchased the Speeler pottery works and organized the Lincoln Pottery Company. The manufacturer's mark adopted

by this company was a mark with the name of the firm and the names Carr & Clark printed beneath. After a few months of operation, when the company was reorganized by the International Pottery Company, the mark was continued with the exception of the successor's names, Burgess and Campbell, were substituted (Barber 1904: 58–59). In fact, after the reorganization, a variety of marks began to appear. For semi-porcelainwares, particularly on certain patterns of underglazed ware, a circular stamp was impressed while the mark "INTERNATIONAL CHINA" was frequently used on the same grade of ware. On semi-porcelain tablewares with blue decorations under the glaze, the "ROYAL BLUE" marks were printed in the same color. Likewise, a similar mark was used on toilet and dinnerware of the "BALMORAL" pattern. Other pattern marks that were printed on toilet and tablewares were "ALBANY," "JAPONICA," "LOTUS," and "DIAMOND" (Barber 1904: 58–59). After Mr. Campbell left from the company, the style of the mark was changed to simply "BURGESS & CO." The mark that was displayed on "Royal China" in 1903 was of a crown in a circle which corresponds with the mark recovered in Operation B behind unit #45 (Figure 6–22). A later period manufacturer's mark used by the International Pottery Co., mostly on their semivitreous porcelain, was the Maltese cross. Therefore, it can be inferred that the fragment represented in the Lowell collection was produced sometime after 1903

TAYLOR SMITH & TAYLOR COMPANY 23N4W1

A light green maker's mark was identified on a small whiteware vessel fragment that was recovered from the provenience 23N4W level 1. The mark belonged to the Taylor, Smith & Taylor Company of East Liverpool, Ohio. The original company of Taylor, Lee & Smith was incorporated in 1899 and was the predecessor of the present Taylor, Smith & Taylor which assumed operations on October 1, 1901 (Barber 1904: 116). The primary product manufactured by the pottery was semivitreous porcelain. Subjoined are the marks of the original company for semi-porcelain and white granite. The marks used by the present company were shown for the same types of wares (Barber 1904: 116). The mark visible on the ceramic sherd recovered from the rear of unit #45 consists of a winged lion [griffin] below which are three circles that contain the letters "T.S.T" under which are printed the names "TAYLOR, SMITH & TAYLOR" (Figure 6–23). Because the mark is from the Taylor, Smith & Taylor Co., we know that the vessel was manufactured sometime after 1901.

GOODWIN POTTERY COMPANY 23N6W1

A black transfer printed manufacturer's mark was excavated from the provenience 23N6W level 1 in the vicinity of a brick drain box located behind boardinghouse unit #45. The mark, which is on a piece of whiteware, belonged to the Goodwin Pottery Company of East Liverpool, Ohio. John Goodwin established the pottery in 1844 primarily for the production of yellow and Rockingham wares (Barber 1904: 105–106). In 1876, after the death of Mr. Goodwin, his sons took over and in 1893 the Goodwin Pottery Company was incorporated. Their products consisted of pearl, white, cream-colored, decorated wares, semi-porcelain and ironstone china or white granite (Barber 1904: 105–106). The particular mark represented from Operation B excavations at Lowell consists of a printed coat-of-arms under which is a banner that says "IRON STONE CHINA." Below this banner is a date, "1844" which is an excellent example of a printed date on a mark indicating when the particular company was established (Collard 1984: 324). Finally, beneath the founding date is printed in block letters: "GOODWIN'S" (Figure 6–24).

WEST END POTTERY COMPANY 19N6W1

A large undecorated serving platter was recovered archeologically from the provenience 19N6W level 1 and crossmended with fragments from the same vessel retrieved from excavation unit 23N4W level 1, all from Operation B. On the bottom of the platter is a simple maker's mark in black transfer print that reads "W.E.P.CO." with the word "CHINA" printed in block letters beneath (Figure 6–25). This particular mark was used by the West End Pottery Company of East Liverpool, Ohio. The company was organized in 1893 having succeeded Messrs. Burgess & Co. (Barber 1904: 117). The primary products of the pottery were ironstone china and fine decorated ware. Unfortunately, with the limited amount of data available on this particular mark, little more can be said, at this point, other than that the serving platter retrieved from behind unit #45 was produced sometime after 1893.

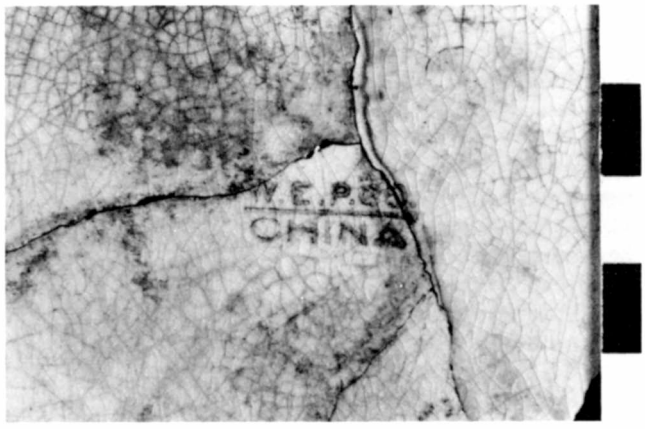


Figure 6-25. West End Pottery Company, East Liverpool, Ohio (post-1893). (Photograph by Richard S. Kanaski.)

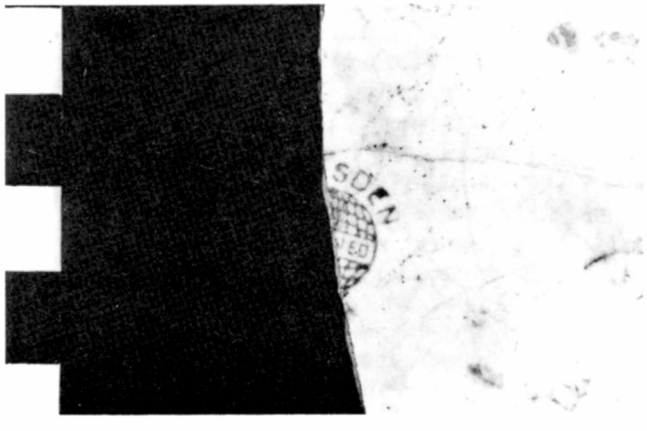


Figure 6-26. Potter's Co-operative Company, East Liverpool, Ohio (post-1876). (Photograph by Richard S. Kanaski.)

POTTER'S CO-OPERATIVE COMPANY TRENCH #2 LEVEL 9D

A medium-size serving platter fragment was uncovered during test trench excavations in 1984 and retrieved from test trench #2 level 9D which was later incorporated into Operation B excavations of the Boott Mills boardinghouse unit #45. The manufacturer's mark is transfer printed in a light reddish brown color displaying a globe with an unidentifiable word printed in the middle and the name of the pottery printed above (Figure 6–26). This particular mark was used by the Dresden works which belonged to the Potter's Co-operative Company of East Liverpool, Ohio. The pottery has been in existence since 1876 when it was established by Messrs. Burnt, Bloor, Martin & Co. (Barber 1904: 111). The primary products produced by the Dresden works were white granite, decorated table and toilet wares, and vitreous and hotel china (Barber 1904: 111). At this point with the paucity of information available on this particular mark, we are unable to say any more other than that the vessel was manufactured sometime after the founding of the pottery in 1876.

IRIS PATTERN MARK TRENCH #4 LEVEL 3

Preliminary testing uncovered in trench #4 level 3 the fragments of a small plate on the base of which is visible a partial pattern mark. The light olive green transfer printed mark is slightly off-center of the base and near the footring.The name of the pattern, "IRIS," is complete and is surrounded by a floral wreath. Underneath the pattern name are printed letters of which, unfortunately, only the tops are visible, thus, providing no more information regarding the origin of the pattern. The interior of the remaining vessel is undecorated indicating that the decoration was around the rim of the plate. Because the pattern could not be positively identified, a date of manufacture is at this point uncertain.

Summary and Discussion of Maker's Marks

Dating

A mean date of manufacture was calculated for the identifiable maker's marks by averaging the dates assigned for the production of the particular mark. For those symbols where a date range was given, an average was taken to determine the mean date of production. This date was then incorporated into the calculations for the overall mean manufacture date for the marks identified from the backlots of units #45 and #48. The results of these calculations conclude that for Operation A backmarks the mean manufacture date for the ceramic vessels manufactured in England is 1868.5, for domestic manufactured wares 1885.5, and for all of the marks recovered from Operation A, 1877. For Operation B the mean manufacture date of English made wares is 1872, while the domestic produced wares is 1893, and the overall mean for Operation B marks is 1889.7.

The discrepancy between the mean manufacture dates for the English made ceramics and the American produced wares can best be attributed to the development of the American ceramic industry during the 19th century. From the late 1700s until approximately 1880, the world ceramic market was dominated by the British (Majewski and O'Brien 1987: 114; Miller 1980: 1–2). Beginning around 1850 until about 1880, British potters began to increase their production of "classic ironstone" for export to the American market (Majewski and O'Brien 1987: 114). It was during this time period that English firms, particularly the Staffordshire potteries, began to feel pressures from French ceramic manufacturers who began exporting large quantities of inexpensive hard, white porcelain to Canada and the United States (Wetherbee 1985: 15). As a result, the British ceramic industry began producing imitations of the French grey-white ware and once again assured its control of the American market which eagerly seized upon the white earthenwares that were characterized as being sharply, detailed potted vessels, and displaying gleaming glazes (Wetherbee 1985: 15). After about 1880, there was a shift in English ceramic production from the "classic ironstone" (heavy, semivitreous ceramics that were frequently either decorated with relief molding, or left plain) to a lighter weight ironstone ware (Majewski and O'Brien 1987: 114). These lighter wares, however, were never completely accepted as a table service by the British, and thus, the heavy vitreous and semivitreous wares continued to be produced long after the decline of the "classic ironstone" ware and were manufactured for both export and use in England (Wetherbee 1985: 179; Majewski and O'Brien 1987: 114).

It was not, however, until after the Civil War that American pottery manufacturers began seriously to compete with the British ceramic industry. Only at the end of the 19th century do American potters begin to establish themselves as a viable competitor in the eyes of the

American consumer (Majewski and O'Brien 1987: 115).

In the 1860s, small amounts of semivitreous ware was being produced in New Jersey. This trend steadily increased until the 1890s by which time American ceramic manufacturers had a sizable command of the U.S. market (Majewski and O'Brien 1987: 115). This sudden and rapid growth in the production of semivitreous ware in America was seen as a result, or outgrowth of, the "white granite" industry that developed in the East Liverpool pottery district of Ohio around 1890 (Majewski and O'Brien 1987: 115). The American produced "white granite" was a nonvitreous to semivitreous ware that was an answer to the British production of "classic ironstone," and like the "classic ironstone," was a heavy, semivitreous ware decorated with relief molding, or left plain. This ware was the predominant type of dinnerware used in the average American home until the 1940s (Newcomb 1947: 223; Majewski and O'Brien 1987: 115).

OPERATION A

Backmarks excavated during Operation A from the backlot of unit #48 produced a mean manufacture date for European made ceramics of 1868.5. The mean date for the marks on domestic wares of Operation A, as was mentioned earlier, is 1885.5. The differences between these two dates should be viewed as a result of the types of wares available at the time of purchase. These dates are entirely consistent, with the exception of the Sampson, Bridgewood & Son (Ltd) vessel that was produced between 1885 and 1891, with the development of the American pottery industry in the 1880s and 1890s and likewise, with the decline of British influence in the American ceramic market. The manufacturer's marks that were recovered from the backlot of unit #48 suggest that prior to the 1880s the residents of the tenement purchased English refined earthenwares for use as tableware. After the American ceramic industry had established itself as a serious competitor in the ceramic market in the 1880s, residents then opted for the purchase of domestic manufactured wares.

The presence of the Sampson, Bridgewood &Son (Ltd) vessel, which was identified as a small bowl, with a relatively late date of manufacture, indicates that the occupants of the tenement continued to purchase limited amounts of English manufactured ceramics, possibly for special function items such as tea ware or display pieces.

The general shift that is evident in the Operation A data suggests an effort of economizing, as far as the purchase of everyday tableware was concerned, as ceramics manufactured in the United States would have been considerably less expensive, because of the decrease in the costs of shipping and handling, as well as being more readily available.

The mean date of production for all of the maker's marks recovered during Operation A excavations is 1877. This date represents the mean of the earliest possible dates of manufacture for the marks under study. As 1877 falls right after the beginning of the assertion of influence by the American ceramic industry, the data is then consistent as the appearance of an equal number of European and domestic manufactured ceramics indicates. What we are seeing represented is a period of transition where there is a shift being made towards the purchase of American wares, but at the same time, remaining somewhat loyal to the ever present British ceramic industries, particularly for certain vessels of certain forms and functions.

OPERATION B

Operation B yielded 13 identifiable manufacturer's marks. Of these 13 marks, two were from European potteries while the remaining 11 were produced by firms in the United States. The mean date of manufacture for the European made wares is 1872. Both of the vessels represented in Operation B were manufactured at the Staffordshire potteries in England and once again, as in Operation A, represent ceramic purchases made at the end of the period of British domination in the ceramic market.

The 11 domestic marks retrieved from the backlot of unit #45 have a calculated mean manufacture date of 1893. The large sample size and the late mean production date indicate that the bulk of the purchases for ceramic vessels were made after the 1880s; well into the time period when American potteries began to dominate the ceramic market in the United States. The preponderance of domestic manufactured wares points to efforts of economizing at the boardinghouse through the purchase of ceramic items. The American wares had increased availability, and thus, would have been much easier to replace with like or similar vessels, as well as being cheaper, because of the reduction in transportation costs.

The mean date of manufacture for all of the identifiable backmarks recovered during

Operation B excavations is 1889.7. Unlike Operation A, the Operation B mean manufacture date points to a period of purchase for ceramic vessels that is well into the period when American potters began to control the ceramic market. The two marks that were of European manufacture are more than likely from vessels that had an extended use life or were possibly curated as pieces that were given a special function or status. Archeologically, the marks indicate that excavations of the backlot of unit #45 were focusing on boardinghouse life from the last two decades of the 19th century on into the first decade of the 20th century. During this period it is clear that domestically manufactured ceramics were preferred over European wares, once again, most likely in an effort to reduce operating costs of the boardinghouse as American wares would have exhibited a reduced price in addition to an increased availability.

Conclusions

The conclusions drawn from the results of the hypotheses generated for testing the variables quantity, quality, and variety demonstrate that in the mill community, level of class membership and family composition only affect the quantity of ceramics per individual purchased by a household. The variables quality and variety when tested, produced insignificant results. Perhaps the small number of observed differences in the tests conducted for the variable variety are a result of the more equal access to food items in an urban setting for all classes. Likewise, the introduction of mass produced ceramic tableware in the late 19th century made a wide range of ceramic types and forms accessible to all socioeconomic classes.

In both assemblages there appeared to be no successful attempt to purchase ceramics in sets. Advertisements from 19th-century newspapers illustrate that businesses in Lowell were aware of the financial constraints placed upon boardinghouse keepers and were willing to accommodate them in their efforts to economize. The data similarly suggest that the tenement residents were faced with the same welter of financial constraints and responded to the need for economizing in much the same manner as the boardinghouse keepers.

The presence of more expensive tea- and coffeeware in the tenement assemblage indicates that these vessel forms served in a more status related function than the tea- and coffeeware from the boardinghouse. Tenement residents were often skilled workers or immigrants and, as a result of their housing situation, were afforded more opportunity for self expression through their ceramic purchases. Immigrants, responding to the call for cheap labor, frequently entered American society at the bottom of the social hierarchy. Therefore, in an effort to escape the social stigma and economic consequences of lower class life, immigrants frequently assimilated. The retention of ethnic traditions often resulted in the preservation of class differences associated with immigrant status (Steinberg 1981). The purchase and display of expensive tea- and coffeeware was one attempt made by the tenement residents to assimilate and to display middle class values.

Aside from tea- and coffeeware, the two ceramic assemblages were remarkably similar. Undecorated whitewares dominated both collections with smaller percentages of transfer printed and handpainted ware. The increased availability of ceramic tableware types and forms in the late 19th century lessens the number of observed differences between ceramic assemblages of households with similar financial means.

Analysis of the manufacturer's marks demonstrates that both the tenement and boardinghouse residents opted for the purchase of domestically produced ceramics after the American ceramic industry had established itself as a serious competitor in the world ceramic market in the 1880s. By acquiring domestic ceramic wares, residents of both the tenement and boardinghouse tried to economize, as these wares would have been less expensive because of reduced transportation costs and increased availability.

The majority of the American manufactured wares purchased by the boardinghouse and tenement residents were from the East Liverpool, Ohio, pottery district with lesser quantities coming from West Virginia, New Jersey, and England. The East Liverpool potteries dominated the American ceramic market after the 1880s, and the preponderance of wares from this region is not surprising.

The ceramic assemblages recovered from the boardinghouse and tenement backlots at Lowell reflect two late 19th century working class households operating under different household structures but within similar economic constraints. Ceramic purchasing patterns reflect attempts at economizing for both assemblages in addition to providing the necessary forms for food service and consumption. The tenement residents sought to emulate middle-class dining habits by including more vessels in a table

setting per person even though these were unspecialized in function. This suggests that for the tenement, vessel function was more fluid with particular forms serving in various capacities other than their intended use. The boardinghouse, on the other hand, provided only the basics for food service and consumption. Complete meals were served to individuals on a single plate with little or no accessories such as vegetable dishes, bread plates, and salad plates. In this way the tenement household attempted to follow main stream middle-class dining rituals by adapting their limited ceramic assemblage to reproduce as close as possible a middle-class table service while the boardinghouse, only concerned with the service of food, neglected such refinements in vessel function.

Life for the mill labor force was one characterized by limited financial resources. Even though options available in corporate housing offered some residents more purchasing freedom, it appears that similar economic restraints acted as a more powerful determinant, cutting across class rank, in the purchase of ceramic wares. Household make-up (nuclear family vs. corporate boardinghouse), however, altered the views of vessel function within the tenement and boardinghouse ceramic assemblages. The use of tea- and coffeewares as status display items by the tenement residents, an option not available to the boardinghouse occupants, and the use of single vessels in several functional capacities are differences that separate the lifestyles of individuals and families living in corporate housing at the Boott Mills in Lowell.

Chapter 7

THE MEDICINE, ALCOHOL, AND SODA VESSELS FROM THE BOOTT MILLS BOARDINGHOUSES

by Kathleen H. Bond

Introduction

A portion of the vessel glass—medicine, alcohol, and soda bottles and jars—recovered from the Boott boardinghouse backlots is discussed below. These three categories of glass were separated from other types of container glass (e.g., food, milk, and condiment bottles and jars) and analyzed as a discrete unit. The decision to divide the glass vessels arose from the sheer quantity of glass artifacts (over 14,000 fragments of vessel glass were present). The medicine, alcohol, and soda glass were grouped together, as they are products often associated with leisure behavior, whereas food and milk containers are generally purchased in conjunction with food preparation and consumption activities. The split in the analysis is, however, somewhat arbitrary, as some of the vessels associated with leisure behavior were no doubt used at mealtime and vice versa.

The medicine, alcohol, and soda vessels recovered from the Boott Mills boardinghouse site were analyzed within the framework delineated in the project's research design. One of the research objectives posed in the design was to delineate patterns of consumer behavior among the residents of the housing. This focus was guided, however, by the knowledge that life in the residences reflected a "corporate pattern of consumption and lifestyle" (Beaudry and Mrozowski 1987: 6). That is, consumer choices were made not only on the basis of personal choice and cost of goods, but they were also infiuenced by a corporate policy that touched virtually all aspects of an individual's life. One of the ways that the policy affected workers' behavior was that these individuals had little, if any, say in the acquisition of most items used on a daily basis; the household wares and furnishings in the boardinghouses were purchased by the keepers of each unit, individuals who exercised enormous control over the domestic environment. Products associated with leisure behavior, such as drink and tobacco, as well as personal effects, were the exception to the norm; they were purchased directly by the workers. The medicine and beverages that workers consumed and discarded reflect, then, some of the more personal choices made by the Boott workers. Even these choices, however, were influenced by the corporate system of policies and regulations. The focus of the analysis of the medicine and beverage vessels recovered from the Boott examines the workers' choices in light of the corporate way of life.

Within the discussion, an overview of the number, manufacture dates, and deposition of the medicine, alcohol, and soda vessels is presented first. This is followed by a description of techniques used in the manufacture of 19th- and 20th–century bottle glass, particularly those that were first introduced during the latter part of the 1800s. Following the description of manufacture, the vessels in the assemblages from each functional category are discussed. The artifacts from Operation A (the tenement) and B (the boardinghouse) are discussed separately. An interpretation of the assemblage is presented last.

Minimum Number of Vessels

Minimum number of vessel (MNV) was calculated using two approaches. Whole bases, base fragments that were at least 50% complete, and base fragments that were unique in the assemblage were assigned an MNV of one. In certain instances, however, there was a lesser number of bases to finishes within a vessel type. Finishes that exceeded the number of bases in a particular type and unique finishes were also assigned an MNV of one. In a few cases, body fragments did not correspond in color or manufacturing technique to any base or finish in the assemblage and were also included in the vessel count.

A total of 14,271 glass vessel fragments were recovered from the two operations: 5426 fragments came from Operation A and 8845 from Operation B. Of the 169 total vessels, 84 were medicinal, 72 were alcohol, and 13 were soda. Sixty vessels came from the tenement and almost twice as many, 109, from the boardinghouse. Table 7–1 and Table 7–2 break the MNV up according to the two operations. Two of the functional categories were further subdivided; alcoholic beverages were separated

into liquor, beer, and wine vessels, and medicine into proprietary and toiletry vessels.

Table 7–1. Minimum Vessel Count, Operation A.

Type	#	%
Medicinal		
Proprietary	29	48.3
Toiletry	1	1.7
Subtotal	30	50.0
Alcohol		
Liquor	18	30.0
Wine	2	3.3
Beer	4	6.6
Subtotal	24	39.9
Soda	6	10.0
Totals	60	100.0

Deposition of Medicinal, Alcohol, and Soda Vessels

Of the vessels recovered, 31 (52%) were from features in Operation A. Four features contained the greatest quantity of glass, including the privy (Feature 45), the well (Feature 43), and the tenement bulkhead (Feature 23). The fourth feature, Feature 46, a shallow pit along the inside edge of the woodshed foundation, near the privy, was designated a bottle dump or cache because it contained almost nothing but liquor and medicine bottle glass. A minimum of 5 mold-made liquor and medicine bottles had been broken into many fragments, but at least 4 had been deposited unbroken, as they still lay in their original shapes (Figure 7–1).

Table 7–2. Minimum Vessel Count, Operation B.

Type	#	%
Medicinal		
Proprietary	49	45.0
Toiletry	5	4.5
Subtotal	54	49.5
Alcohol		
Liquor	36	32.7
Wine	7	6.4
Beer	5	4.5
Subtotal	48	43.6
Soda	7	6.4
Totals	109	100.0

Twenty-nine (48%) of the vessels from the tenement came from yard scatter. The most concentrated areas of scatter were within the limits of the tenement ell and in an area running between the tenement bulkhead and the woodshed.

Twenty-seven vessels (25%) were recovered from features in Operation B. Of the features sampled or excavated, the privy (Feature 61) and the well (Feature 2) contained the largest deposits. Feature 65, a pit or planting hole, also yielded a fair number of glass fragments.

Eighty-two vessels (75%) were recovered from yard scatter in the boardinghouse backlot. Although glass littered the backyard, the heaviest concentrations were in two areas: between the back wall of the boardinghouse and the unexcavated area near the modern-day lamp post; and between the ell of unit #45 and the woodshed.

Dating of Assemblage

Of the 165 datable vessels in the MNV for both operations, 8 (5%) were mold- or free-blown prior to 1880. One-hundred-six (64%) were mold-blown between 1880 and 1920, and 41 (24%) were machine-made after 1904. Another 14 (9%) could be dated no more closely than to after 1860. These four broad time periods have been used only as "ballpark" dates, and are based on major developments in 19th- and 20th century bottle manufacture; within each period, some of the glass could be more tightly dated.

Manufacture of 19th- and 20th-Century Bottle Glass

The medicinal, alcohol, and soda vessels were first examined for evidence of mold or machine manufacture. If a vessel was mold-blown, it was studied for evidence of empontilling or use of a snap case. It was also examined for evidence of use of a finishing tool. For descriptions of the various molds and the processes involved with snap cases and finishing tools, refer to Jones and Sullivan 1985 as well as Toulouse 1969a and 1969b.

As the majority of glass dated after 1880, the following six manufacturing techniques were common in the assemblage. The techniques are described below in chronological order.

Plate Molds

Bottles had been embossed since the 18th century (Noël Hume 1969: 74), but plate molds were used by the 1860s. The plates were inserted into the mold, which "enabled the glassmaker to blow personalized bottles for a buyer whose needs were too small to justify the expense of a

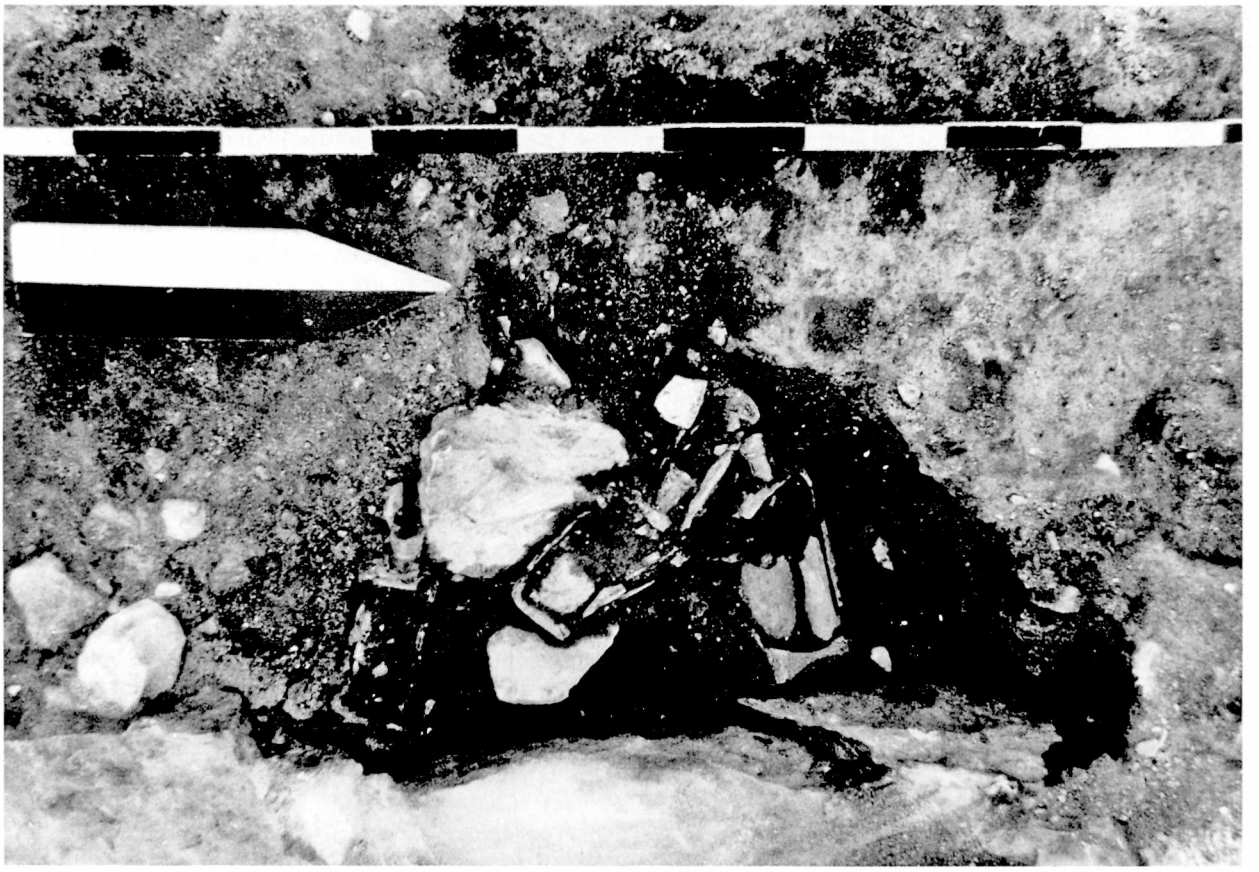


Figure 7–1. Feature 46, a bottle dump just outside the tenement privy. Camera faces east. (Photograph by Paul Giblin.)

complete mold" (Toulouse 1969b: 584). One body mold could then serve many customers. After about 1890, the terms "Warranted," "Registered," and "Guaranteed" were often embossed on liquor bottles to assure the customer that he or she was getting a true measure; these terms remained in use until Prohibition (Peterson 1968: 45; Bernard Puckhaber, personal communication, 1987).

Turn Mold

From 1880 to about 1910, many wine bottles, as well as some other types of bottles, were turn molded. This technique erased the mold seams but left horizontal markings on the bottle (Toulouse 1969a: 532).

Vent Mold

A process used only on mold-made bottles, small holes were drilled into the shoulders or base of the bottle. This permitted pressure to be released and ensured a more perfect form (Jones and Sullivan 1985: 47). While the technique dates from about 1875, it was not used on whiskey bottles until 1892 (Cheney 1982: n.p.).

Decolorized Glass

After 1880, by which date manufacturers perfected the technique of decolorizing glass with manganese, colorless glass was widely used in packaging (Munsey 1970: 55). Prior to that time, colorless glass had been used, but, more often, American bottles were made of natural colors such as aqua, green, or amber (McKearin and McKearin 1941: 7, cited in Baugher-Perlin 1982: 261).

Crown Cap

The crown cap, the common closure for beer and soda bottles, still in use today, was invented in 1892 (Lief 1965: 17).

Machine Manufacture

A limited amount of semi-automatic production of glass containers was achieved by 1900, but fully automatic manufacturing dates from 1904 for wide-mouth containers and 1908–1910 for narrow-mouth bottles (Miller and Sullivan 1984: 85; John Cheney, personal communication, 1988). It was only by 1920, however, that 90% of the glass houses had converted to either semi-automatic or automatic machinery (Miller and Sullivan 1984: 89). Unless otherwise noted, 1920 has been designated a cut-off date for the mold-made vessels in the assemblage. Seams on machine-made containers generally run from the heel to the top of the lip, horizontally around the finish. A feathery scar on the base, known as an Owen's suction scar, can be found on some machine-made containers.

Vessels Discussed By Functional Type

The assemblage is subdivided according to operation. Within each subdivision, an overview of the numbers of vessels, their colors, and manufacture dates is provided. Embossed vessels, whole vessels, and those of relatively early manufacture are discussed in more detail. If a vessel's provenience is not identified, it can be assumed that it is yard scatter. When complete bottles or bases are described, measurements in centimeters are provided.

Medicinal (Proprietary)

Operation A

Twenty-nine proprietary medicine vessels were recovered from the tenement. There were bases and finishes to 25 separate vessels. Body fragments to three vessels and one whole bottle were also recovered. One vessel was restorable. Nineteen of the vessels were colorless, five were aqua or light green., and the rest were cobalt blue, or amber. Of the datable vessels, 16 were mold-made and 11 were machine-made.

There were 15 colorless or aqua rectangular bases to bottles formed in two-part molds, with separate base parts. Many had chamfered edges and recessed panels. All of the bottles were manufactured after 1860, with most of the colorless bottles made after 1880. The bases measured 2.5 cm on the short side and from 4 cm–5 cm on the long side. One bottle, recovered from Feature 46, the bottle dump, had been manufactured by Campbell Glass Works in Berkeley, California. The heel was embossed "C. G. W.," a mark used by the firm between 1884 and 1885 (Toulouse 1972: 129). Another colorless rectangular base, measuring 2 cm x 3 cm, was embossed "NEID _ _ _ ER MONTAUK." One base and partial body to a vent-molded bottle from the bulkhead (Feature 23, level D), had contained a remedy sold by Dr. John Chmielnicki, Chemist, of Somerville, Massachusetts (Figures 7–2, 7–4r). He was listed in that town's *Directory* between 1912 and 1915.

Figure 7–2. Rectangular medicine bottle embossed Dr. Chmielnicki & Co., Chemists Somerville, Massachusetts. (Photograph by Richard S. Kanaski.)

Figure 7–3. Embossed wording on the side of W. F. Severa medicine bottle. (Photograph by Richard S. Kanaski.)

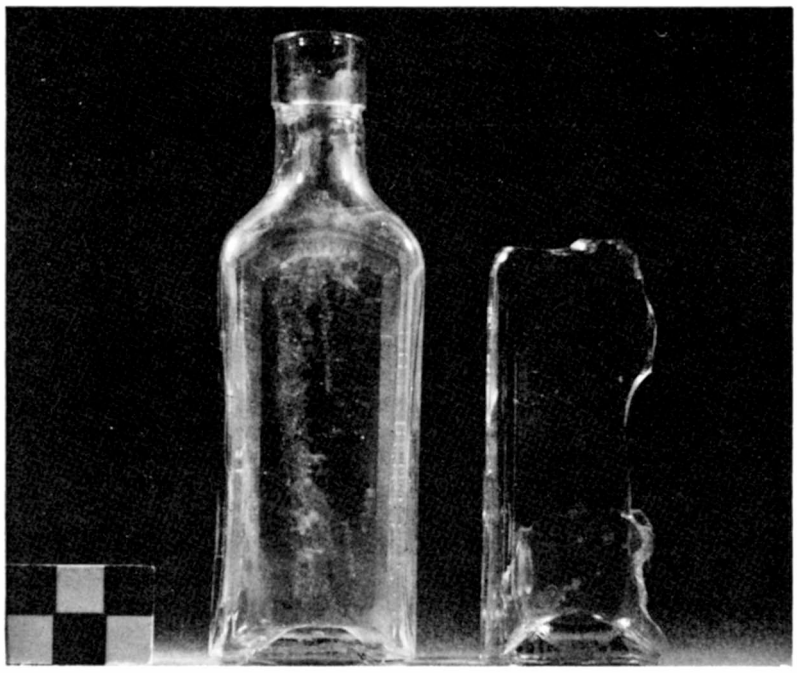


Figure 7–4. Two rectangular medicine bottles. Left, W. F. Severa medicine. Right, Dr. Chmielnicki & Co., Chemists. (Photograph by Richard S. Kanaski.)

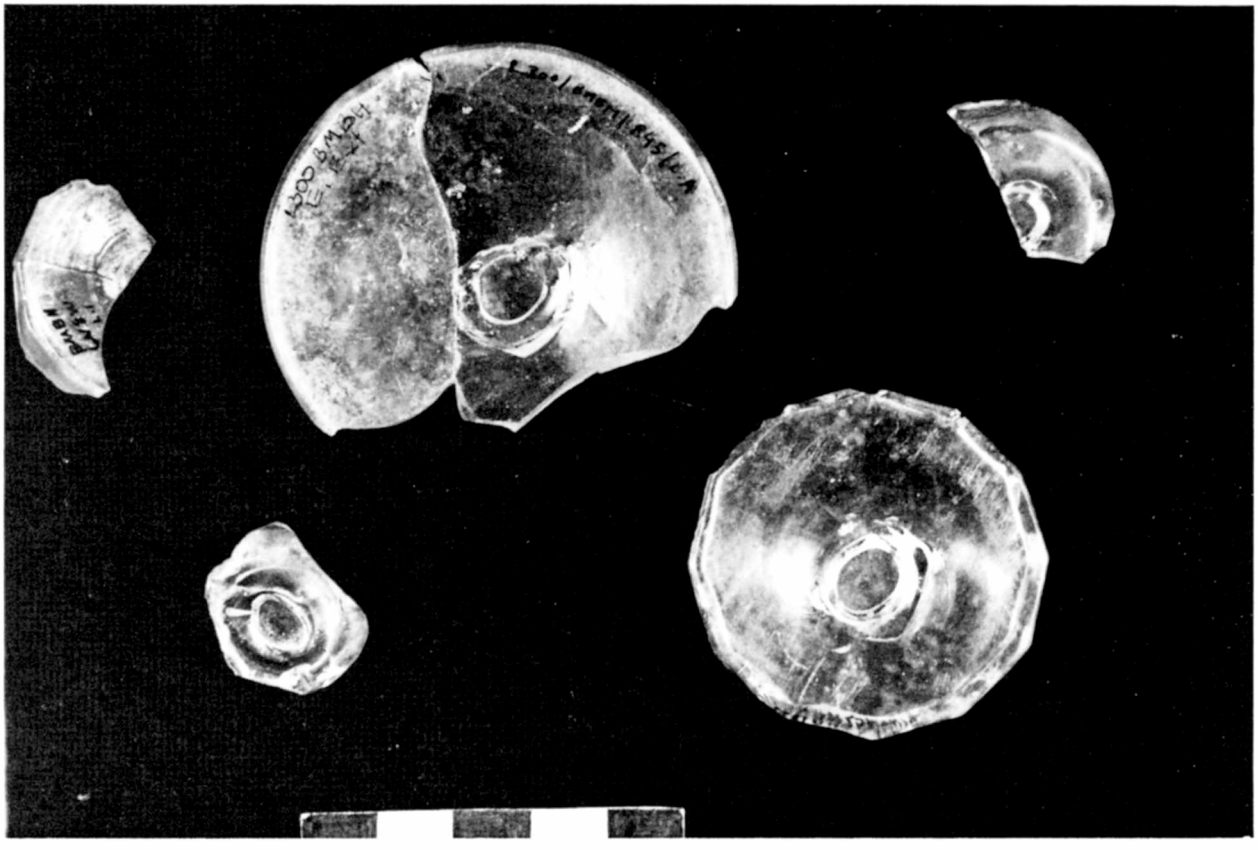


Figure 7–5 Five empontilled medicine bases. Top left, octagonally-shaped vial, two-part mold. Top center, bottle, dip molded (ribbed design is not visible). Top right, vial, dip molded (ribbed design not visible). Bottom left, vial, dip molded or free blown. Bottom right, Moses Atwood's Jaundice Bitters bottle, dip molded. (Photograph by Richard S. Kanaski.)

Two light green bases were empontilled and date no later than 1870 (Figures 7–5 top left, 7–5 top center). The first base, from an octagonally-shaped medicine or toiletry vial formed in a two-part mold, was 2 cm wide. The second base, from a light green dip-molded cylindrical bottle that contained either medicine or a household product, measured 5.5 cm. There appears to be a vertical rib-like design on the body. The base was recovered from the privy (Feature 45/A) and crossmends with a fragment recovered near the boardinghouse well. One colorless round base, 7 cm in diameter, was from a druggist's graduated cylinder; such items were advertised by 1880 in Whitall Tatum & Co. druggist's glassware catalog (1880: 64–65).

There were light blue embossed body fragments that read "MASS USA." Bottles that contained medicines sold by the J. C. Ayer Drug Company of Lowell were similarly embossed (Wilson 1981: 430). Amber body fragments in Feature 44 (a dark soil stain by a brick drain box) were from a bottle that had contained a product sold by Carleton & Hovey, Lowell druggists. Both firms were established in the 1840s and continued in business well into the 1900s. Two amber-green body fragments were embossed with part of a log cabin and tree, typical motifs for bitters-type medicines. Bitters were manufactured most widely between 1860 and 1920 (Munsey 1970: 112).

The cellar (Feature 25/D) yielded one round cobalt blue base that measured 2.5. cm, with a maker's mark of two dots inside a square. It mended to body fragments (found in level E) on which part of the wording "BROMO SELTZER EMERSON DRUG CO. BALTIMORE" could be read. The bottle dates from 1889, when the medicine was first made, to 1915 (Toulouse 1971: 339).

One whole proprietary medicine bottle was recovered from the cellar fill (Feature 25/D). It had contained W. F. Severa's Stomach Bitters, manufactured in Cedar Rapids, Iowa. (Figures 7–3, 7–4 left). The bottle was machine-made between 1916 and 1929 and measured 2.5 cm x 4 cm x 13 cm. As of 1909 the medicine contained 25% alcohol, and the remedy was advertised as "a valuable laxative, tonic, invigorant, and recuperant" (Fike 1987: 180). It was particularly recommended for "old and delicate people." A bottle known as a French Square (Whitall Tatum 1880: 13) that measured 6 cm x 16 cm could be partially restored (Figure 7–6). Although first on the market in the 1860s (Lorrain 1968: 44), the smoothly made finish would suggest a somewhat later manufacture date. It was recovered from Feature 46, the bottle dump.

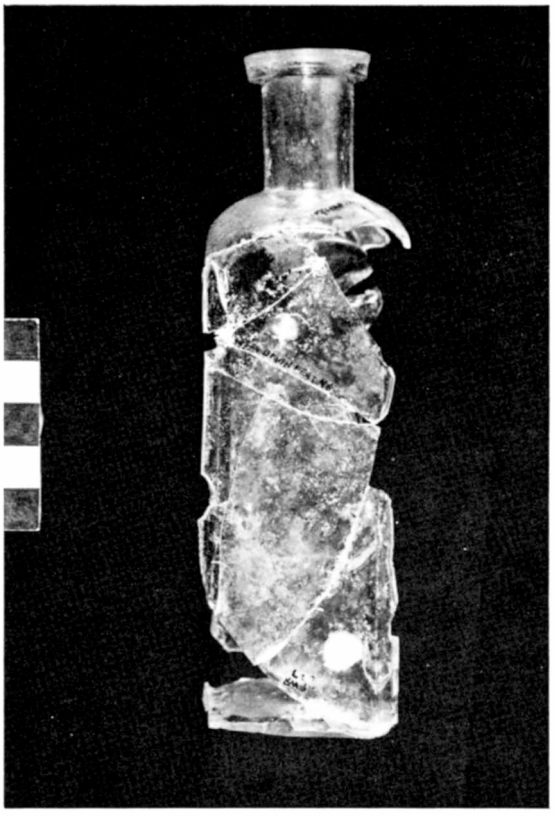


Figure 7–6: French Square medicine bottle. (Photograph by Richard S. Kanaski.)

Figure 7–7 Two toiletry and ointment jars. Left, milk glass screw-top toiletry or medicine jar. Right, screw-top Vaseline ointment jar. (Photograph by Richard S. Kanaski.)

Figure 7–8 Three medicine bottles. Left, light green Kemp's Balsam. Center, unembossed bottle, with inset front. Right, unembossed vial. (Photograph by Richard S. Kanaski.)

Figure 7–9. Three pint liquor flasks. Left, flask embossed "One Pint." Center, flask embossed "Guaranteed Full Pint." Right, H. Swartz & Co. flask. (Photograph by Richard S. Kanaski.)

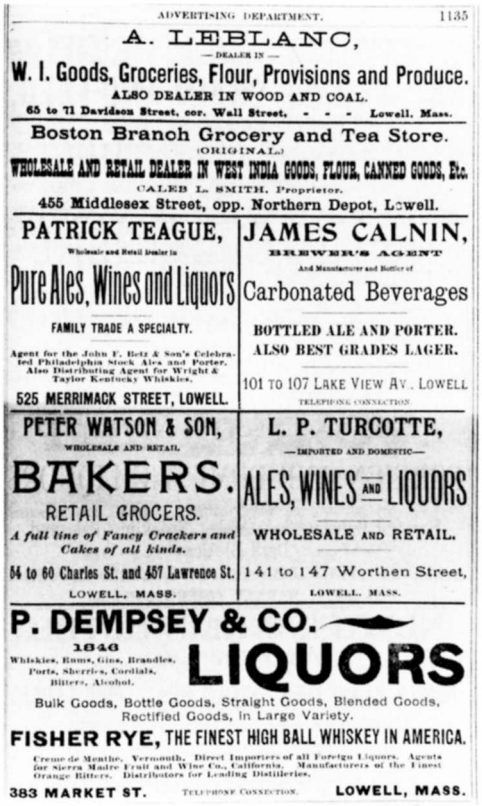


Figure 7–10. Advertisements in 1900 *Lowell City Directory* for P. Dempsey & Co. and James Calnin, as well as other Lowell liquor dealers. (Photograph by Richard S. Kanaski.)

In addition to the medicinal bottles and jars,the tenement backlot yielded one yellow glass medicine dropper.

Operation B

Of the 49 total medicine containers, 45 were represented by bases and finishes and one by body fragments. There were two whole vessels and one nearly whole. One bottle was restorable. Thirty-three vessels were colorless, 10 were aqua or light green, and 6 were amber, cobalt blue, or opaque milk glass. Of the datable containers, 36 were mold-made and 9 were machine-made. Three of the 49 vessels held either medicines or toiletries.

Of the 43 colorless or aqua vessels, rectangular bottles predominated, identical in size and design to those in Operation A. Three aqua medicine or toiletry bases, however, bore pontil scars (Figures 7–5 top rt, 7–5 bottom left, 7–5 bottom rt). One round base was manufactured in a dip mold, with a vertical rib design, and measured 2 cm. A second round base was either free blown or dip molded and measured 1.5 cm in diameter. Both bases were likely made by 1870. An octagonal base was dip molded, and embossed body fragments from the same bottle provide evidence that it contained Moses Atwood's Jaundice Bitters, manufactured in Georgetown, Massachusetts. The firm was established in 1840, and the bottle dates to no later than 1865 (Fike 1987: 31). It measured 4 cm in diameter. One heat-altered round base was part of a druggist's graduated cylinder.

Finishes from two small, cylindrical medicinal vials (bore diameter of approximately 2 cm), one aqua and one light green, were manipulated without the use of a finishing tool. The aqua finish, which appears to be from the same bottle as the smallest empontilled base, consisted of a folded-out lip. The light green finish consisted of a cracked-off lip and an untooled string rim. It was manufactured no later than about 1860.

One aqua body fragment, probably to the same bottle as one of the aqua bases or finishes, was embossed "DR. KILMER'S." It contained one of 18 herbal remedies manufactured by Andral Kilmer (the most famous of which was his Swamp Root), of Binghamton, New York, from the 1870s to 1925 (Fike 1987: 101). One embossed colorless fragment was from a Moxie Nerve Food bottle, a concoction first made in Lowell in 1885 (Fike 1987: 173).

Three dark amber body fragments from one paneled bottle were embossed "ATHE," "PINT," and "S." The bottle had contained Father John's Medicine, sold by the Carleton & Hovey drug

store in Lowell. First manufactured in the 1850s, the remedy was sold well into the 20th century (Fike 1987: 146). There was also a partial base and body to a small amber screw-top jar. It was 4 cm tall and contained either medicine or a toiletry.

There was one milk glass prescription finish, and one milk glass base that was embossed "[W] T & CO [PA]T 1892." The cylindrical bottle, 3 cm wide, was made by Whitall, Tatum & Co after 1892 and probably before 1912 (Toulouse 1971: 544). It contained either medicine or a toiletry.

Of the two whole medicine vessels in Operation B, one was a molded, screw-top, milk glass medicine or toiletry jar (Figure 7–7, left). It was recovered from the privy (Feature 61/A) and measured 5 cm x 6.5 cm. Level B of the well (T2/9b) yielded a cylindrical medicine vial (Figure 7–8r). It measured 1.5 cm x 5.5 cm, and, as there were no mold seams or evidence of turn molding, the vial was probably dip molded. Although dip molding was most common prior to the mid-19th century, the vial's smooth finish suggests a somewhat later manufacture.

A small milk-bottle-shaped vial was nearly whole (Figure 7–8 ctr), and a light green Kemp's Balsam bottle was restorable (Figure 7–8, left). The vial measured 2 cm x 7 cm and was made after 1880. The bottom half of one side was inset for a paper label. The Kemp's Balsam recovered from Feature 65/B, a pit or planting hole, measured 1.5 cm x 3 cm x 7 cm. The bottle was mold-made in LeRoy, New York, between 1900 and 1911, and the preparation claimed to be a cure for "coughs and colds and sore throats" (Fike 1987: 25).

In addition to the medicinal bottles and jars from the boardinghouse, there were three colorless medicine droppers. Also recovered was a narrow, colorless, solid glass rod, 2 cm long, that fit tightly into a circular glass bead. The rod and bead appear to have been part of a syringe handle, very similar to several illustrated in the 1880 Whitall Tatum & Co. catalog (1880: 59).

Toiletry

Operation A

The tenement yielded one milk glass partial base and body from a toiletry vessel. The square or rectangular bottle was recovered from Feature 44, a dark soil stain connected to a drain box. It was embossed on at least one side with a scroll-like design and contained either perfume or a toiletry. Milk glass was most widely used for container glass beginning in the late 1800s (Jones and Sullivan 1985: 14).

Operation B

Bases and bodies from three whole toiletry vessels were recovered from the boardinghouse backlot. One whole vessel and one almost whole vessel were recovered. Of the datable vessels, two were machine-made and two were mold-made.

There was a partial base and body from a grey-white, opalescent bottle that had similar attributes to known cologne bottle types (McKearin and McKearin 1941: 454, pl. 244). The round base was footed, measured approximately 4.5 cm, and there was a molded ribbed design on the vessel's base and lower body. It was made between about 1850 and 1900. There were also screw-thread rims and bodies from one opaque green jar and one machine-made, opaque blue jar that had probably contained a toiletry or cosmetic.

The tenement yielded one screw-top Vaseline ointment jar (Figure 7–7r). It was machine-manufactured after 1908 (Fike 1987: 56) and measured 4 cm x 6.5 cm. One other small, colorless, mold-made vessel that had held perfume or cologne was complete except for the neck and finish. It had a square base that measured 2.5 cm. The body was 4 cm tall, with rounded shoulders.

Alcohol (Liquor)

Operation A

There were 18 liquor bottles recovered from the tenement. Three were whole flasks and 15 were represented by bases and finishes. One flask was restorable. There was one amber bottle, and the rest were made of colorless glass.

No pictoral flasks, bottle types widely used during the early to mid-19th century, were recovered. Thirteen were pint or half-pint oval or rectangular flasks, and two were cylindrical fifths. Nine of the bottles were mold made after 1880 and nine were machine-made after 1910.

Six rectangular bases to the liquor flasks could be accurately measured; four were 4.5 cm x 7.5 cm, and two were 4 cm x 6.5 cm. Three round bases that measured 2.5 cm in diameter may have come from miniature whiskies, although the bottles could have contained a food product. Three of the molded vessels (and proably others) were made after 1892, as they were "Guaranteed" and/or vent molded.

Three whole, pint liquor flasks were recovered from level B of the tenement privy (Feature 45). All were machine-made and date between 1910 and 1920 (Figures 7–9l, 7–9 ctr, 7–9r). Two of the

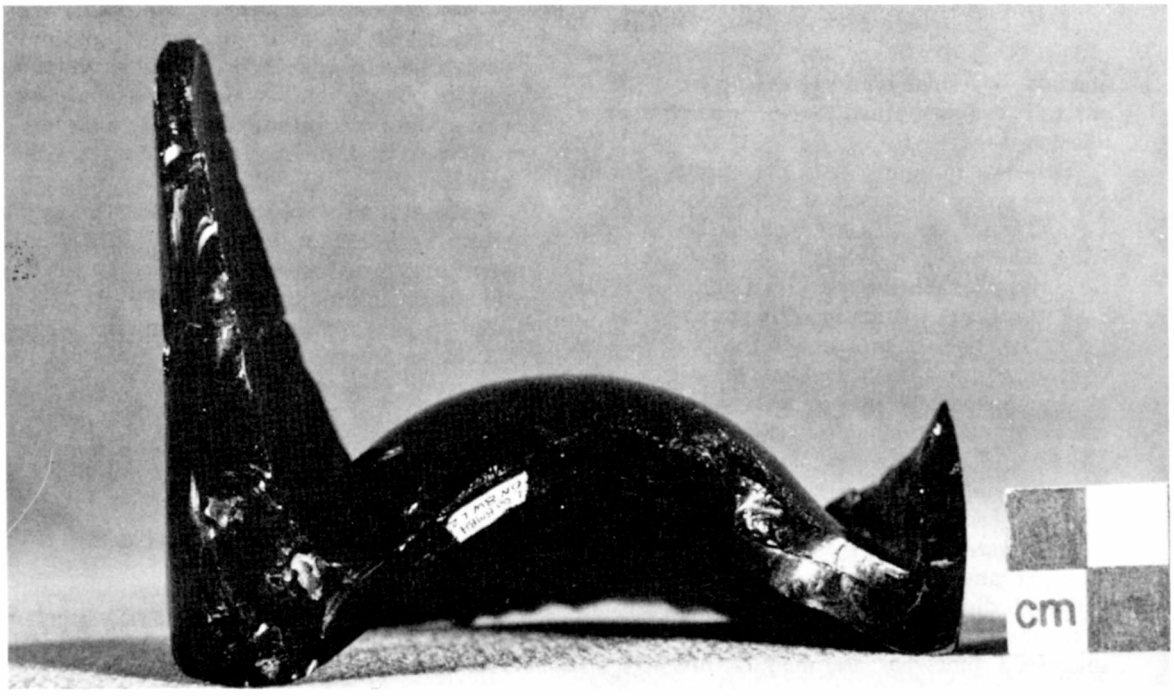


Figure 7-11. Partial Rickett's "wine" base. Base from yard scatter. (Photograph by Richard S. Kanaski.)

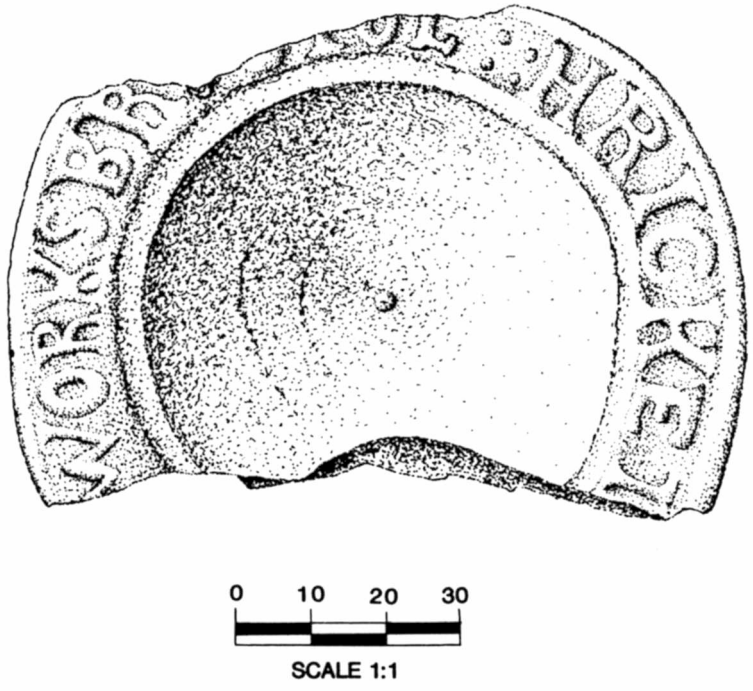


Figure 7–12. Detail of embossing on Rickett's "wine" base. (Drawing by Leslie A. Mead.)

flasks measured 4.5 cm x 7.5 cm x 21 cm. One was embossed "ONE PINT" and the other "GUARANTEED 16 0Z. FULL PINT." The third flask was embossed "H. SWARTZ & Co. LEVERETT ST. BOSTON MASS," and "FULL PINT." It measured 4.5 cm x 7.5 cm x 23 cm. Swartz was a liquor dealer in business between 1912 and 1920. A fourth pint flask was almost fully mendable. Vent molded, it was embossed "Guaranteed" and "P. Dempsey Boston, Mass." Dempsey was a liquor distributor in Boston and Lowell between 1892 and 1915 and advertised in the *Lowell Directory* (Figure 7–10).

Operation B

All of the 36 liquor bottles were represented by bases and finishes. Five bottles were light green or aqua, one was amber, with the rest colorless. There were 28 pint or half-pint flasks and two cylindrical fifths. Six bases were probably from miniature whiskies. Four small brandy-type finishes (bore diameter of 1 cm) were probably part of four of these bottles. Of the 34 datable bases and finishes, 26 were mold-manufactured, all after 1880, and eight were machine-manufactured after 1910. Fourteen of the mold-made bottles date after 1890, including one P. Dempsey flask identical to the one recovered from Operation A.

Wine

Operation A

The tenement yielded one base and one finish to two different wine bottles, both mold made. The partial base was part of an English "wine" bottle (Figures 7–11, 7–12). Such vessels held a variety of beverages including wine, porter, cider, and distilled liquor. Made of black glass, the bottle was manufactured in a "Ricketts" mold between the late 1830s and late 1840s (Jones 1986: 98) and had a sand-type pontil scar. The base measured approximately 9.7 cm in diameter. In a circle around the bottom edge of the base was embossed "H. RICKETTS & CO GLASSWORKS BRISTOL." The olive-green finish, which represents the second wine bottle, was formed with a finishing tool. It had a flat string rim and a downward-sloping lip. A common finish for French wines and champagnes, it was first used in France in the mid-19th century (Dumbrell 1983: 135). The manufacture dates of other artifacts in the same provenience as the finish (Feature 25/D, the cellar), however, places the bottle's manufacture around 1900.

Operation B

Bases and finishes from seven different wine bottles were recovered from the boardinghouse, of which five were mold-made and two were heat altered and could not be dated. Three green finishes had flat string rims and flat lips. Two were probably made between 1880–1910 (one from Feature 6), and one dark olive green finish could be dated no more closely than after the 1850s. There were bases from two turn-molded wine bottles, one bright aqua and one green, manufactured between 1880–1920.

Beer

Operation A

The tenement yielded finishes to four different beer bottles. Two amber crown finishes were mold made between 1892 and 1920 (one from Feature 45/B, the privy) and two were machine made after 1908. There were numerous body fragments, probably to the same bottles as the finishes, embossed with the words "Harvard Brew Company." This Lowell brewery advertised in the *City Directory* beginning in 1898 (Figure 7–13).

Operation B

There were bases and finishes to five different mold-made, amber and green beer bottles recovered from the boardinghouse. Two identical amber bases measured 5 cm in diameter, and the heels were embossed "EHE CO." The Edward H. Everett Glass Company of Newark, Ohio, associated with this mark, was in business between 1883 and 1904 (Toulouse 1971: 185). One of the amber bases was recovered from level A in the privy (Feature 61).

Soda

Operation A

There were bases and finishes from two colorless and two green soda bottles recovered. The tenement also yielded one whole and one nearly whole, colorless soda bottle. Five were mold made (four after 1892 and one after 1880), and one, from the level A of the bulkhead (Feature 23), was machine-manufactured after 1908. All the vessels have been designated soda, but it must be noted that it is sometimes difficult, if not impossible, to distinguish between soda and mineral water containers (Munsey 1970: 101).

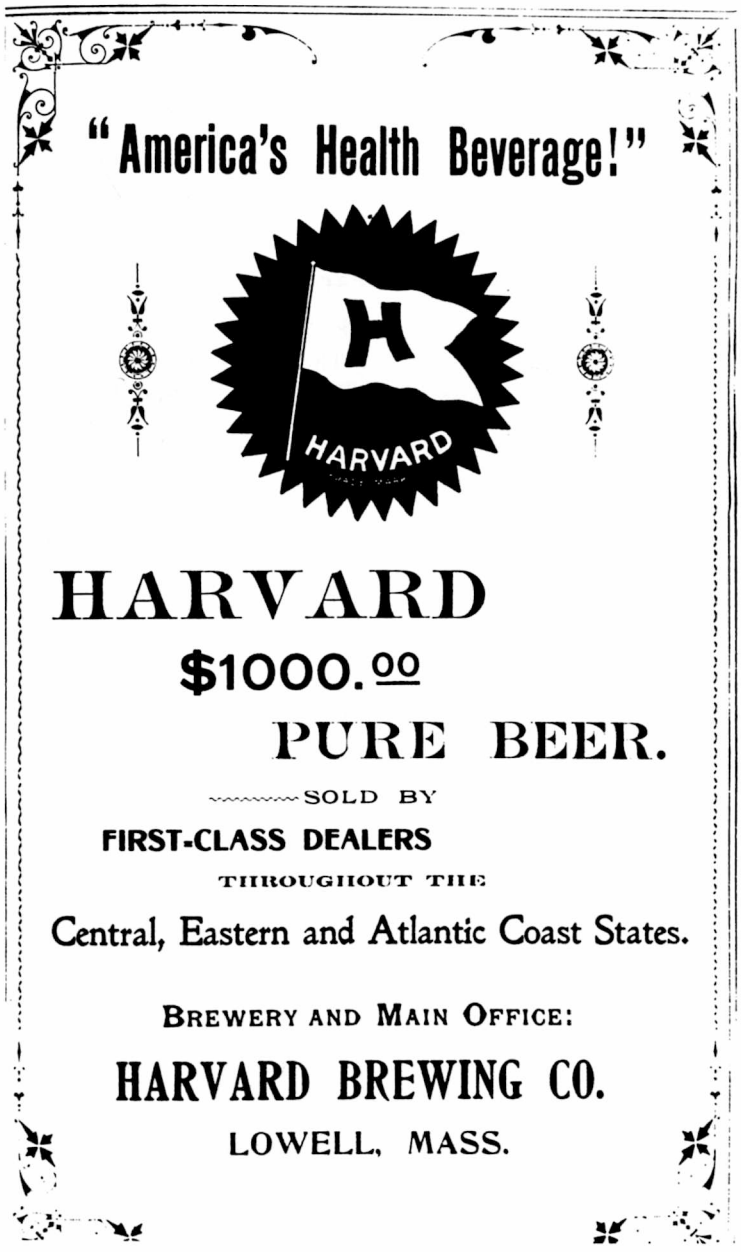


Figure 7–13. Advertisement in 1901 *Lowell City Directory* for Harvard Brew Company. (Photograph by Richard S. Kanaski.)

Figure 7–14 Three soda bottles. Left, embossed P.Kelley & Co. Center, embossed P. Kelley. Right, embossed Jas. Calnin & Co. (Photograph by Richard S. Kanaski.)

Figure 7–15. Detail of the Kelley and Calnin soda bottles. (Photograph by Richard S. Kanaski.)

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Figure 7–16. Advertisement in 1897 *Lowell City Directory* for P. Kelley. (Photograph by Richard S. Kanaski.)

The whole bottle was vent molded, with a crown finish, and embossed "P. KELLEY, LOWELL, MASS" (Figures 7–14 ctr, 7–15 ctr). Kelley first appeared in the *City Directory* in 1885 as a manufacturer and bottler of soda, mineral water, ale, and porter. By 1897, he advertised that he manufactured only carbonated beverages (Figure 7–16). The bottle measured 5 cm x 23 cm. A base and partial body to a second, identical bottle was also recovered. A third bottle in Feature 23/D, the bulkhead (Figures 7–14l, 7–15, left), with the same dimensions as the other two bottles, was also vent molded. It was embossed "P. KELLEY & CO.," the name of the firm after 1906. The company was out of business by 1917. The fourth bottle was embossed "JAS. CALNIN & CO., LOWELL, MASS." Above the company's name, the bottle was marked "REGISTERED," and below it, "THIS BOTTLE NOT TO BE SOLD" (Figures 7–14r, 7–15r) In business between 1886 and 1913, Calnin advertised in the 1900 *Directory* that he manufactured and bottled carbonated beverages and sold bottled ale, porter, and lager (Figure 7–10) . The bottle measured 6 cm across the base, 18 cm from the base to the start of the neck, and it, too, was vent-molded.

Operation B

Bases and finishes from seven green and colorless soda bottles came from the boardinghouse. Four were mold-made between 1892 and 1920, and three were machine-made after 1908.

One of the crown finishes was probably from the same bottle from which a colorless body fragment was embossed "COL" "TLIN." The full embossed wording would read "COCA COLA BOTTLING WORKS PHOENIX, ARIZONA." The bottle was made between 1905 and 1915 (Munsey 1970: 110).

Discussion

Given the overwhelming percentage of glass that was manufactured and deposited in the backlots after 1880, one can discuss with most certainty patterns of behavior of residents who lived in the housing during those years.

There were two overall differences among the medicine, alcohol, and soda assemblages from the two operations. Nearly twice as many vessels were recovered from the boardinghouse backlot as compared to the tenement backlot, and many more vessels were recovered from yard deposits in the boardinghouse as compared to the tenement. The greater number of individuals in the boardinghouse over time accounts in part for the difference in number of vessels, but the amount of scatter suggests that the boardinghouse backlot was messier than the tenement backlot. Despite municipal refuse collection and a mill regulation that stipulated yards were to be kept free of trash (Massachusetts Bureau of Statistics of Labor 1882: 291), residents tossed their empty glass vessels in the yards. Neither Boott management (at least after about 1880) nor the post–1900 owner (Saiman Sirk) evidently did much to correct the situation.

There was a heavy concentration of glass in the tenement backlot between the bulkhead entrance to the cellar and the woodshed. In the boardinghouse backlot a concentrated area of glass ran between the unit's ell and the woodshed. These areas were logical pathways from the units to the woodsheds and the privies they housed, and residents must have dropped or tossed trash there on their way to and from the woodsheds.

The types of products in the two backlots and the percentages of medicine, alcohol, and soda glass from both assemblages were almost identical. The relative amounts, however, were probably significantly underrepresented. Municipal refuse collection and consumption of products away from the housing are two factors to consider, and, in all likelihood, workers also returned bottles for deposit. Today this practice has more to do with environmental concerns than economic motives, but recycling of glass containers in the late 19th and early 20th centuries was done largely for economic reasons (Cheney 1982; Busch 1987). Soda, milk, and whiskey bottles were returned most frequently, particularly those that were embossed. Workers probably carted empty containers to the local junk dealer or back to the store for cash.

Although the sample may be too small to be able to draw conclusions, it is possible that workers also saved money by purchasing locally-made products more often than products shipped from a distance. The place of manufacture for 29 vessels could be identified. Fourteen bottles represented six separate Lowell companies, and three bottles came from other Massachusetts towns. The other products had been shipped from New York, New Jersey, Maryland, Iowa, Ohio, Arizona, and California.

Beginning in the 1830s, Lowell had been linked by rail with Boston, a major transportation center. Thus, it is not surprising that products—not just luxuries, but everyday commodities—from as far away as the West Coast were sold in Lowell by the 1880s. Locally-made products,

however, were probably cheaper than products made elsewhere, and the difference in cost may have swayed workers toward local brands. The possibility cannot be dismissed, however, that, when recovered from the ground, Lowell products were simply easier to identify.

None of the proprietary medicine vessels could be identified as having contained remedies sold for gender-specific ailments. The decorative cosmetic and cologne containers, however, can almost certainly be associated with female use. Although perhaps these little "luxuries" lessened the monotony of the mill routine, they served a practical purpose as well. The fragrances were probably used as a replacement for a daily bath. Despite the fact that the mill workers spent many hours a day in hot, dusty mill rooms, workers complained that they were given neither the time nor the space to maintain "personal cleanliness and frequent bathing so necessary to health" (Female Labor Reform Association 1845: n.p.).

Workers must have felt debilitated much of the time from the over-heated, under-ventilated mill rooms, and, along with everyday aches and pains, the unhealthful work environment no doubt contributed to the heavy consumption of proprietary medicines by the Boott residents. Medicines represented 48% of the assemblage from the tenement and 45% of the assemblage from the boardinghouse.

The fact that the cures contained potentially addictive drugs, however, also played a part in their purchase. Although products were touted as cures for everything from ringworm to gout to consumption, in reality, most of the nostroms were concocted with flavorings, herbs, and copious amounts of alcohol. By 1900 some brands had such a high alcohol content that they required a liquor license for their sale (Ketchum 1965: 90). Many cures also "contained harmful amounts of codeine, cocaine, morphine, heroine, canabis indica and phenobarbitol" (Berkow, quoted in Baugher-Perlin 1978: 146). If the products did not cure the illnesses, at least they numbed the pain and discomfort.

"Cures" were no cheaper than beverage alcohol and, at least in the mid-1800s, were more expensive. At mid-century nostrums cost on average one dollar a bottle, while whiskey could be had for 25¢ a gallon (Williams 1980: 559). In 1887, one Lowell druggist sold his own brand of Sarsaparilla for 55¢ a bottle (*Vox Populi*, October 8, 1887). He did not state how much a bottle contained, but medicines were commonly sold in sizes up to a quart (Munsey 1970: 69). The druggist sold a pint of his best-grade whiskey for 50¢ and his cheapest grade for 25¢. The quantity of medicines purchased despite the cost may well be indicative of workers' ill health and their desire to "try anything" to feel relief.

For women in 19th-century America, the purchase of patent medicine took on an added dimension. Morphine-based medications were often prescribed to treat "female complaints," along with headaches, fatigue, and anxiety, and, during the 19th century, the majority of opiate addicts were women (Mendelson and Mello 1985: 47). It has also been estimated that, after the Civil War, one out of every ten women was a "hidden alcoholic" (Lender and Martin 1982: 118). With the number of women involved in temperance campaigns and the growth of the male-dominated saloon, many women who drank did so privately. The substitution of medicinal nostroms for beverage alcohol afforded women a socially acceptable means of alcohol consumption. Given that boardinghouse #45 housed only women until about 1890, and the stigma associated with alcohol use, these factors could easily have contributed to the purchase of medicines by the Boott workers.

Both males and females in the Boott housing had another reason to disguise alcohol intake, as the Lowell mills forbade beverage alcohol in the company's housing. Although the rule disappeared from published regulations after the Civil War and may not have been fully enforced from then on (Bond 1989: 10), a series of Boott letters (Boott Mills Correspondence Book 1888–1891; see Chapter 3 and Appendix A, this volume) provide solid evidence that, as late as the 1890s, workers were dismissed for alleged drunkenness. Among the workers fired were individuals who boarded in unit #45, one of the units explored during the archeological investigation. In one instance, a boarder in #45 was dismissed because he had been seen bringing bottles of liquor into the house.

Even after the Boott began to sell off the housing in 1899, management continued to attempt to regulate workers' behavior regarding alcohol. There was a stipulation in the deed of sale to the new owner that the conveyance be made subject to the perpetual restriction that no intoxicating liquor ever be sold on any part of the premises (Middlesex County Deeds 1899, Book 314: 206).

Evidence of workers' alcohol use before 1880 is meager: one English "wine" bottle and, possibly, one French wine bottle pre-date 1880. The evidence as it stands suggests that most of the women and supervisory personnel who lived in the units during the earlier part of the 19th century either did not drink beverage alcohol, or they consumed it elsewhere. Yet the evidence is

really inconclusive and may not be an accurate gauge of alcohol consumption. One can say only that the data neither support nor explode the mills' contention that "intemperance was most carefully excluded" (Miles 1846: 131).

In sharp contrast to the small number of earlier vessels, 36% of the containers from the tenement and 43% from the boardinghouse were liquor, wine, or beer bottles manufactured after 1880. The mean manufacture dates of many of the mold-made bottles (1900–1910, or later) and the presence of machine-made bottles made after 1904 indicate that some, if not a good deal, of these bottles were discarded in the backlots after the sale of the units in 1900. Once the units were sold, residents may not have been permitted to *sell* liquor in the units, but the regulation against alcohol *use* was probably abandoned.

The bottle dump or cache in the tenement woodshed (Feature 46), near the privy indicates, however, that, at some point, the woodshed was used as a repository for liquor and medicine bottles. The fact that the bottles had been deposited whole and remained unbroken for a period of time indicates that the bottles were set carefully under a step, a platform, or even the woodshed floor. Perhaps workers drank in the woodshed, away from a keeper's or agent's watchful eye, and then hid the bottles. If so, in light of the municipal trash collection in Lowell, this would help explain the cache. The woodsheds in the rear of the row, hidden from the street, would have been a relatively safe spot to hide bottles, empty or full.

The majority of alcohol containers were pint or half-pint flasks rather than cylindrical fifths, and liquor flasks far outnumbered soda, beer and wine bottles. Workers' income is one factor that may have necessitated purchasing non-essentials, such as alcohol, in small containers, but flasks were also easier to conceal (e.g., in one's pocket). Even if one takes into account recycling and trash collection, the relative number of whiskey flasks compared to other bottles suggests that liquor was favored over fermented and non-alcoholic drinks. If in fact distilled beverages were preferred, ethnicity of the workers, personal preference, and cost of product were probably all determining factors that influenced workers' choice of beverage. Regardless of what workers drank, however, the number of bottles illustrates that drinking was a frequent activity of the boarders by the end of the 19th century, if not before.

In conclusion, the analysis of the medicine, alcohol, and soda assemblage suggests certain patterns to Boott workers' consumer behavior and underscores ways workers coped with mill life and adapted to the mills' policies. Although the importance of factors such as personal preference, ethnicity, and availability of products should not be underestimated (see Chapter 9, this volume), the assemblage suggests that workers may have made consumer choices based, at least some of the time, on the need to economize. Workers purchased some beverages, like liquor, in relatively small bottles, and they may have bought a greater percentage of locally-made products compared to items shipped from a distance. Recycling of glass containers can only be inferred through the assemblage. In all likelihood, however, workers returned bottles for extra income.

Not all choices, however, centered around economy. No doubt "luxuries," such as colognes, made life a bit more pleasant, but fragrances were likely used as a necessary substitute for a daily bath. The unhealthy environment of the mill rooms must have contributed to the consumption of quantities of medicine, and these products may also have been used as a socially acceptable substitute for beverage alcohol. Alcohol was clearly, however, a product many workers purchased and, despite company regulations, drinking was an activity workers were unwilling to relinquish (see Bond 1988 for a full discussion of this topic). The regulation, however, may have necessitated—at least in some instances—careful disposal of liquor containers.

Patterns within the medicine, alcohol, and soda assemblage illustrate some of the complex set of decisions made by workers who lived with a "corporate pattern of consumption and lifestyle" (Beaudry and Mrozowski 1987: 6). Cost of products, an individual's personal preference and ethnic background, and societal values were all factors in the consumer choices made by the workers. Overarching elements to these factors, however, were the ever-present company policies and their results, such as an unhealthy work environment (cf. Gross 1988), and the mill regulations, such as the proscription against alcohol use, with which workers also had to contend.

Chapter 8

ANALYSIS OF PERSONAL EFFECTS FROM EXCAVATIONS OF THE BOOTT MILLS BOARDINGHOUSE BACKLOTS IN LOWELL, MASSACHUSETTS

by Grace H. Ziesing

Introduction

The artifacts analyzed for this chapter include all those related to personal clothing and adornment. These include buttons, beads and jewelry, textiles, leather, and hair combs and ornaments. The analysis of this class of artifacts is particularly germane to the residential problem focus detailed in the research design for the overall Boott Mills project (Beaudry and Mrozowski 1987: 6). Specifically, it was hypothesized that an examination of personal effects would have particular applicability to the study of worker consumer behavior since other classes of material (e.g., furnishings, cutlery, tableware, food, etc.) would have been provided by the corporation or the boardinghouse keeper. Objects related to personal clothing and adornment are not the only artifacts germane to a study of worker consumer behavior, however. Tobacco pipes and bottles (particularly those that would have contained medicines or alcoholic beverages) are two other classes of objects that relate directly to personal, as opposed to corporate, behavior. Both groups of artifacts receive detailed treatment in this volume with cogent analyses of their potential meaning and significance in terms of a study of working class consumer patterns (see Cook on tobacco pipes and Bond on bottles).

In examining the personal effects excavated from the Lowell backlots three major goals were sought. First, an itemization and thorough description of the assemblages with an emphasis on their chronological implications. Second, a discussion of what the assemblages reveal about worker clothing and personal adornment including a discussion of their gender affiliations. And finally, what, if anything, could be determined about worker consumer behavior as it was outlined in the initial research design. A corollary of this original hypothesis is that a comparison of the assemblages at the tenement house backlot (Operation A) and the boardinghouse backlot (Operation B) should reveal different patterns of consumption (Beaudry and Mrozowski 1987: 6) that may or may not be reflected in the personal effects.

The following discussion is broken down into functional types. Each section will include a description of the artifact class, including an explanation of cataloging decisions, and a detailed itemization of the artifacts by provenience. A discussion of patterns and some preliminary interpretations will follow.

Buttons and Studs

A total of 142 artifacts were cataloged as buttons, 21 of which are actually clothing studs (characterized by a short neck with a flat base on one end and a usually smaller, rounded knob on the other; see Figure 8–2). All buttons and studs were cataloged by material of manufacture, each, with its chronological implications, to be discussed below. Of the 121 buttons, 86 (or 71%) are white utilitarian sew-through buttons made of porcelain (Figure 8–1), while another 5 are of colored porcelain and 3 are hemispherical shank-type white porcelain (2 of these appear to be shoe buttons). Only 8 of the buttons are metal, 12 are various forms of glass, 5 are made from shell, and just 1 is plastic and 1 is wood. Of the studs, 13 (or 62%) are made of white porcelain (Figure 8–2), 1 of glass, and 7 of metal.

Metal buttons, by far the most well studied and thoroughly reported type of fastener, occur throughout the historical period in North America. Technological and stylistic changes render metal buttons a useful chronological indicator (Noel Hume 1969). Of particular utility are military buttons which varied from regiment to regiment, thus adding a spatial dimension to their value as interpretive tools. Unfortunately, the metal buttons from Lowell are for the most part heavily corroded and undiagnostic save for two that will be discussed in greater detail below. Of particular interest, however, are four of the metal studs. These artifacts have been cataloged as metal, but in actual fact they are a combination of metal coated with an unidentified material, possibly plastic. In one case, only the coating remains. Despite the advanced degree of deterioration, these objects have been identified as "lever-top" collar studs identical to those advertized in the 1895

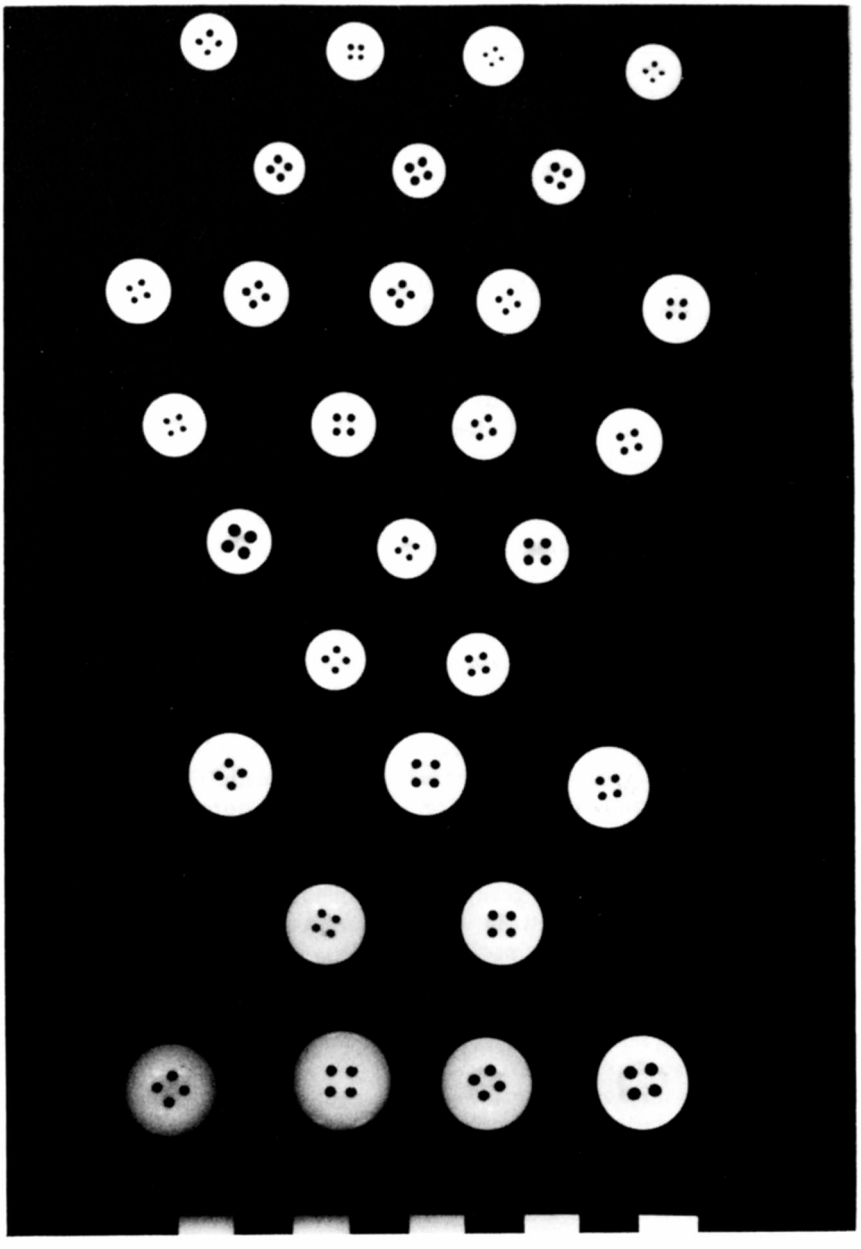


Figure 8–1. Some of the 86 white utilitarian sew-through porcelain buttons excavated from the Boott Mills backlots in Lowell (scale in cm). (Photograph by Richard S. Kanaski.)

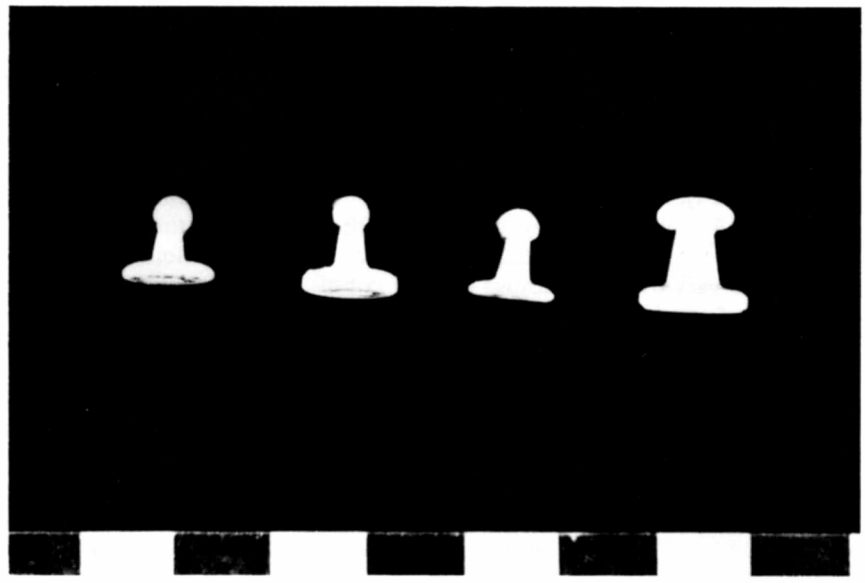


Figure 8–2. A few of the plain white porcelain stationary collar studs excavated from the Boott Mills backlots in Lowell (scale in cm). (Photograph by Richard S. Kanaski.)

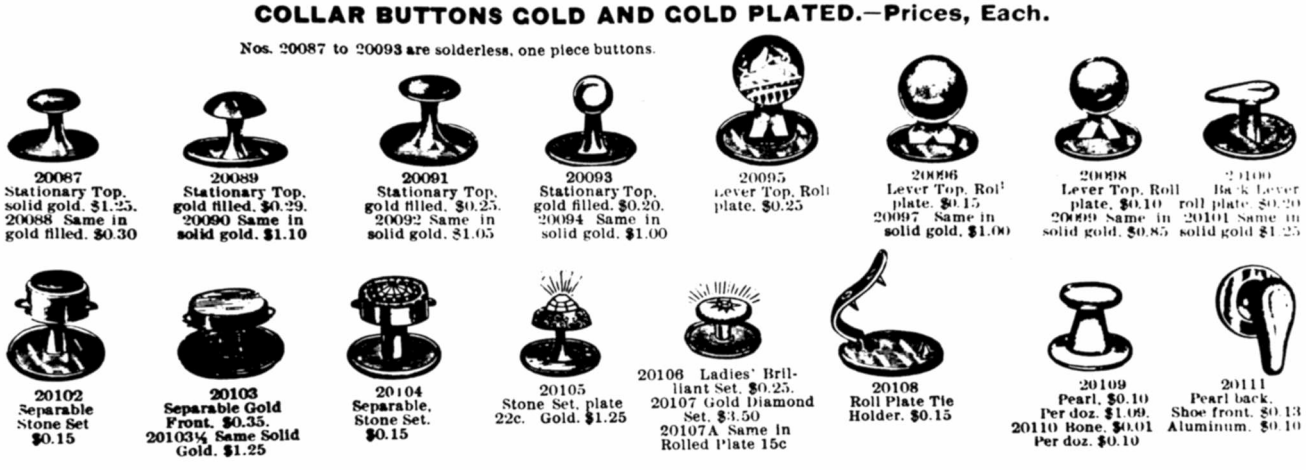


Figure 8–3. Stationary and lever-top collar studs available from the 1895 Montgomery Ward catalog. Note that these are specifically identified as collar buttons, and that one is labelled exclusively for ladies. (Reproduced courtesy of Dover Publications, Inc.)

Montgomery Ward catalog (Montgomery Ward & Co. [hereafter MW] 1895: 173; Figure 8–3) except that they are not gold plated.

Glass buttons grew in popularity during the 19th century beginning in the 1840s (Luscomb 1967: 80; Epstein 1968: 45). They were available in many colors and shapes and were primarily imported from Bohemia (Jones 1924: 39; Albert and Adams 1951: 92, 98) although they were surely produced elsewhere as well. Sourcing and dating glass buttons is very difficult because of the great variety manufactured, many of which continued in popularity for decades (Luscomb 1967: 80; Epstein 1968: 45). The most diagnostic kind of glass buttons are black glass which came into vogue in the 1860s when they were used as a substitute for jet. Jet buttons and jewelry were made popular by Queen Victoria when she went into mourning after the death of Prince Albert in 1861 (Hughes and Lester 1981: 6; Albert and Adams 1951: 98, 100; Epstein 1968: 48-49). Real jet buttons are extremely rare, but black glass buttons, often called "jet," are very common. The continuing association between jet and black glass is evident in the mail-order catalogs of the 1890s where "jet" is sold at extremely low prices (Sears, Roebuck and Co. [hereafter SR] 1897: 320; Figure 8–4) and is most probably black glass. Many pressed black glass and small black glass buttons were imported into the United States from Bohemia and Austria from ca. 1870 until ca. 1880 when they began to be manufactured domestically (Hughes and Lester 1981: 83, 89) (see Figure 8–10 for black glass buttons excavated at Lowell).

Buttons made of naturally occurring materials such as wood and shell are difficult to date with any precision as they were manufactured throughout the 19th century (if not before) and can still be found today (Rose and Santeford 1985: 41; Hughes and Lester 1981: 230-231, 251). Flat two- and four-hole sew-through shell buttons of the variety excavated at Lowell have been identified in 18th-century archeological contexts in Michigan (Stone 1974: 59–60). Shell buttons, however, were not made in the United States until at least the beginning of the 19th century (Hughes and Lester 1981: 230) and it was not until ca. 1900 that the importation of shell buttons was significantly affected by a rise in domestic production (Jones 1924: 94). Until the middle of the 19th century when mass production was made possible by a machine process for cutting shell, shell buttons were made in small quantities by hand (Epstein 1968: 60).

Plastic buttons are neat chronological indicators as long as the specific material from which they are made can be identified. Celluloid was discovered as early as the mid-1850s but was not produced commercially until 1869 when it was developed as a substitute for ivory (Anonymous 1988: 5; Hughes and Lester 1981: 57). Celluloid immediately became a popular material for buttons and other small decorative items as it was ideal for imitating many natural materials such as tortoise shell, glass, and horn. Even though celluloid was highly flammable its popularity continued through World War II, but it was eventually replaced by non-flammable acrylics such as lucite that were developed in the 1930s. Celluloid can be identified by the smell of camphor that is released when heat is applied. Care must be taken, however, as too much heat can cause celluloid to burst into flames (Anonymous 1988: 5; Hughes and Lester 1981: 57, 66).

Another early plastic was casein which was first discovered in 1890 but was not produced commercially until 1919. Although still available today, casein was most popular from the 1920s through the 1940s. Early casein buttons can be identified by their characteristic creamy color, often surface-dyed and now faded. This material is not as flammable as celluloid, but is not heat resistant and tends to warp (Anonymous 1988: 5; Hughes and Lester 1981: 66). The one plastic button recovered in the excavations at Lowell will be discussed in detail below.

The majority of the buttons and studs in the Lowell assemblage are made out of white porcelain, for which very little information exists in the archeological literature. Although there are several button typologies available to the archeologist, most of the collections reported in the literature consist of metal buttons (often military) or buttons dating to the early 19th century and before (e.g., Noel Hume 1969: 88–93; Calver and Bolton 1950; Stone 1974; Olsen 1963). As a starting point, it is worthy of note that no porcelain buttons were found in the 18th-century contexts of Fort Michilimackinac despite an extensive collection numbering 1,333 buttons broken down into 188 categories (Stone 1974: 45). South (1964) notes the presence of porcelain buttons (his Type 23) at Fort Fisher and Brunswick Town in contexts dating from 1800 to 1865. The majority of the Type 23 buttons (i.e., all but two) are associated with Fort Fisher and an 1837–1865 context, however. In fact, 29% of all the buttons recovered from Fort Fisher were of this variety.

Despite its ubiquity, South made little attempt to identify porcelain buttons beyond their archeological context—other reports of these artifacts are similarly lacking in precision. Two

BUTTON DEPARTMENT.

Jet Dress Buttons.

9800 9805

	Per Doz.	Per Gross.
9800 Black Ball Cut Jet Dress Buttons.....	$0.04	$0.40
9805 Black Ball Cut Jet Dress Buttons, larger	.05	.50
9808 Black Cut Jet Ball Dress Buttons, one size larger than 9805.....	.06	.65

9827 9829 9831

Cuts are exact size of Buttons.

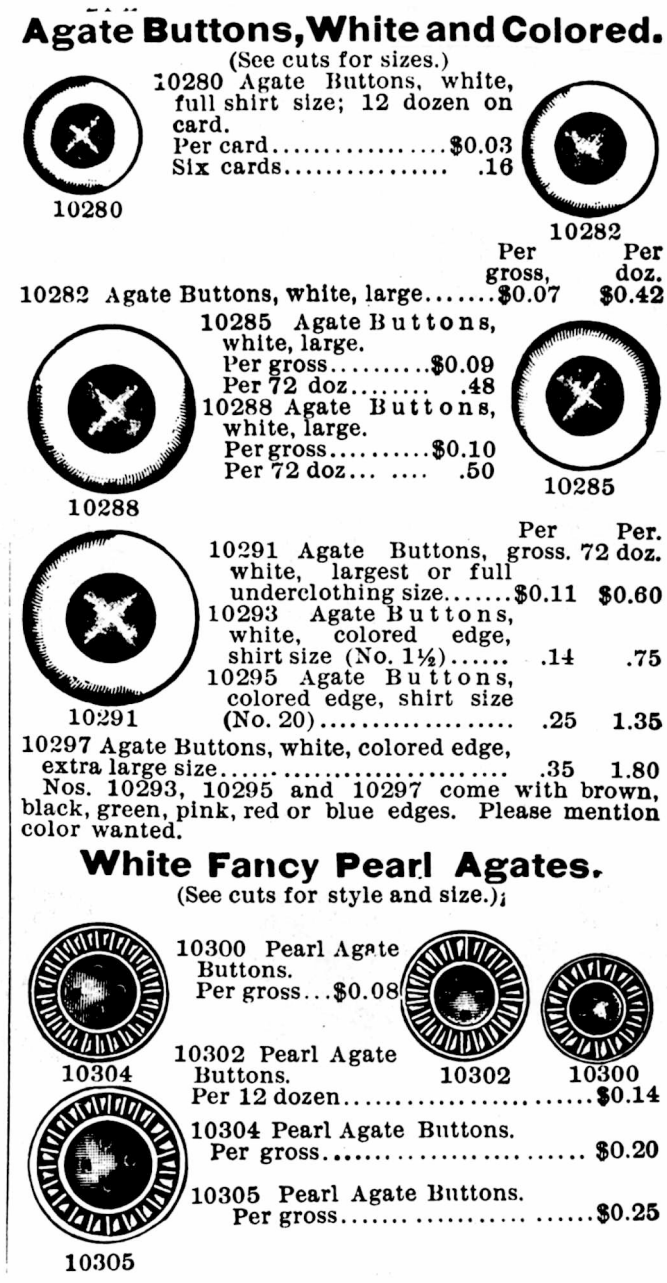
	Per Doz.	Per Gross
9827 Fine Jet Buttons, polished, smooth edges	$0.05	$0.50
9829 Fine Jet Buttons, polished, smooth edges..... ...	.05	.50
9831 Fine Jet Buttons, polished, smooth rim edge.....	.05	.50

9833 9836 9838

Cuts are exact size of Buttons.

	Per Doz.	Per Gross.
9833 Fine Jet Buttons, dull polished, smooth rim edges.....	$0.05	$0.50
9836 Fine Jet Buttons, polished points in crescent.....	.05	.50
9838 Fine Dull Jet Buttons, pol-		

Figure 8–4. A sample of "jet" buttons available from Montgomery Ward in 1895. (Reproduced courtesy of Dover Publications, Inc.)



Agate Buttons, White and Colored.

(See cuts for sizes.)

10280 Agate Buttons, white, full shirt size; 12 dozen on card.
Per card.....$0.03
Six cards..... .16

10280

10282

	Per gross,	Per doz.
10282 Agate Buttons, white, large.....	$0.07	$0.42

10285 Agate Buttons, white, large.
Per gross.....$0.09
Per 72 doz..... .48

10288 Agate Buttons, white, large.
Per gross.....$0.10
Per 72 doz..... .50

10288

10285

	Per gross.	Per. 72 doz.
10291 Agate Buttons, white, largest or full underclothing size.....	$0.11	$0.60
10293 Agate Buttons, white, colored edge, shirt size (No. 1½).....	.14	.75
10295 Agate Buttons, colored edge, shirt size (No. 20).....	.25	1.35
10297 Agate Buttons, white, colored edge, extra large size.....	.35	1.80

Nos. 10293, 10295 and 10297 come with brown, black, green, pink, red or blue edges. Please mention color wanted.

10291

White Fancy Pearl Agates.

(See cuts for style and size.)

10300 Pearl Agate Buttons.
Per gross...$0.08

10302 Pearl Agate Buttons.
Per 12 dozen.....$0.14

10304 Pearl Agate Buttons.
Per gross.....$0.20

10305 Pearl Agate Buttons.
Per gross.....$0.25

10304

10302

10300

10305

Figure 8–5. Plain and decorated porcelain buttons ("Agates" and "Fancy Pearl Agates") advertised in the 1895 Montgomery Ward catalog. (Reproduced courtesy of Dover Publications, Inc.)

such buttons found in 19th-century burials in Texas were identified as white glass (Fox 1984: 8, 12; Sprague 1989: 132). Likewise, the 5 porcelain buttons found during investigations of the Custer Battlefield National Monument were incorrectly identified as milk glass (Scott and Fox 1987: 91–92). Two other projects at 19th-century cemeteries in Texas correctly identified the buttons and studs they recovered as porcelain, but failed to elaborate beyond simple description and measurement (Lebo 1988: 77, 79; McReynolds 1981: 32, 33, 34, 37, 42, 43). The exception is a report of excavations at a 19th-century black cemetery in Arkansas which presents a discussion of the manufacturing history of the buttons and studs as well as the uses to which the objects were put (Rose and Santeford 1985: 41, 49). Even so, the discussion is incomplete and it is clear that an examination of the archeological literature will not suffice to explicate the development and significance of the plain white porcelain button during the 19th century.

Turning away from the archeological literature to the button collectors' literature provides us with more precise information regarding this ubiquitous button type. Although porcelain buttons were available in the early 19th century, they were hand molded from wet clay and were considered a luxury item (Hughes and Lester 1981: 31). Around 1840, however, Richard Prosser of Birmingham, England, patented a process for making porcelain buttons from a dry china-clay powder that could be compressed into molds to mass-produce small, uniform buttons (Jones 1924: 40; Hughes and Lester 1981: 31; Albert and Adams 1951: 111). The industry was quickly taken over by French manufacturers who dominated it from the 1850s to the early 20th century. The French process was slightly different as it involved stamping the button out of wet clay (Hughes and Lester 1981: 31). Nonetheless, by the second half of the 19th century, utilitarian porcelain buttons were widely available in many sizes, shapes, decorations, and even different colors (Albert and Adams 1951: 111) as well as being very inexpensive:

> A great gross, that is twelve gross each of twelve dozen, is sold for elevenpence, every button beautifully made, regularly carded on good paper, and admirably turned out in every respect; the very paper they are on would be thought worth the money (Turner 1865 quoted in Jones 1924: 40).

It appears that these buttons were particularly popular during the second half of the 19th century and the very beginning of the 20th century. Mail order catalogs from the 1890s to the first years of the 20th century list them in several sizes (e.g., SR 1897: 320; MW 1895: 85; SR 1908: 1004). In contrast, the Montgomery Ward catalog of 1922 (MW 1922: 183) and the Sears Roebuck catalog of 1936 (SR 1936: 423) list no porcelain buttons. Instead, the plain buttons are made of pearl (some genuine, some synthetic) or vegetable ivory, and the fancier ones are made of the plastic of the day (i.e., celluloid in 1922, bakelite in 1936).

One of the problems in studying this kind of button is the plethora of names applied to it. According to Hughes and Lester (1981: 31), white-bodied porcelain buttons were called *carnelions* by their manufacturers. *Agate,* on the other hand, was used to refer to white-bodied earthenware buttons, though the term became less precise over time and eventually was used to refer to any white-bodied china button. The term *perle* was used specifically by French manufacturers. Mail-order catalogs from the 1890s and early 1900s use the term *agate* for plain white and colored four-hole buttons, but call the ones with decorated rims *pearl agates* (Figure 8–5). The term *pearl* (alone) seems to be used consistently in the mail-order catalogs and by button collectors to refer to buttons made from shell and mother of pearl (e.g., SR 1897: 85; MW 1895: 320), although the *pearl* collar stud advertized in the 1895 Montgomery Ward catalog could possibly be porcelain (see Figure 8–3). To avoid confusion, therefore, all of the ceramic buttons and stud in the Lowell assemblage have been cataloged as porcelain.

In agreement with the patent date for the dry china powder process for manufacturing porcelain buttons, all such buttons and studs (including colored ones) have been assigned a beginning manufacture date of 1840. A formal and decorative typology for these buttons has been used in the cataloging process (Figure 8–6). This typology is based on terminology employed by button collectors (e.g., Hughes and Lester 1981: 31–33) and is designed to simplify the description and classification of these ubiquitous buttons. It is hoped that future research will bring to light more information regarding specific periods during which the various forms and/or decorative elements were popular. Such information has the potential to help greatly refine button chronologies.

Throughout the following summary of the buttons excavated from Lowell, several terms will be employed to describe the means with which the buttons were fastened onto the clothing. A brief discussion of the terminology is in order. The most prevalent type in the assemblage is the *sew-through* button already mentioned. This simply refers to buttons with

holes—in this assemblage two or four holes. Other buttons have various kinds of shanks. Although some kinds of shanks can be used to date buttons, the ones found on the buttons in the Lowell assemblage are very common and were in use for long periods of time thus rendering them useless as chronological indicators. Most common is the *loop shank* which is simply a round or flat wire bent into a loop with the two ends inserted into the back of the button. A variation on this is a loop shank that is set into a shank *plate* which is mounted onto the back of the button, or sometimes set into a recess. Another type is the *self-shank*, referring to buttons for which the shank and button are fashioned out of the same piece of material such that they are one. Usually this is the result of a molding process and is typical of buttons made in the 2nd half of the 19th century (Luscomb 1967: 175). In terms of shape, all of the two- and four-hole porcelain buttons discussed below are dish-shaped unless otherwise indicated.

Artifactual Summary

Of the 142 buttons and studs excavated from the backlots in Lowell, 50 came from behind the supervisors' tenement (Operation A) and 79 from behind the boardinghouse (Operation B and Trench #2). In addition, 11 buttons and studs came out of Trench #1 and just 2 out of Trench #3 (test units from the first phase of excavations; see Beaudry and Mrozowski 1987a). In Operation A, 32 (64%) of the buttons and studs were found within designated features, 5 (10%) occurred within the tenement structure, and 13 (26%) were recovered from open yard areas. By contrast, 56 (71%) of the buttons and studs recovered from Operation B and Trench #2 were found in open yard spaces. Following is a detailed discussion of the button/stud assemblage by provenience, first in Operation A and then in Operation B (which includes the data from Trench #2).

Operation A

In Operation A, the largest concentration of buttons was found in Feature 27 which was identified as a planting hole just to the north of the cellar steps. A total of 9 buttons was found here, 7 of which are of the plain white porcelain variety with four holes and ranging in size from 1.1 to 1.4 cm. Four of these buttons are almost identical and appear to have been part of a set, perhaps coming from a single item of clothing. Also in this feature were a tiny shell button (D = .8 cm) with minute holes clearly meant for very light fabrics (possibly infant clothing), and a metal shank-type button with an eagle motif. The metal button is severely corroded and the shank, which was probably a loop, has snapped off. Nonetheless, the motif is intact enough to see that it is typical of the post-revolution "Federal" army buttons discussed by Calver and Bolton (1950: 143)—the button depicts a spread-eagle with a banner arching over its head. Unfortunately, the lettering on the banner is illegible, but the banner is longer than those pictured by Calver and Bolton, and could probably have fit a longer word than "Federal." Although the design of the button—a one-piece flat disc with an attached shank—is typical of 18th-century buttons (Hughes and Lester 1981: 221), the eagle motif (without the banner) persisted throughout the 19th century (MW 1895: 85; SR 1897: 320).

Feature 45, a privy, contained 7 buttons, all found in level B. Four of these are plain white porcelain four-hole buttons, 1 is a brown-bodied porcelain button with two holes in the mound style (Figures 8–6c, 8–7), and another porcelain button is hemispherical in shape, has a corroded iron shank, and appears to have been a shoe button. The last specimen from Feature 45 is an undiagnostic alloy button with a corroded iron shank.

Six buttons came out of the cellar (Feature 25), 2 from level C and 4 from level D. There were 2 four-hole shell buttons in the cellar, 1 each in levels C and D. Level C contained, in addition, 1 four-hole white porcelain button in the inkwell shape and banded red (Figures 8–6d, 8–8). Level D contained 2 plain four-hole buttons and 1 two-hole, tan mound button.

Feature 44, a dark soil stain connected to the drain box in the north portion of the yard, contained 2 buttons of the plain white four-hole variety, 1 each in levels A and C, and 1 white porcelain stud fragment in level A. Two buttons were found in Feature 46 which was identified as a bottle dump. One of these is of the ubiquitious four-hole white porcelain variety while the other is an orange faceted-glass specimen with a drilled self shank (Figure 8–9b). This shape was available from at least the 1890s as it appears in the 1895 Montgomery Ward catalog in jet (MW 1895: 84; Figure 8–4).

Other features in Operation A yielded just one button or stud each. A single plain white four-hole button was found in the ell foundation wall (Feature 33) as well as in Feature 24 (an unidentified soil stain). The top level of the brick drain box (Feature 37) contained a plain white porcelain stud, and the cellar stairs (Feature 23)

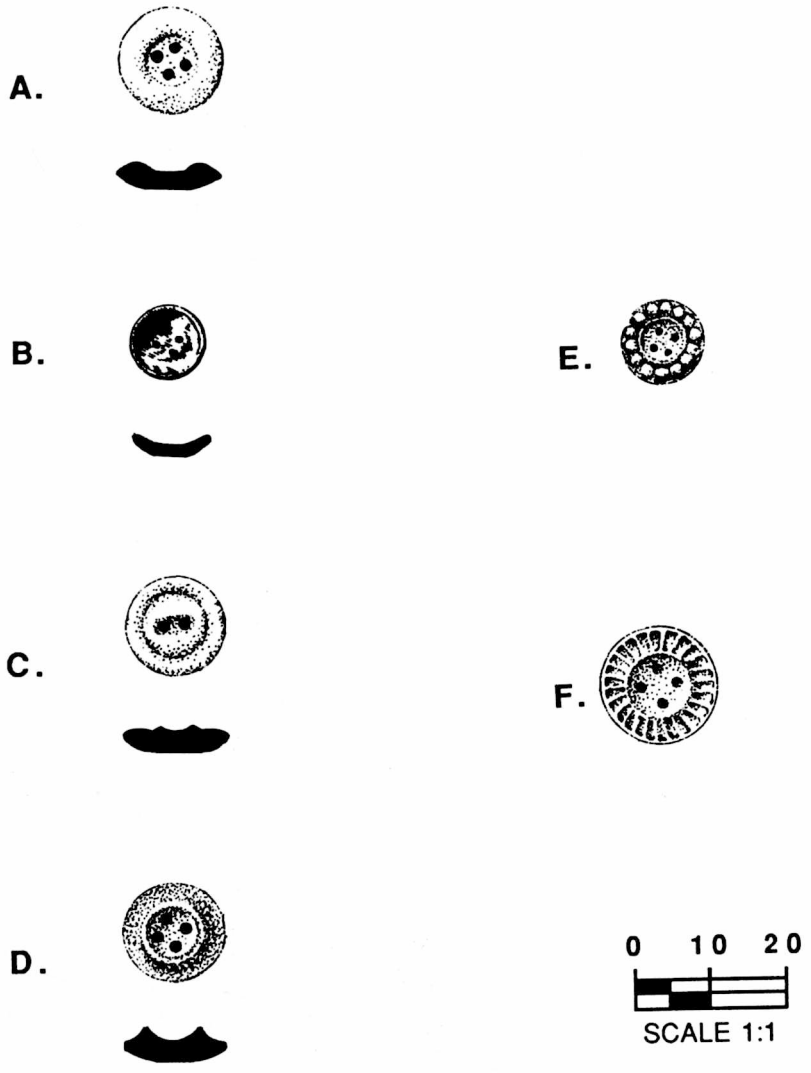


Figure 8–6. Formal and decorative typology used throughout this analysis to facilitate description of white porcelain buttons. Buttons can be described both in terms of shape: A) dish; B) saucer; C) mound; D) inkwell, and decorative elements: E) hobnail border; F) pie-crust border. The dish is the most common and the least distinctive shape as the size, slope, and shape of the rim is variable. In a sense, this is a "catch-all" designation for those buttons that do not fit into the other, more distinctive, categories. In addition, there is a banded variety in which the edge is painted in a solid color. Banding occurs most frequently on inkwell shaped buttons, but can also be found on dishes, hobnails, and pie-crusts. (Drawing by Leslie A. Mead.)

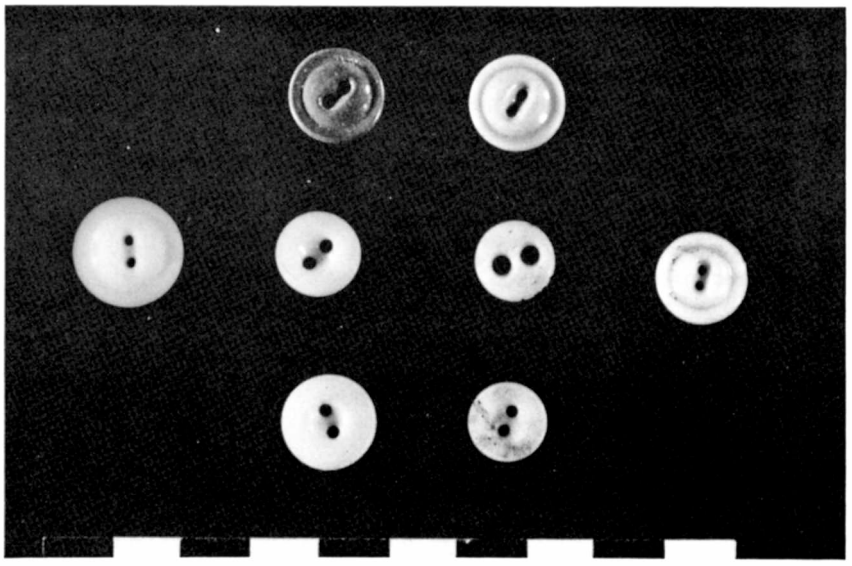


Figure 8–7. Two-hole porcelain buttons. Buttons in top row and at either end of center row are mound-shaped (scale in cm). (Photographby Richard S. Kanaski.)

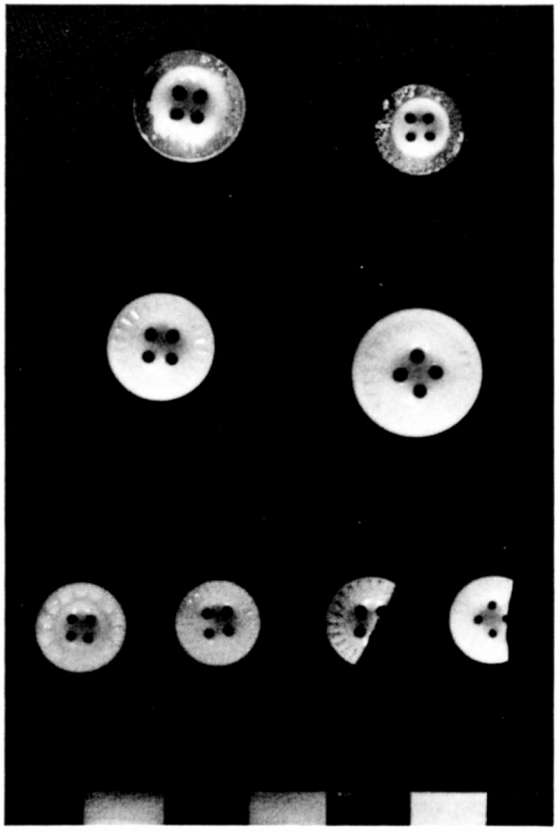


Figure 8–8. Four-hole porcelain buttons. Buttons in top row are inkwell-shaped with banded decoration. The buttons in the middle row are dish-shaped with pie-crust borders. The first button in the bottom row is dish-shaped with a hobnail border and the rest have pie-crust borders (scale in cm). (Photograph by Richard S. Kanaski.)

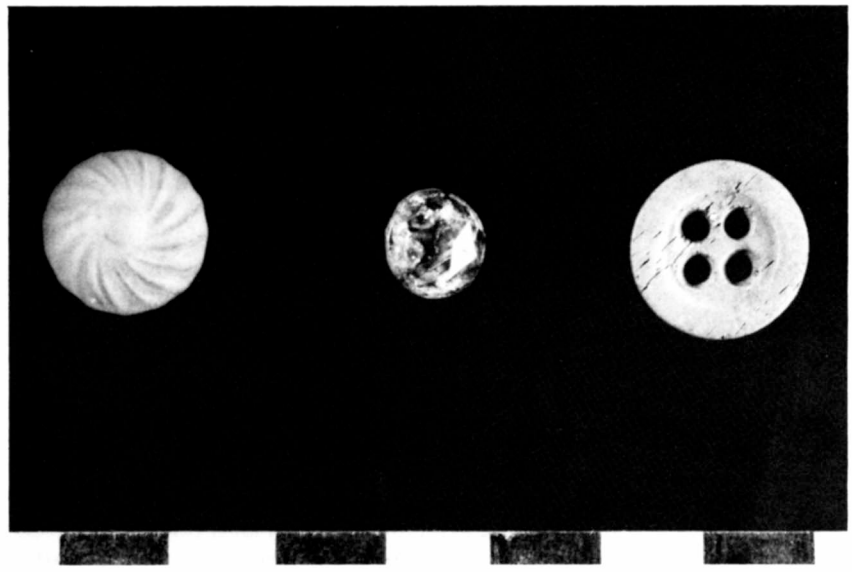


Figure 8–9. Miscellaneous buttons: A) glass hemispherical button with probable loop shank from Feature 6 behind the boardinghouse; B) faceted orange glass self-shank button from Feature 46 behind the tenement; and C) four-hole wood button from level 1 in Operation B (scale in cm). (Photograph by Richard S. Kanaski.)

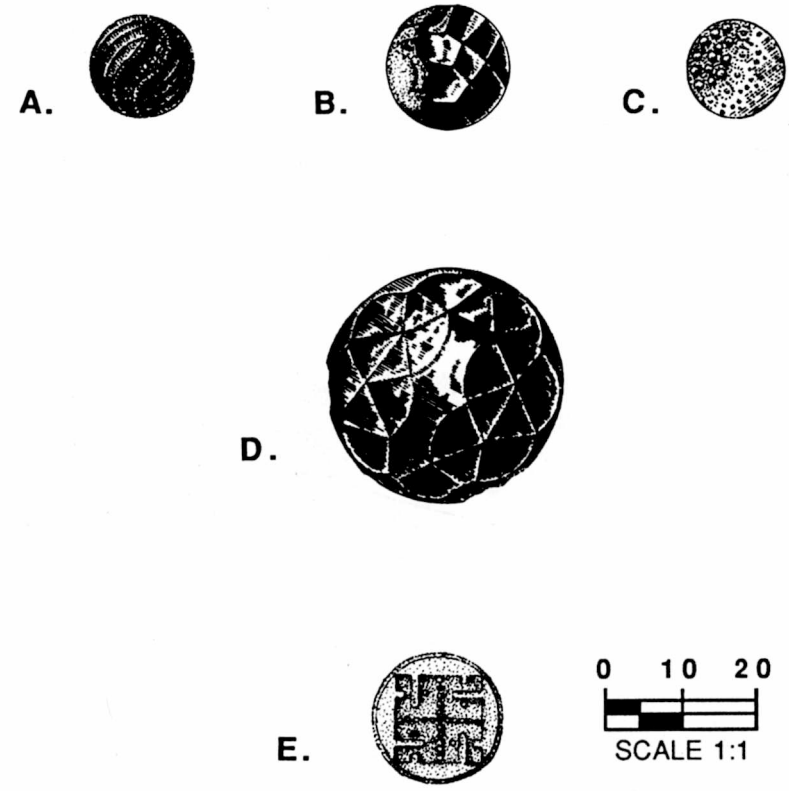


Figure 8–10. Black glass buttons. A) Pressed glass button with swirl design and polished facets running down the center recovered from level 1 of Feature 43 in Operation A. B) One of two identical pressed glass buttons found in level 1 of Operation B. Two-thirds of the surface is faceted and the other third is fashioned as a smiling quarter-moon face. C) A pressed black glass button with polished facets and an applied silver luster which makes the button resemble steel. This button was recovered from level 1 in the open yard area of Operation B. D) A large faceted pressed glass button probably meant for an overcoat, found in level 2 of the boardinghouse yard. E) A pressed glass button with a geometric design and unpolished facets uncovered in level 4 of Trench #1. (Drawing by Leslie A. Mead.)

Figure 8–11. Metal alloy self-shank button excavated from level 1 of the privy in Operation B (Feature 61). (Drawing by Leslie A. Mead.)

yielded a corroded lapel button or stud in level F. The top level of the well (Feature 43) contained a highly decorative pressed black glass button with a self shank (Figure 8–10a) that was probably manufactured after 1870 (Hughes and Lester 1981: 83, 89), and is very similar to the "jet" buttons advertized in the 1890s (Figure 8–4). The button measures 1.3 cm in diameter and has a line of polished facets running in a curved line down the center with a braided border.

Of the 13 buttons and studs that were found in the open yard areas of Operation A, 8 were recovered from level 1, 2 from level 2, and 3 from level 3. There were 2 studs in level 1, both plain white porcelain. The remaining 11 items from the 3 levels are all four-hole white porcelain buttons, some fragmentary. One of these, from level 1, has a pie crust edge decoration (Figures 8–6f, 8–8).

Five buttons were found within the limits of the tenement foundation, 2 in the cellar area and 3 in the ell. Both buttons in the cellar came out of level 1; one of them is a plain four-hole porcelain button and the other is a badly deteriorated self-shank (really just a hole drilled laterally through the underside of the button) shell button measuring 2.3 cm in diameter. Of the 3 buttons in the ell, 2 came out of the top level and the remaining one from level 2. Level 1 contained a corroded metal disk measuring 1.3 cm with no shank that is probably a button, and a two-hole mound-shaped porcelain button with a red band. Level 2 yielded part of a glass composite button with a molded clover motif painted green on the underside. This button may have at one time had a metal backing with a shank attached to it.

Operation B

The pattern in Operation B and Trench #2 is very different as only 10 buttons and 2 studs came out of features. Feature 61, the privy, yielded 4 porcelain four-hole buttons (1 of which is black) and 1 heavily corroded metal stud in level 1. The well uncovered in Trench #2 (Feature 2) contained a single white porcelain four-hole button and a plain white porcelain stud in levels 9c and b respectively. A single metal button was found in level 8a of Feature 3, a brick drain box. The button is copper alloy (or possibly brass) with a rather large self shank (Figure 8–11). There is no decoration on the front, and the button resembles some of the 18th-century specimens documented by Stone at Michilimackinac (1974: 48–51). It could perhaps be classified with Olsen's type A (1963: 553) inasmuch as it appears to have been cast in one

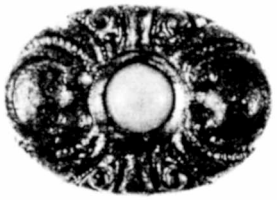


Figure 8–12. Decorative clothing stud, possibly half of a cufflink, set with a blue stone, uncovered in level 3 of Trench #1 (scale in cm). (Photograph by Richard S. Kanaski.)

piece, shank and all. Olsen notes that early buttons "as a rule ... were plain, of cast brass pewter, or whitemetal with wedge-shaped cast shanks" (Olsen 1963: 552). The button excavated from Lowell fits this description, and its appearance in the top level of the privy suggests that it was not found in its primary depositional context.

Feature 6 (a sewer pipe trench) yielded 2 white porcelain buttons, 1 with four holes and the other saucer-shaped with two holes, and a clear glass hemispherical button decorated with raised wavy lines radiating out from a knobbed pole (Figure 8–9a). The button has a hole in the back which retains traces of metal corrosion and probably once housed a loop shank. The surface finish has a frosted appearance which could have been obtained through a process of treating the finished button with acid which would take away the natural sheen of the glass (Luscomb 1967: 82). One plain four-hole button was recovered from level 11 of this feature.

A total of 9 buttons and 2 studs were found within the limits of the boardinghouse structure, all in level 1. Three buttons, 2 white porcelain and 1 black glass, came out of the cellar area. The glass button is faceted over two-thirds of its surface, and the remaining third is occupied by a crescent-moon face (Figure 8–10b). The shank, although completely corroded, has left a greenish impression on the back, revealing it to have been a metal loop shank, probably mounted on a plate that was slightly inset. An identical button was found in level 1 out in the middle of the yard. Although the man-in-the-

moon motif was popular on buttons throughout the 19th century (Hughes and Lester 1981: 399), the fact that these are black glass means they probably date to the end of the century.

The other 6 buttons and the 2 studs found within the boardinghouse were recovered from the ell. The studs are porcelain and glass (1 of each), 2 of the buttons are plain four-hole porcelains, 2 are four-hole saucer-shaped porcelains, 1 is a two-hole porcelain, and the last one is brown glass.

The remaining 56 buttons and studs from Operation B and Trench #2 were found in open yard areas. One plain porcelain button and 1 stud were recovered from the surface. Level 1 yielded 21 white four-hole porcelain buttons (3 saucer-shaped, 1 with a pie crust border, 1 with a hobnail border [Figures 8–6e, 8–8], and 1 with a brown band). In addition, there were 3 two-hole porcelains, 1 four-hole black porcelain, 3 undiagnostic flat metal buttons, 1 wood, 4 glass, and 1 plastic button as well as 2 white porcelain studs and 2 lever-top collar studs. The wood button is a flat four-hole type (Figure 8–9c) that could reasonably have been manufactured any time in the last few centuries. The glass buttons comprise 1 black hemispherical sew-through with two holes (in two pieces, but mended to one), the matching man-in-the-moon button discussed above, and a pressed black glass button with polished facets, a silver luster finish, and a missing metal shank that was probably a loop in an inset plate (Figure 8–10c). The plastic button is 2.7 cm in diameter and has an attached plastic loop shank. It is surface-dyed pink, but is fading from the base up. The body of the button is a creamy white, and although the material melts when heat is applied, it does not release a detectable odor. In accordance with the above characteristics, the button has been tentatively identified as casein and was therefore manufactured some time after 1890.

Level 2 contained 6 white porcelain four-hole buttons, 2 with a pie crust border. In addition, there was 1 large black glass button (D = 3.1 cm) with a faceted surface and a metal loop-shank typical of those popular at the end of the 19th century (Hughes and Lester 1981: 84, 85; Figure 8–10d). A lever-top collar stud was also found in this level. Just one button was excavated from level 3 in the open yard and it is a plain porcelain one. Level 5 in Trench #2, however, yielded 1 metal and 1 shell button (neither remarkable), 2 white four-hole porcelain buttons, 1 porcelain stud and 1 lever-top collar stud. Finally, 1 plain white porcelain button with four holes was found in level 10 of Trench #2.

Beads and Jewelry

A total of 17 objects were classified as beads and 18 as jewelry. The two categories will be discussed together because the distinction between them is often very unclear. Beads, if not sewn onto clothing, were usually elements in pieces of jewelry in the 19th century (e.g., MW 1895: 84). In any case, both are decorative items. The beads were classified by material and dated accordingly. There are 9 glass beads or bead fragments, 1 ivory bead, 5 porcelain beads, and 2 of unidentified material. The porcelain beads have been given a beginning manufacture date of 1840 in agreement with the date of manufacture established for porcelain buttons. None of the other materials can be dated with any confidence.

The jewelry items were classified only by object and not broken down into types. None of the materials could be dated with any confidence, and any temporal discussion is based entirely on stylistic considerations. All of the pieces of jewelry except for 2 gold or gold-plated rings are costume jewelry made from non-precious materials. It is difficult to discuss style popularity of jewelry because most works on jewelry deal with high-fashion designs using precious metals and stones. The only source we have for everyday or costume jewelry styles is the mail-order catalogs. Many of the designs of the excavated jewelry are consistent with those popular at the end of the 19th century as pictured in the mail-order catalogs (MW 1895: 166–175; SR 1897: 416–429). Particularly striking are the round wreath-like brooches and pendants and the linear bar pins set with stones.

Artifactual Summary

In Operation A, 12 of the 13 beads and 6 of the 11 pieces of jewelry came out of features. Three jewelry items were found within the limits of the tenement structure, and just 1 bead and 2 pieces of jewelry were found out in the yard areas. By contrast, a total of only 4 beads were uncovered in Operation B—1 within a feature and 3 in the open yard—as well as just 4 pieces of jewelry, 3 of which were out in the yard area and 1 within the limits of the boardinghouse foundation. The 2 gold or gold-plated rings mentioned above were recovered from Trench #3, levels 3 and 4. The ring from level 3 was designed to hold a gemstone and has 6 prongs for that purpose. The band is wide at the top, narrowing toward the bottom, with incised geometric designs on either side of the stone area. The ring recovered from level 4 is a plain gold wedding band

Figure 8–13. Celluloid pin-back button manufactured after 1893. The legend reads "KISS ME [illegible] I'M STERILIZED" and may be related to the influenza epidemic of 1918. The button was found in level B of the privy in Operation A. (Photograph by Richard S. Kanaski.)

approximately .5 cm wide and 1.2 cm in diameter. Also excavated from level 3 of Trench #3 was an oval decorative clothing stud or cufflink set with a light blue stone (Figure 8–12).

Operation A

The feature with the greatest number of beads and jewelry in Operation A was the cellar (Feature 25). Level D yielded a natural colored ivory bead and a light blue glass bead (in three pieces) as well as a long rhinestone pin fashioned in a floral motif and another, unidentified, item of jewelry. Level B of Feature 45, the privy, yielded a single tiny orange glass bead (D = .5 cm) as well as an interesting celluloid pin in two pieces. The pin depicts a man and a woman kissing and reads "KISS ME [illegible] I'M STERILIZED." (Figure 8–13). The drawing is rendered with very simple lines and the effect is cartoonish. The costumes are consistent with those of the Edwardian era in the early 20th century inasmuch as the woman has full hair softly styled on top of her head (de Courtais 1973: 140), and the man has a very high, stiff collar (Wilcox 1969: 82). In addition, there is an object protruding from the woman's right shoulder which may be a hypodermic needle. One possible interpretation of the button that was suggested by Lauren Cook is that it refers to the flu epidemic of 1918.

Several lines of evidence render this hypothesis tenable. 1) The context in which the pin was found (Feature 45, level B) has been firmly dated to after 1891 based on the pipe stem data (Cook, this volume). 2) The pin, though somewhat deteriorated, appears to be a pin-back (Luscomb 1967: 152), or celluloid (Fischer 1988: 145) button of the type first patented in 1893 by Amanda M. Longee. Longee's design was for a printed textile base mounted on a metal backing or rim with a pin attachment and covered with a thin sheet of transparent celluloid. In 1896 the Whitehead and Hoag Company acquired the patent for the celluloid button with the print on paper—the same form used for modern campaign buttons (Fischer 1988: 144). What remains of the "KISS ME..." pin is just the celluloid film with the drawing imprinted on the back. The edges are turned over and crimped, and there are some traces of corroded metal around the inside rim suggesting that there was a metal ring supporting the celluloid. The paper or fabric on which the drawing was originally imprinted is completely gone. 3) The flu epidemic was a major concern in Massachusetts in 1918. Boston was the site of the first outbreak of Spanish influenza in the New World in the late summer of 1918 (Crosby 1976: 39). The disease was first noted on August 27 among the naval forces at Commonwealth Pier and spread to the civilian population of Boston by September (Crosby 1976: 39–40). By the end of September, Lowell was also experiencing the effects of the epidemic, having lost 32 people to influenza and pneumonia. During the week of October 6–12, 1918, a high of 141 influenza-related deaths were reported in Lowell (Crosby 1976: 60). Furthermore, the disease tended to kill people in the prime of life, most flu deaths occurring in the 21–29 year-old age range (Crosby 1976: 21)—the

"kissing" years, perhaps. 4) Vaccines, however ineffectual, were available very soon after the initial outbreak of influenza. In fact, one of the earliest ("and probably best publicized") vaccines was developed near Boston at the Tufts Medical Center (Crosby 1976: 100). In conclusion, the post–1891 archeological context in which the button was found, the 1893 patent-date for celluloid buttons, the omnipresence of Spanish influzenza in Lowell in 1918, and the availability of a "vaccine" are all lines of evidence that support (or at least do not contradict) the interpretation of the "KISS ME ... I'M STERILIZED" button as connected to the flu epidemic of 1918. If this interpretation is correct, then Level B of Feature 45 must have been deposited in 1918 or later. In any event, it could not have been deposited before 1893 when the celluloid button was first patented.

Another celluloid button was found in Feature 23 (level B), the entryway to the cellar. Although the structure of the pin is intact, the design is quite damaged and difficult to decipher. It reads "KEEP SMILING" on two lines at the top, "QUICK [illegible]" towards the bottom, and "TAPIOCA" curving along the bottom edge. This is probably a promotional button for a brand of tapioca, but the manufacturer has not been identified. In any case, its presence in level B of Feature 23 dates that deposit to 1893 or later.

A brick drain box (Feature 37) yielded 3 beads in level B, one a translucent milky white sphere that was slightly squashed and one a small oblong light blue bead—both are made of glass. The other bead is a dark blue round one, probably also glass. Feature 44, a dark soil stain leading out from the drain box, contained a dark blue clothing bead with the remains of an iron shank in level A, and 2 small, round sew-through beads in level B—one light orange glass and one light blue porcelain. One other bead was found in level A of the ell foundation (Feature 33), a round white sew-through made of glass. Finally, Feature 38, where there was heavy brick rubble, yielded a round brooch with an elaborate copper alloy border functioning as a framing device (Figure 8–14). Within the frame are the remnants of a photograph (paper fiber and photographic emulsion are evident although the image is not visible) mounted on a metal backing. The underside of the piece is heavily corroded, but the remains of a pin clasp are obvious.

Three items of jewelry were found within the bounds of the tenement cellar foundation. In level 1 there was a tiny blue clothing stud (D = .5 cm) with traces of a metal shank. Level 2 contained a brooch similar to the one found in Feature 38 and an unidentified object. The brooch is a circular piece of glass framed by a braided copper alloy border measuring 3 cm in diameter (Figure 8–14). The back of the border has six flat metal prongs designed to hold something against the glass. There is a dense white substance adhering to the back of the glass, some of which is underneath the prongs. Under microscopic examination, the substance appears to be fibrous, and may be paper. This could be the remains of a photograph, but since no photographic emulsion is in evidence, it could alternatively be the remains of a painting or drawing. The remnants of two ends of a pin clasp are visible on the back of the object—hence its identification as a brooch. The unidentified object is also a circular piece of glass, but with a plain, possibly graphite or rubber frame. This may, in fact, not be a piece of jewelry, but there is a trace of some sort of attachment at one point along the edge suggesting that it could have been part of a pendant.

The only items found out in the yard area of Operation A were the following: a copper alloy straight decorative pin (L = 2.8 cm) possibly painted black (in level 2); a dark blue sew-through porcelain bead (also in level 2); and an unidentified jewelry fragment fashioned in a flower motif (in level 3). The pin is probably a soft collar pin much like the ones advertized in the 1922 Montgomery Ward catalog (MW 1922: 352). If this is a correct identification of the object, then it may date level 2 of the tenement yard to after 1908. Soft collars became available sometime between 1908 and 1922 as they are not listed in the Sears Roebuck catalog of 1908 (SR 1908: 973) nor are they listed in the catalogs of the 1890s (MW 1895: 92; SR 1897: 219).

Operation B

Only 4 beads and 4 items of jewelry were found behind the boardinghouse in Operation B. The privy (Feature 61) contained just 1 oblong bead that is white porcelain, in level 2. The 3 other beads came from the open yard area. All are of the sew-through variety and spherical; 2 of them are made of porcelain and are less than 1 cm in diameter—1 is opaque green and the other is dark blue or black. The other bead is more interesting as it is larger than most of the others (D = 1.8 cm), and is light green with what appears to be a yellow trailed slip decoration (except that the bead is glass). Only half of the bead remains, but it must have been the centerpiece of a string of beads. The jewelry

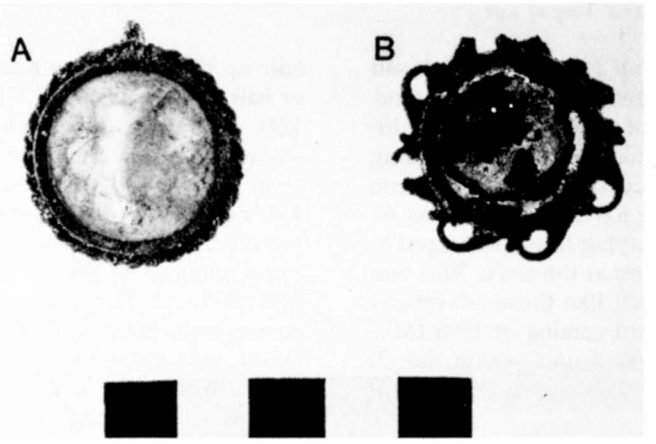


Figure 8–14. Two brooches that probably framed photographs or miniatures. A) Brooch with copper alloy frame and braided border found in level 2 behind the tenement. A dense white substance that may be paper adheres to the back of the glass. B) Brooch with copper alloy frame with elaborate border found in level 1 of Feature 38, also behind the tenement. Remnants of paper fibers and Photographhgraphic emulsion are evident within the frame, suggesting that a photograph was mounted on this brooch (scale in cm). (Photograph by Richard S. Kanaski.)

Figure 8–15. Top and side view of rhinestone pin uncovered within the ell in level 1 of the boardinghouse excavation (scale in cm). (Photograph by Richard S. Kanaski.)

from Operation B was all found in level 1 and consists of 2 costume jewels (a "diamond" and an "emerald") made of glass, 1 small white porcelain object that could have been a clothing stud, and a copper alloy linear rhinestone pin (Figure 8–15) measuring 6.8 cm. The pin was set with nine brilliants of varying sizes, the largest in the center and the smallest at the ends. This was probably a lace pin much like those advertized in the Montgomery Ward catalog of 1895 (MW 1895: 174). The pin was found within the ell whereas the other objects were found out in the yard area.

Combs and Hair Ornaments

A variety of combs and hair ornaments were found during the excavations at Lowell. These include decorative combs (side and back), straight combs and fine-tooth combs used in grooming (Figure 8–16), hair pins, and barrettes. A total of 43 items were included in this category, but it must be kept in mind that 19 of these are single teeth. The items in this category were cataloged by material; 24 of them are plastic, 13 rubber, 3 metal, 2 tortoise shell, and 1 possibly horn.

Before the 1920s when shorter hair styles came into vogue, hair combs or other ornaments were worn by most women to control their hair (Haertig 1983: 28, 73). Early combs were made from natural materials such as tortoise shell, horn, or ivory. The process of vulcanization, whereby rubber was hardened, was discovered in 1839 and subsequently used in the manufacture of such objects as buttons and combs (Hughes and Lester 1981: 48; Haertig 1983: 62). The commercial production of celluloid in 1869 had an even greater impact on the comb industry, however, as plastic materials could be made to resemble the much more expensive tortoise shell. Hard rubber, by contrast, has a dull black finish and is suited more to utilitarian than decorative items, and is accordingly found more often in the form of straight combs and fine-tooth combs (i.e., combs with thin teeth along both edges set very close together).

Combs were both utilitarian and decorative. In the 1860s elaborate combs studded with jewels were popular and in keeping with the style of attaching cascades of false hair to a chignon at the back of the neck (Corson 1971: 477–484; de Courtais 1973: 124). The back combs were used as fasteners, and often had high, decorative bridges. The 1870s and 1880s saw a decline in the popularity of the chignon and false hair in general, and the trend was towards sweeping the hair up off the neck and holding it with a comb or hair pins (Corson 1971: 488; de Courtais 1973: 124). In the last decade of the 19th century the emphasis was on piling the hair on the top of the head as opposed to at the back (Corson 1971: 494; de Courtais 1973: 134). Fancy back combs were still popular, as can be seen in the mail-order catalogs of the 1890s (SR 1897: 326, 435; MW 1895: 182–183), but by the 20th century back combs were lower and became more similar to side combs (SR 1908: 1002; MW 1922: 349; SR 1936: 103; Haertig 1983: 49). Barrettes and hair ornaments decorated with inset brilliants seem to have become popular in the early 20th century (SR 1908: 1002; MW 1922: 349), while hair pins occur throughout. Straight combs and fine-tooth combs stand separate from the other items in this category inasmuch as they are purely utilitarian and used for grooming, rather than being worn in the hair for decorative purposes. As such, they do not change stylistically over time very much and are therefore less diagnostic. Both kinds of combs appear in the mail-order catalogs of the 1890s and the early 20th century (SR 1897: 326; MW 1895: 105–106; SR 1908: 1003; MW 1922: 391).

Artifactual Summary

A total of 17 combs and hair ornaments were recovered from Operation A. Twelve of these were from within features, 4 out in the open yard, and just 1 plastic tooth from inside the tenement foundation. In Operation B, 24 combs and hair ornaments were uncovered—11 from features, 12 from the yard area, and again just 1 from the boardinghouse area. In addition, a plastic hairpin fragment was found in Trench #1, level 3, and a tooth from a hard rubber comb in level 4.

Operation A

In Operation A, the privy (Feature 45) yielded the greatest number of combs and hair ornaments from its level B. There was 1 almost complete plastic side comb measuring about 10 cm as well as a fragment of another plastic side comb and a single tooth. In addition, a plastic hair pin fragment was found as well as the top portion, without any teeth, of what seems to be a tortoise shell side comb.

The dark soil stain emanating from the drain box (Feature 44) contained 3 comb teeth, a rubber one and a plastic one in level B and a metal one (possibly aluminum) in level C. A single plastic tooth was also excavated from Feature 23, level D (cellar stairs), and one from Feature 37, level B (the brick drain box). Level B

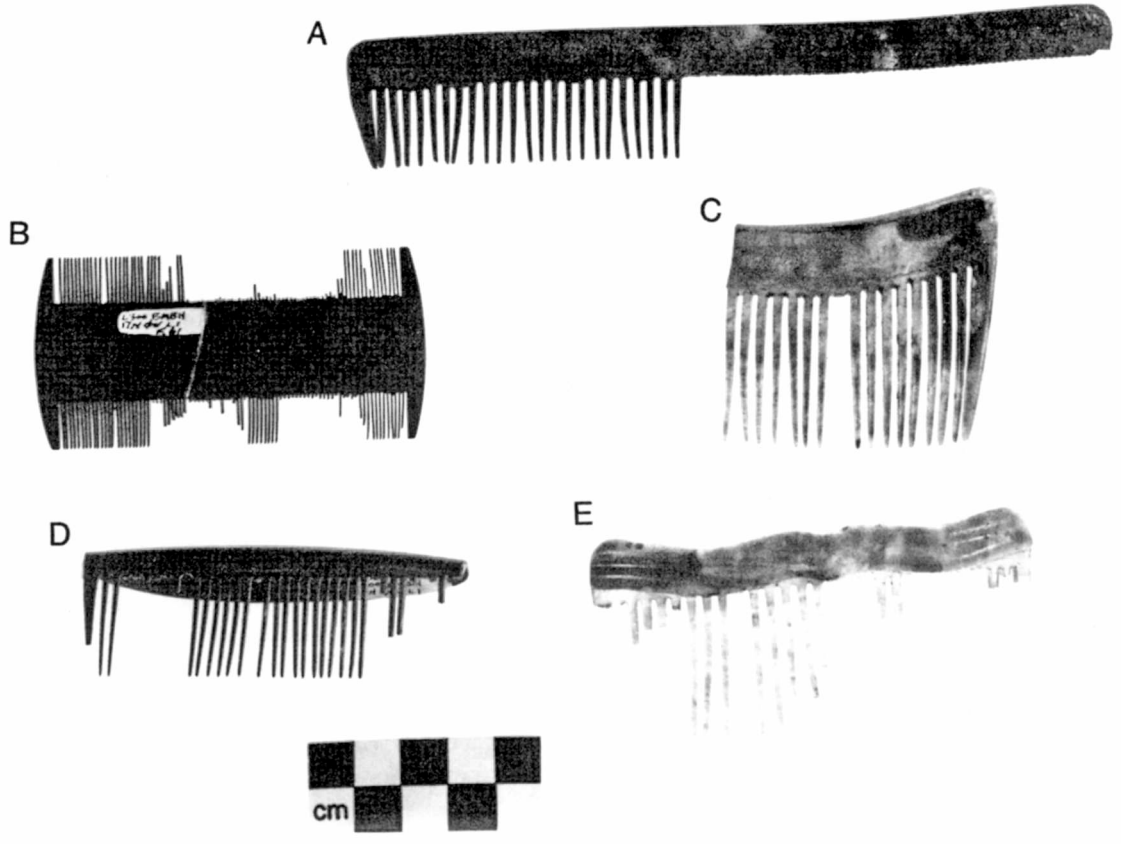


Figure 8–16. Some of the combs excavated from the backlots of the Boott Mills' boardinghouse/tenement. A) Straight comb, possibly made of horn. B) Hard rubber fine-tooth comb (see also Figure 8–18b). C) Side comb, possibly made of tortoise shell. D) Hard rubber side or back comb, bent over so that the bridge will cover the hair where the comb enters it (see also Figure 8–18a). E) Plastic side comb with decorative bridge. Combs A-D were found in level 1 of the yard area behind the boardinghouse. Comb E was excavated from level 9d of the well (Feature 2) in Trench #2, also behind the boardinghouse. (Photograph by Richard S. Kanaski.)

of the cellar (Feature 25) also yielded a plastic comb tooth as well as a rectangular-shaped plastic barrette inset with three rows of brilliants along the top, middle, and bottom cross-pieces. This barrette is very similar to one advertized in the 1922 Montgomery Ward catalog as a "Barrette of the newest style" (MW 1922: 349). Not only do both barrettes have inset brilliants, but they are of similar proportions and both have a twisted tooth for holding the hair. If this style was indeed new in 1922, then level B of the cellar must date to after that time.

In the yard area of the tenement, fragments of a rubber straight comb with a scalloped edge and a plastic side comb were found in level 1. The second level contained just 2 plastic teeth.

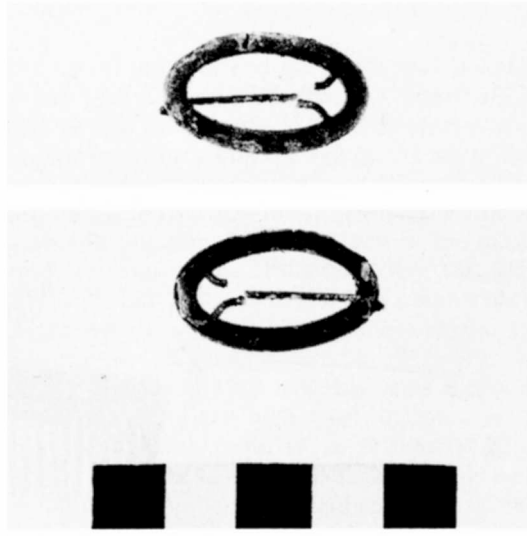


Figure 8–17. Front and back view of small oval barrette with cotter pin clasp from level 1 of the boardinghouse backlot (scale in cm). (Photograph by Richard S. Kanaski.)

Operation B

The privy of the boardinghouse backlot (Feature 61) was also the feature with the greatest number of combs and hair ornaments. Level 1 contained 3 plastic comb teeth (one green-colored) and one rubber fine-tooth comb fragment. In level 2 there was a fragment of a plastic hair pin and a very heavily corroded metal barrette. Two plastic side-comb fragments came out of level B of Feature 65 (a pit or planting hole), and 1 rubber tooth from Feature 67. The well (Feature 2) yielded a nearly complete plastic side comb measuring about 10.5 cm (Figure 8–16e) and a fragment of a rubber straight comb from level 9d.

A hard rubber fine-tooth comb was found in level 1 of the ell. Imprinted on it are the words "I.R. Comb Co Goodyear's Patent May 6 1851" establishing a firm beginning date of manufacture. The comb is broken, but assuming the imprint was originally centered, the comb measured approximately 6.4 cm long and 4 cm wide. Out in the yard, 11 items were found in level 1. Included were 2 plastic teeth and 2 rubber teeth, fragments of a plastic side comb and a rubber straight comb, and part of what appears to be a genuine tortoise shell side comb (Figure 8–16c). In addition, there was a small undecorated metal barrette (2.8 cm long), oval in shape with a cotter pin clasp (Figure 8–17) and the top portion of a probable horn straight comb (Figure 8–16a). The design of the barrette is similar to the barrettes advertized in the 1922 Montgomery Ward catalog (MW 1922: 349). The identification of the comb as horn is based on the fact that is has a soft, leather-like quality and a visible fibrous texture, but when held up to the light is transluscent with a mottled, tortoise shell coloration. Of special note in this level are two hard rubber combs with imprints—one is a side or back comb and the other is a fine-tooth comb. The side or back comb has a bent-over bridge designed to cover the hair where the comb enters it. A similar design is pictured in the 1908 Sears Roebuck catalog (SR 1908: 1002) and is actually labelled as a barrette: "Ever Tidy Barrette, a clever invention for holding stray back hairs." This description, coupled with the fact that no such design appears in earlier catalogs, may indicate that this kind of comb (or "barrette") was new at the beginning of the century. The imprint on the one excavated at Lowell reads "I.R. Comb Co Goodyear's Patent 1849–51" (Figure 8–18a). The fine-tooth comb reads "EMPEROR"—this particular model has not been located in the literature (Figure 8–18b), but the design and the style of the imprint is similar to the "Minerva" comb advertized in the 1922 Montgomery Ward catalog (MW 1922: 391). Perhaps the names on the combs were intended to distinguish between men's and women's combs. The "Emperor" comb excavated from the boardinghouse backlot measures 3 1/4 inches long by 1 5/8 inches wide. By comparison, the "Minerva" comb pictured in the 1922 Mongomery Ward catalog is much larger, measuring 4 inches long by 2 1/2 inches wide, and thus would be better suited to women's longer hair. Finally, level 10 (in Trench #2) in the yard area yielded a single fragment of a rubber straight comb.

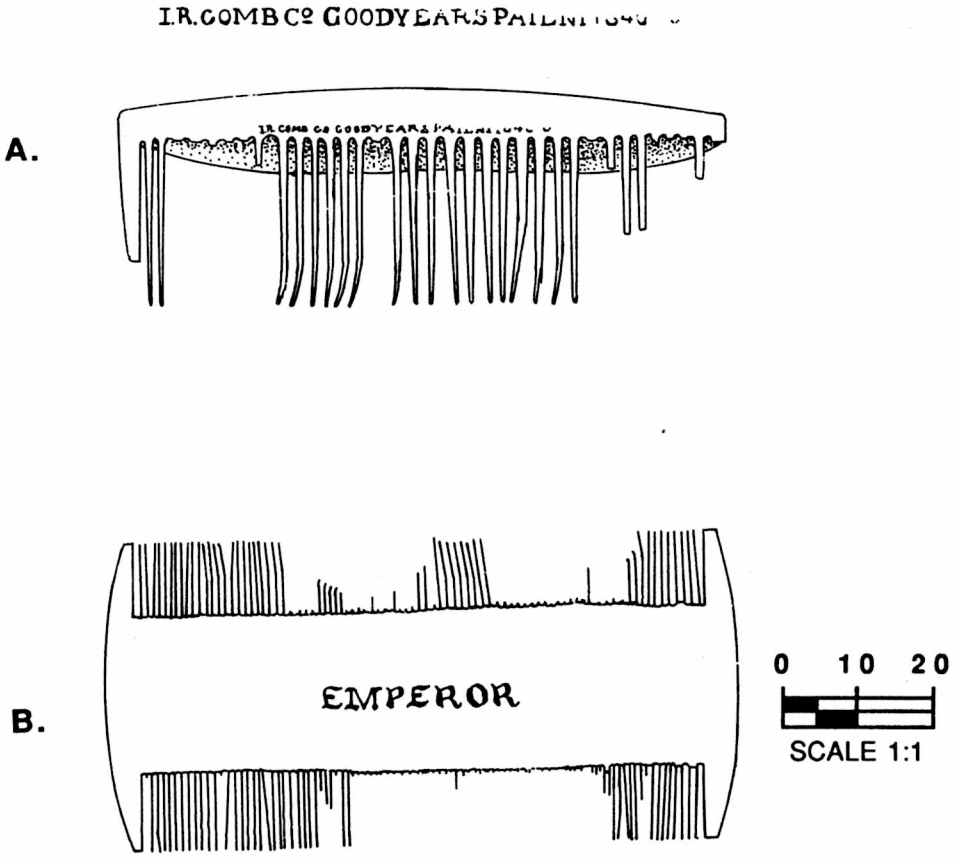


Figure 8–18. Two hard rubber combs with imprints. A) Side or back comb with bent bridge (see also Figure 8–16d). B) Fine-tooth comb (see also Figure 8–16b). Both combs were found in level 1 of the boardinghouse backlot. (Drawing by Leslie A. Mead.)

Figure 8–19. 1917 photograph of textile worker drawing-in, showing the use of hair combs and hair pins to keep the hair up. Note also the beaded necklace. (Reproduced courtesy of the Museum of American Textile History.)

Figure 8–20. 1917 photograph of mill worker filling a shuttle, showing the use of a bar pin on the front of her work smock. (Reproduced courtesy of the Museum of American Textile History.)

Leather

Artifactual Summary

Some fragmentary leather remains were recovered from the Lowell excavations, very few of which were diagnostic. Twenty-eight possible shoe fragments and 10 possible shoelace fragments are among the almost 150 leather fragments found. Another 14 pieces are from straps of some sort, some of which have holes punched into them and are probably parts of bridle or saddle straps. There is one piece of leather cut in the shape of a 4-leaf clover that was probably an applique of some sort, but to what it was applied is unknown. The rest of the leather fragments are unidentifiable either because of their poor state of preservation, their small size, or their lack of diagnostic detail. Only the shoe and shoelace fragments will be dealt with in any detail here.

Operation A

In Operation A 2 narrow strips of leather with stitching holes were found in level F of the cellar stairs (Feature 23) as well as one fragment from the back of the heel that has square stitching holes (in level A of the cellar stairs). The privy (Feature 45) yielded a curved piece of leather, probably from the back part of the shoe. Level B of the privy yielded a complete sole and heel (in 2 pieces) of what was probably a woman's shoe based on its small size and narrow width (approximately 7.5 cm across the ball of the foot and just 3.5 cm across the arch). The heel is of stacked leather, almost 2 cm high, and its shape is relatively straight, angling down slightly in the back. Eight nails are visible in the heel area of the sole, coming up from the heel. The toe is neither pointed nor rounded, but somewhere in between.

Two small leather fragments with rectangular stitching holes were found on the cobble surface (Feature 15) and 3 fragments of a shoe heel were uncovered in level 3 of Feature 16. Just one small fragment of a sole with stitching holes at the edge was found in level 1 of the open yard area, while 4 pieces of a small sole, probably to a woman's shoe, were found in level 3. The condition of this object is quite fragmentary and no heel remains. The toe portion is broken off, and again, the gender determination of this sole is based on its size (7 cm across the ball of the foot and 4 cm across the arch).

Operation B

The well excavated in Trench #2 of Operation B (Feature 2) yielded several shoe remains. Six shoelace fragments were found in level 9b, while 2 were excavated from level 9c along with 2 other shoe fragments, both from the back of the shoe, one with rectanglular stitching holes. Three flat leather fragments with small holes along the edges were found in level 2 of the privy (Feature 61) and are probably shoe parts. The rest of the shoe remains from Operation B were found in levels 1 and 2 of the open yard areas. A total of 4 sole fragments came out of level 1—2 have round stitching holes around the edges and one has a possible tack attached to it. In addition, one very delicate fragment of a shoelace was found in level 1. Level 2 yielded 4 leather fragments with triangular stitching holes that are probably shoe parts.

As can be seen from the above discussion, very few of the leather finds are diagnostic, or even clearly identifiable. The most that can be said for many of them is that they probably belong to some part of a shoe. The two most complete objects, both probably soles to women's shoes, came out of Operation A, but only one retains the diagnostic parts of the shoe—the heel and the toe. The softly rounded toe of the sole from level B of the privy behind the tenement is consistent with styles at the end of the 19th century and beginning of the 20th century. On the one hand, there was a movement away from the harshly narrow-toed shoes fashionable in the 1880s (Swan 1982: 51) while on the other hand the square-toed shoes of the 1890s were giving way to more feminine shapes (The National Society of Colonial Dames of America [hereafter NSCDA] 1986: 31). Still, since the toe of the shoe from Lowell is not extreme in shape, and since toe styles fluctuated back and forth from pointed to square throughout the 18th and 19th centuries (Swan 1982; NSCDA 1986), nothing definite can be said about it. Much the same is true for the heel. Stacked heels were available as early as the 18th century (NSCDA 1986: 31), and the shape of the heel is not very distinctive—it is neither high nor low, nor is it wedged or flared. If this is indeed a woman's shoe, the only thing that can be said about it is that it is clearly not a high-fashion design. The toe and heel are rather plain and seemingly built for comfort, not style. The effect is of a practical shoe, perhaps even a working shoe.

Textiles

Artifactual Summary

Almost 60 textile fragments (25 are actually from one piece of cloth, badly disintegrating) were recovered. One of these is a fiber lamp wick, 6 are wool batting, 1 is probably oil cloth, 4 are ribbon fragments (3 of which came out of Trench #1, level 3), 1 is possibly silk, 1 is wool, and the rest are most likely cotton.

Operation A

Only 9 of the fragments came out of Operation A: a piece of silk and a piece of cotton from levels E and F, respectively, of the cellar stairs (Feature 23); 2 fragments of unidentifiable cotton cloth from level B of the privy (Feature 45); 2 pieces of brown coarse-weave cotton cloth from level 1 of the yard; a piece of wool batting from level 3 of the yard; and 2 cotton fragments of indeterminable color from level 2 in the ell area of the tenement.

Operation B

In Operation B, a single fragment of a dark brown or black ribbon came out of level 9d of the well (Feature 2) and five pieces of felt or woolen batting were recovered from level 1 of the privy (Feature 61). The rest of the fragments were found in the open yard area. Level 1 yielded 5 fragments of cotton cloth, a piece of very densely woven material that seems to be oil cloth, the lamp wick, and 6 fragments of what looks like brown wool cloth, some pieces with the selvage edge intact. Level 2 contained a single fragment of fine-weave, 2-color cotton cloth, and level 3 yielded just one piece of unidentified white fabric. A herringbone-pattern weave fabric was found in 25 pieces in level 5 of Trench #2, one of the pieces with a rusted nail attached to it.

Although the state of preservation of most of these textiles is poor, it is possible that further analysis of the various materials and weaves could yield interesting results. For instance, it may be possible to determine if any of the fabrics could have been manufactured at one of the mills in Lowell, or, conversely, if any of them were positively brought in from outside the city (or even the country).

Discussion

A clear pattern of artifact distribution emerges from the above descriptions. In absolute terms, more artifacts related to personal adornment were excavated from behind the boardinghouse (Operation B) than from the tenement lot (Operation A). Leaving aside the leather and textiles which are more subject to preservation bias, Operation A yielded 50 buttons and studs, 24 beads and pieces of jewelry, and 17 combs or hair ornaments, while Operation B yielded 79, 8, and 24 of each class of items respectively. Only jewelry and beads occurred with greater frequency in Operation A than in Operation B.

Perhaps more significant than these absolute numbers is the fact that a much greater percentage of each class of items was found in the open yard areas (as opposed to within features or within the building foundation areas) of Operation B as compared with Operation A. Hence, 71% (56) of the buttons and studs excavated from the boardinghouse backlot came from out in the open yard area compared to just 26% (13) of the total from behind the tenement. Of the beads and jewelry from Operation B, 38% (3) of the total were found in the yard area compared to 13% (also 3) from Operation A. Finally, the yard of Operation B yielded 50% (12) of the total number of combs and hair ornaments excavated while the yard area of Operation A contained only 24% (4) of the total.

This pattern could simply be the result of the fact that greater numbers of people resided in the boardinghouse over the years. Nonetheless, it points to the possibility that the yard of the boardinghouse was not as neatly kept as the yard of the tenement. Also, the fact that more jewelry was found in the tenement excavation than in the boardinghouse backlot may be reflective of the higher socioeconomic status of the tenement residents or simply of the fact that women living there were not necessarily working women (i.e., they could have been supervisors' non-working wives).

This observation is not supported by the button data, however. If the buttons (exclusive of the studs) are divided into two classes, plain (two- and four-hole white porcelains) and fancy (all others, including pie-crusts, hobnails, and banded varieties), it is clear that there is not a great difference between the two operations. Of the 45 buttons in Operation A, 35% (16) are fancy. Similarly, of the 67 buttons found in Operation B, 34% (23) are fancy. These percentages suggest that, at least in terms of buttons, the two households operated on a similar level. It is difficult to make a similar observation based on the combs and hair ornaments since, as discussed above, they functioned on both utilitarian and decorative levels, and a division of

the assemblage into plain and fancy items would be highly subjective.

What there is to be learned about clothing and fashion at the Lowell boardinghouses and tenements through an examination of the personal artifacts is limited. The presence of items of costume jewelry, some fancy pressed glass buttons, a few beads, and some decorative hair ornaments hint that the residents of the boardinghouse and the tenement may have made some concessions to fashion and ornamentation. But the evidence for this is slim. There are no well preserved textiles to inform us about the quality of the residents' clothing, and the one shoe fragment with identifiable characteristics seems to be from a shoe designed for work, not fashion. Furthermore, the overwhelming majority of buttons are of the plain white utlitarian variety—stark reminders that we are looking at the material assemblage of a group of working class people. These buttons were popular on "wash frocks and other utility dresses" (Albert 1941: 47) as well as being used as regular shirt buttons. The combs and hair pins, though decorative, were also utilitarian in nature inasmuch as they served the practical purpose of keeping the hair out of the workers' faces (Figure 8–19). The jewelry is perhaps the only truly non-utlitarian group of personal artifacts found at the site, but even jewelry could be found in the workplace (Figures 8–19, 8–20).

Perhaps the most eloquent testimony to the quality of the material life enjoyed by the Boott Mills' boardinghouse and tenement residents is the relative absence of variety. There was a wide range of goods available at the end of the 19th century and a proliferation of materials used to make them. As discussed above, fashion in hair was elaborate, as were the ornaments available to decorate the styles. Yet the combs and hair pins found in the backlots of Lowell tend toward the pedestrian. Similarly, the variety of materials and styles available in buttons was greater in the mid 19th century than it ever had been (Epstein 1968: 49), yet 86 (71%) of all the buttons and studs found at the site are made of white porcelain, 73 of which (60% of the total) are completely undecorated. There are not even any of the painted or transfer-printed porcelain buttons and studs that were popular from the 1860s on (Epstein 1968: 50).

It is interesting to note the gender affiliations of the personal effects. Most of the artifacts were probably used by women, including the two shoe-sole fragments that were identified. Certainly, the more decorative items can be associated almost unequivocally with female use. These would include the side and back combs, the barrettes, the fancy buttons (with the possible exception of the metal button with the eagle motif), the beads, and of course the jewelry.

By contrast, none of the personal effects can be associated exclusively with male use. The more utilitarian items such as the straight combs, the fine-tooth combs, the plain white buttons, and the studs were probably used by both sexes. Straight combs and fine-tooth combs were used for grooming—straight combs to untangle the hair and fine-tooth combs to remove dirt, dandruff, or lice. Most of the straight combs advertized in the mail-order catalogs of the 1890s and early 20th century (e.g., SR 1897: 326; SR 1908: 1003; MW 1922: 391) are not distinguished by sex. There are, however, some exceptions, most notably a narrow coarse- and fine-tooth comb identified as a "barber's" or "men's" comb and a coarse-tooth comb with a handle labelled a "princess dressing comb," or "for ladies." None of the straight combs recovered from Lowell, however, can be positively identified as either of these varieties, and are most likely the unisex kind. The fine-tooth combs are not identified in the mail-order catalogs as male or female, but as discussed above it is possible that the name imprinted on them may have denoted gender affiliation.

The porcelain buttons were doubtless used on clothing worn by both sexes, particularly after the advent of the ladies' shirtwaist towards the end of the 19th century. The shirtwaist, essentially a man's shirt adapted to female use, had a collar and cuffs and was buttoned down the front to the waist (Wilcox 1969: 318). Figures 8–21 and 8–22 show the buttons in use on both men's and women's clothing. Studs were also used by both sexes. From the middle of the 18th century they were used as cuff buttons by men, and by the 1830s their use was extended to the front of the shirt (i.e., to function as buttons do today on a shirt front). Around 1860 the separate collar came into everyday use, and a stud was employed to fasten it to the shirt at the front and/or back of the neck (Cunnington, Cunnington, and Beard 1960: 207; e.g., MW 1895: 92). Studs were also used on men's vests as well as on ladies' shirtwaists and collars (see, e.g., Figure 8–3, 4th stud from the right, bottom row), the latter usually being made of porcelain with handpainted designs (Luscomb 1967: 191) or decorated with jewels. It is impossible to distinguish among the different kinds of studs or to which sex they belonged unless they bear some distinctive decoration. None of the porcelain studs excavated from the Lowell backlots are decorated except for a few that have

Figure 8–21. Women sitting on the back steps of a Homestead, Pennsylvania, boardinghouse ca. 1910, showing the use of plain white utilitarian buttons down the front of the shirtwaist dress of the woman to the right in front. (Lewis Hine photograph reproduced from Byington 1910.)

raised concentric rings on the wide base. Rose and Santeford (1985: 98) identify similarly decorated studs recovered from an Arkansas cemetery as cuff studs, but this functional attribution is doubtless a result of the location, relative to the body, where the studs were found within the burial.

Another research topic to which this assemblage lends itself is a look at possible patterns of consumer behavior among the working class residents of these two units. As discussed above, the pattern of artifact distribution does not provide unequivocal evidence for contrasting the material life of the tenement and boardinghouse residents. Except for absolute numbers of artifacts, and differences in spatial distribution, the overall quality of artifacts is very similar between the two households. The emphasis on utilitarian items has already been mentioned, but another, related phenomenon can also be observed. Many of the items excavated from Operations A and B tend to be inexpensive substitutes for more expensive materials. Black glass buttons substitute for jet, plastic and rubber hair ornaments for tortoise shell, paste for diamonds, green glass for emeralds, and porcelain buttons for shell.

The price differences between the real and the imitation item were sometimes dramatic. For instance, the 1895 Montgomery Ward catalog lists "Agate Buttons, White and Colored" at 10 cents per 12 dozen. By contrast, four-hole pearl buttons of the same size sold for 20 cents per dozen. Even the "White Fancy Pearl Agates" (pie-crust borders) were significantly less expensive than the real pearl buttons, retailing at 25 cents per 12 dozen for the same size (MW 1895: 85). The same catalog pictures fancy hair ornaments and offers them in both real and imitation tortoise shell. "Real Shell Side Combs" are advertized at 48 cents per pair, the "Imitation" at 10 cents per pair. Likewise, a pair of "Fancy Top Shell Side Combs" went for 50 cents while a pair of the "Imitation" ones cost only 20 cents (MW 1895: 183). The same pattern can be detected in the Sears Roebuck catalog of 1897.

In conclusion, the material assemblage of artifacts relating to personal clothing and adornment excavated from the tenement and boardinghouse backlots of the Boott Mills probably poses more questions than it answers. Some basic observations can be made contrasting the two households; the yard area of the tenement may have been maintained better than the boardinghouse yard and the tenement families may have spent more money on jewelry. Yet the overwhelming truth about the two assemblages is that they are more alike than different, both emphasizing the practical and inexpensive over the fashionable and precious. The fact that many of the personal effects are associated with women's use and almost none exclusively with men's use probably says more about gender consumer behavior than demographics—the mill girl era was long over when these deposits were laid down, and the census research shows that both units were mixed by the turn of the century (Bond 1987).

In the final analysis, however, the value of this assemblage is as a comparative collection. To accurately address any of the issues discussed above would require an undertaking beyond the scope of this report. Ideally, what is needed is to contrast and compare the assemblage with material from other kinds of households occupied at the end of the 19th century. Only then can we see how the material life of 19th-century mill workers may have been different from that of other classes of people. It is hoped that, with this report, the data for such a comparative analysis is now accessible.

Chapter 9

FAUNAL REMAINS FROM THE BOOTT MILLS BOARDINGHOUSES

by David B. Landon

Introduction

The initial historical research into foodways in the Lowell boardinghouses was designed primarily to provide a comprehensive framework for the interpretation of faunal remains recovered archeologically as part of the Lowell Boott Mills project (Landon 1987). General changes taking place during the 19th century were described to help understand the changing market system within the city of Lowell itself. For the boardinghouses, a basic pattern of food purchase and preparation was outlined, and some basic expectations for boardinghouse diet were formulated. The major emphasis of this research was to look at the various purchasing options of the boardinghouse keepers and to develop a relative price structure for the analysis of the meat purchasing patterns represented by faunal remains.

The major focus of this chapter will be to use this background as an interpretive basis for the examination of the meat purchasing patterns of the boardinghouse keepers. In addition, the spatial distribution of the faunal material recovered as well as its condition will be utilized to gain insight into the conditions of daily life at the boardinghouses. The material recovered during the test excavations will also be included in this discussion. The procedures used for the analysis will be outlined to provide an introduction to a general discussion of the assemblage. The focus will then shift to an examination of modifications to the bones with a particular emphasis on rodent gnawing and butchery. Finally, the emphasis will be on interpreting the purchasing pattern represented by the specific cuts of meat from which the faunal remains were derived. Although the faunal material to be discussed is from a number of different boardinghouse units, the small sample size, the short time period represented, and the similar market options and economic constraints of the units' residents all support the analysis of the material as a single assemblage.

Procedures

In terms of the excavation procedures, all bone from the site was saved, and all the soil excavated was passed through quarter-inch mesh screen. No field conservation was carried out for any of the faunal remains. All material recovered was returned to the archeological research laboratory at Boston University to undergo analysis. The bones that were strong enough were cleaned by dry brushing. All the material was rebagged in clean storage bags and placed in acid-free storage boxes to await analysis.

During the analysis, the entire faunal sample was sorted through three times. The examination and analysis began while the bones were first being numbered. While provenience designations were being inked on the bones (with the exception of the smallest fragments), basic notes were taken about the group of bones from each individual bag, which corresponded to the provenience unit. This first observation of the collection served as an introduction to the range of materials present and the condition of the faunal material. Since this was the only point at which the material was actually physically grouped by provenience, it offered an opportunity for some preliminary observations about the variability by unit in terms of gross preservation and the quantity and quality of materials recovered.

Once the bones were numbered, more intensive sorting and identification began. At this stage, each bone that could be identified as a specific body part was bagged separately with an information card. This was done to allow the collection to be divided by class and body part. Body parts that were difficult to identify to a particular genus and species, such as ribs, vertebrae, and long bone shaft fragments, were bagged together (by provenience) with a single card. Fragments that appeared to lack diagnostic attributes and were difficult to identify as a specific body part were also bagged together by provenience and designated non-identified (NID). The initial information recorded on the cards included the site name, provenience, element, taxon, and symmetry. Identification was based on a variety of written sources (Gustafson and Brown 1979; Olsen 1964, 1968; Schmid 1972; Sisson and Grossman 1953) as well as comparative osteological material provided through the laboratory of the Center for Materials Research in Archaeology and

Ethnography (CMRAE) and Boston University. In addition to the categories already mentioned, the state of epiphyseal fusion, degree of burning, visible rodent or carnivore damage, butchery marks, other modifications, and comments (such as bone mends) were recorded at this point. Five stages of bone burning were defined, based on the fact that bone turns first grey then white as it burns.

Stages Of Bone Burning

Stage 0	unburned
Stage 1	partially grey or black
Stage 2	totally grey or black
Stage 3	totally grey or black and partially white
Stage 4	totally white

Since butchery was considered to be important to the analysis of this faunal assemblage, specific types of butchery marks were defined.

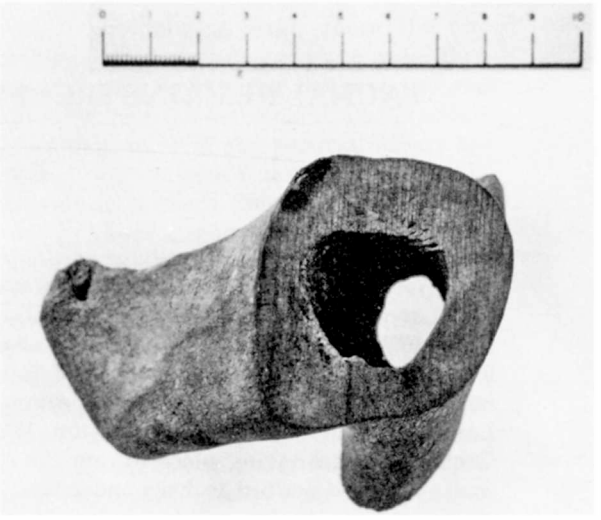


Figure 9-1. Proximal view of a butchered cow humerus showing striations left by a saw.

Butchery Marks

Scrape (SC) a straight mark on the bone that does not significantly gouge the surface

Cut (CT) a straight mark on the bone that gouges the surface

Chop (CH) a cut that removes a section of the bone

Shear (SH) a chop that goes through a portion of the bone leaving a straight edge

Saw (SW) a series of parallel striations caused by a toothed cutting instrument (Figure 9–1)

Several things must be pointed out about the categories of butchery marks. Only a saw definitely implies the use of a different tool, as the other types of butchery marks could conceivably be made with a single tool applied with differential skill or force. Further, taphonomic processes could tend to skew the pattern of butchery marks represented by masking or removing evidence. Decomposition, such as exfoliation, would tend to remove smaller marks from the surface of the bone as it destroyed the lamellar surface. As a result, scrapes might be underrepresented. Additionally, some saw marks might be recorded as shears if the striations are not visible. It is also possible for marks to be left on the bones which appear to be, but are not, butchery marks, such as scars from post–depositional movement or even impact with a trowel during excavation. To the extent that it was possible these factors were taken into consideration. Bones with questionable butchery marks were routinely examined using an American Optical Corporation #569 or Bausch and Lomb low power stereo microscope.

In addition to recording visible butchery marks for all the bone fragments, butchered bones which appeared to represent a particular cut of meat or a particular pattern of butchery were illustrated on line drawings of the major skeletal elements (Figures 9–6, 9–7, 9–8, and 9–9, based loosely on Lyman 1977), and a select few were photographed (Figure 9–10). The line drawings used to record butchered portions of bone were derived from ink tracings of illustrations in atlases and books (Gustafson and Brown 1979; Schmid 1972; Sisson and Grossman 1953, 4th edition). All the photographs illustrated in this report were taken using a Polaroid MP–4 camera. The results of this analysis of butchery will be presented in greater detail during the discussion of the results.

The final stage of the analysis began once the bones had been identified to class and body part and the preliminary taxonomic assignments had taken place. The sample was sorted through for the final time one body part at a time. The individual cards were numbered sequentially to facilitate later entry of the information into a database. All the attributes mentioned so far were recorded by card number (see appended catalogue). A number of other attributes were also recorded. All of the faunal material contained in a single bag was weighed to the

nearest 0.1 g using a Mettler P1000 or Ohaus triple beam balance. Measurements of the bones were also taken at this stage, based on von den Dreisch (1976). There were few complete bones in the sample so applicable measurements of fragments were made whenever possible. Final taxonomic assignments were made and some of the more difficult bones to identify (especially the rodents) were taken to the Museum of Comparative Zoology for comparison with identified specimens. The age of the animals at their time of death based on the state of epiphyseal fusion and (in a single instance) tooth eruption was recorded using information contained in Silver (1963). Probably the most important activity at this stage was the assignment of the bones that could be identified as a specific body part, but not to a particular genus, to size categories. This was especially crucial for the long bone shaft fragments, rib fragments, and vertebral fragments, most of which could not be positively identified. Much of this material was very fragmentary and as a result, assignment to a particular size category was based primarily on the thickness of the cortical bone present as opposed to the fragment's overall size. This is important to point out because the size category assignment is probably biased. Fragmentation of a bone tends to make it smaller. As a result, smaller size categories tend to be overrepresented, while large categories would be underrepresented. Further, it should be remembered that the potential for size variation in a population based on age, sex, or other factors introduces a certain amount of overlap in the size categories. As the sample was almost entirely mammals, the size categories were used exclusively for mammal bones.

Mammalian Size Categories

Size 1 small, rabbit size or smaller

Size 2 small/medium, rabbit size to medium dog

Size 3 medium, medium dog to medium pig

Size 4 medium/large, large pig to small cow

Size 5 large, average cow and larger

The Faunal Assemblage

The total faunal assemblage consisted of 547 fragments weighing 1707.0 grams (Table 9–1). Mammal remains made up over 90% of the sample by fragment count and almost 98% of the sample by weight. Included also were a small number of bird bones, as well as some shell fragments from bivalves and two fish bones. The 286 unidentified mammal and bird bones comprised 52.3% of the sample by fragment count, but only 9.1% of the sample by weight. This demonstrates quite clearly the very small size of most of the bones that were not identified. Identified mammal and bird bones, while comprising only 41.9% of the total number of fragments, made up over 90% of the sample by weight. Though not without certain exceptions, this suggests a relationship between the size of the fragment and how easily it was identified. It could also be suggested that some preservational bias is visible, with the densest bones having survived post-depositional decomposition best and thus being more easily identified.

Table 9–1. Basic quantification of the faunal assemblage from the boardinghouses.

Category	*TNF**	*%*	*Weight (g)*	*%*
Unid. Mammal	274	50.1	146.3	8.6
Ident. Mammal†	222	40.6	1521.8	89.2
Total Mammal	496	90.7	1668.1	97.7
Unidentified Bird	12	2.2	9.2	0.5
Identified	7	1.3	8.1	0.5
Total Bird	19	3.5	17.3	1.0
Unid. Pelecypoda	29	5.3	21.0	1.2
Unid. Pisces	2	0.3	0.5	.‡
Unid. Gastropoda	1	0.2	0.1	.‡
Totals	547	100.0	1707.0	99.9

*TNF is the total number of fragments.
† Identified at least as a body part of a specific size category.
‡ < 0.1%

The identified bones are broken down by taxon or size classification and element in Table 9–2. Several things quickly become clear. To start, only 68 fragments (12.4% of TNF) were actually identified to the genus or probable (cf.) genus level or better. The remaining 160 bone fragments recorded in Table 9–2 were only identified as a particular body part and assigned to a certain size category. In part this can be explained by looking at the last column in Table 9–2, which sums the bone fragments by body part. Of the bones which could be identified as a particular body part, 174 (31.8% of TNF, 76.3% of fragments included in Table 9–2) were either

Table 9-2. Fragment quantification by taxon or size classification and element.

Bone Element	*Bos taurus* domestic cow	*cf.Bos taurus* probable domestic cow	*Sus scofa* domestic pig	*cf.Sus scofa* probable domestic pig	*Ovis/Capra* sheep/goat	*cf.Ovis/Capra* probable sheep/goat	*Gallus gallus* chicken
skull fragment	-	-	-	-	-	-	-
mandible	-	-	-	-	-	-	-
upper teeth	-	-	1L	-	-	-	-
atlas	1	-	-	-	-	-	-
other cerv. vert.	2	-	-	-	-	-	-
thoracic vert.	4	-	-	-	-	-	-
lumbar vert.	-	-	-	-	-	-	-
uncertain vert.	-	-	-	-	-	-	-
scapula	1L	-	-	1L	1L,1R	1R	-
humerus		-	-	-	-	-	-
" shaft	1R	-	1L	-	-	-	-
" distal	1L,1R	-	-	-	-	-	-
radius, proximal	-	-	1L	-	-	-	-
" shaft	-	-	-	-	-	-	-
" distal	1L	-	-	-	-	-	-
ulna	-	-	-	-	-	-	2R
metacarpal	-	-	-	1L,1R	-	-	-
first phalanx	-	-	-	-	-	1	-
middle phalanx	-	-	-	-	-	1R	-
uncertain phalanx	-	-	-	-	-	-	-
innominate	-	-	-	-	-	-	-
illium	1L	-	-	-	-	-	-
femur	-	-	-	-	-	-	-
" shaft	1R	-	-	-	-	-	-
tibia, shaft	-	-	-	-	-	-	-
" distal	-	-	-	-	1L,1R	-	-
fibula, distal	-	-	-	-	-	-	-
tarsals	-	-	2R	-	1L,1R	-	-
metatarsal	-	-	1R	-	-	-	-
rib fragments	-	-	-	-	-	-	-
" dorsal	1R	6R,1L	-	-	-	-	-
" ventral	-	8	-	-	-	-	-
long bone fragments	-	-	-	-	-	-	-
tibiotarsus	-	-	-	-	-	-	1L
coracoid	-	-	-	-	-	-	1L
sternum	-	-	-	-	-	-	1
TOTAL	15	15	6	3	6	3	5

Table 9-2. Fragment quantification by taxon or size classification and element, continued.

Bone Element	*Rattus* sp. & cf. *rattus* & prob. black rat	Size 1 small mammal	Size 2 small/med. mammal	Size 3 medium mammal	Size 4 med./large mammal	Size 5 large mammal	TOTAL
skull fragment	1	-	-	-	-	1	2
mandible	2R,1L	1	-	-	-	-	4
upper teeth	-	-	-	-	-	-	1
atlas	-	-	-	2	-	-	3
other cerv. vert.	-	-	-	-	-	-	3
thoracic vert.	-	-	-	3	1	-	8
lumbar vert.	-	-	-	-	1	1	2
uncertain vert.	-	-	17	8	4	1	30
scapula	-	-	-	2(1L)	1R	-	8
humerus		1L,1R	-	-	-	-	2
" shaft	-	-	-	-	-	-	2
" distal	-	-	-	-	-	-	2
radius, proximal	-	-	-	-	-	-	1
" shaft	-	-	-	1	-	-	1
" distal	-	-	-	-	-	-	1
ulna	-	-	-	-	-	-	2
metacarpal	-	-	-	-	-	-	2
first phalanx	-	-	-	-	-	-	1
middle phalanx	-	-	-	1L	-	-	2
uncertain phalanx	-	-	-	1	-	-	1
innominate	1R	-	-	-	-	-	1
illium	-	-	-	-	-	-	1
femur	3R	-	-	1	-	-	4
" shaft	-	-	-	-	-	-	1
tibia, shaft	-	-	-	1	-	-	1
" distal	2R	-	-	-	1L,1R	-	4
fibula, distal	2R	-	-	-	-	-	2
tarsals	-	-	-	-	-	-	4
metatarsal	-	-	-	-	-	-	1
rib fragments	-	-	1	35(7L,1R)	1L,1R	5(2L)	43
" dorsal	-	-	-	2(1R)	-	-	10
" ventral	-	-	-	-	-	1	9
long bone fragments	-	-	14	33	9	10	66
tibiotarsus	-	-	-	-	-	-	1
coracoid	-	-	-	-	-	-	1
sternum	-	-	-	-	-	-	1
TOTAL	14	1	32	90	18	19	228

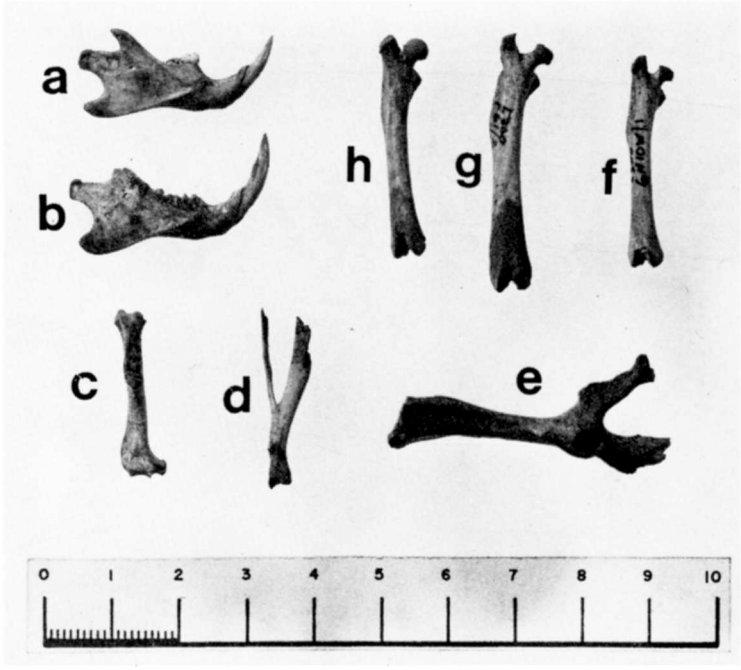


Figure 9-2. Rat bones recovered during excavation at the boardinghouses. a, b) right dentary, c) left humerus, d) right tibia and fibula, e) right innominate, f-h) right femora; a,b,d,and e are probable black rat (*Rattus rattus*).

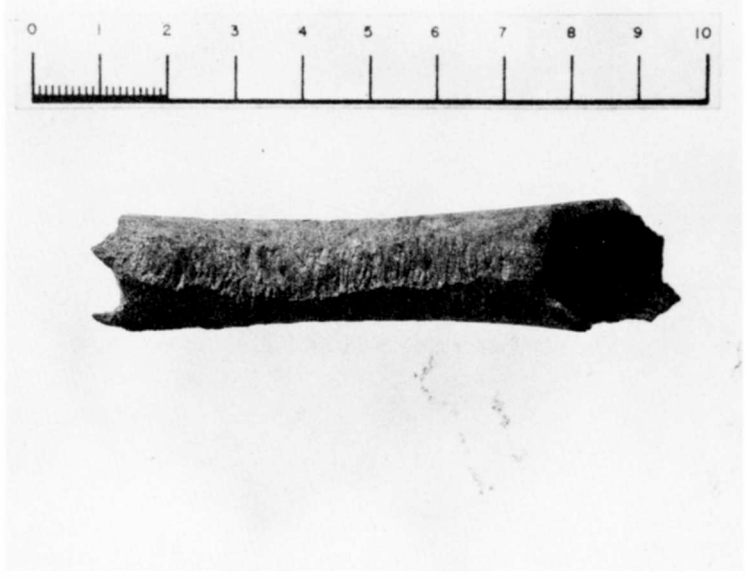


Figure 9-3. Size 3 femur showing extensive rodent gnawing, caudal view.

vertebral, long bone shaft, or rib fragments. These body parts are recognized as being among the most difficult to identify, and some researchers do not even include them in their analysis (Davis 1987: 35). This type of body part distribution adversely impacted the total number of specific identifications which were possible.

Only six species were identified, *Bos taurus, Sus scrofa, Ovis/Capra, Gallus gallus, Melegris gallapavo,* and *Rattus rattus.* With the exception of the rat bones, all of these represent standard domestic animals. The basic pattern of species identified in the assemblage coincides fairly well with historical documentation about the types of meat consumed in the boardinghouses with domestic animals providing the bulk of the meat consumed supplemented by smaller quantities of fish and poultry (Landon 1987).

In terms of the number of bones actually identified for each type of animal, represented by the last row in Table 9–2, differential identifiability seems to have played a large part in the numerical differences visible. Fully 23 of the 30 cow and probable cow bones are rib or vertebral fragments. In this instance, the large size and density of some of these fragments contributed significantly to their survival and identification. The very large number of size 3 rib and vertebral fragments are quite likely dominated by pig and sheep/goat remains which just could not be identified. Similarly, 5 of the 9 pig and probable pig bones are metacarpals, metatarsals or other tarsal bones. In addition to the fact that the pig has a larger number of metapodial bones, these bones are quite dense (i.e., survive well) and are easily identified. As a result, this tends to bias the actual representation of the number of pig and probable pig bones when compared to the other taxa. In a general sense, it is best to look at not just the number of fragments from each taxa, but also at which body parts are represented and the bones included in the different size categories.

Only a very small number of bones gave any clear indication of the age of the animal at the time of death. The small sample size and the lack of any clear patterns make it difficult to formulate any meaningful generalizations. As a result, the ages are reported only in the appended catalogue.

Modifications

As Table 9–2 clearly points out, rat bones (*Rattus* sp. and cf. *rattus*) formed one of the most significant components of the identified fauna in the assemblage (Figure 9–2). It is probably not surprising, therefore, that 79 bones in the sample (14.4% of TNF) had characteristic gnaw marks left by rodents (Figure 9–3). The distribution of bones and bones with rodent gnaw marks by grid square is shown in Figures 9–4 and 9–5. Almost all of the fragments recovered, including the rat bones and the bones with gnaw marks, are concentrated in the various features of the backlots: the privies, ells, drains, wells, and the bulkhead entry to one of the boardinghouse basements. Faunal material is distinctly absent from the open areas of the backlots, suggesting a certain amount of maintenance or refuse disposal in other areas. The single largest concentration of rat bones, as well as rodent–gnawn bones, was just inside of the back wall of one of the units right at the point where a bulkhead entry to the basement went under the unit's exterior wall. Rats were undoubtedly living in the boardinghouses as well as other structures of the backlots and were probably feeding on stored food as well as discarded food refuse.

None of the bones showed any apparent indication of carnivore damage. Only a small number of bones had been burned, and those that were burned were badly burned. In all likelihood the small burned scraps of bone are the result of pieces of bone being tossed into a fire and later deposited in the backlot.

Table 9–3. Quantification of bone burning for the boardinghouses.

Burn Stage	*Number*
1	0
2	0
3	3
4	30
Total	33 (6.0% of TNF)

The single most important type of modification to the bones was that caused by butchery. A total of 95 bones (17.4% of TNF) had some type of butchery mark on them and 25 (4.6% of TNF) had more than one butchery mark. More than three quarters of the butchery marks were either shears or saw marks (see Table 9–4). The large proportion of shear and saw marks probably represent primary butchery, where the major division of the carcass took place before certain cuts of meat were purchased for consumption in the boardinghouses.

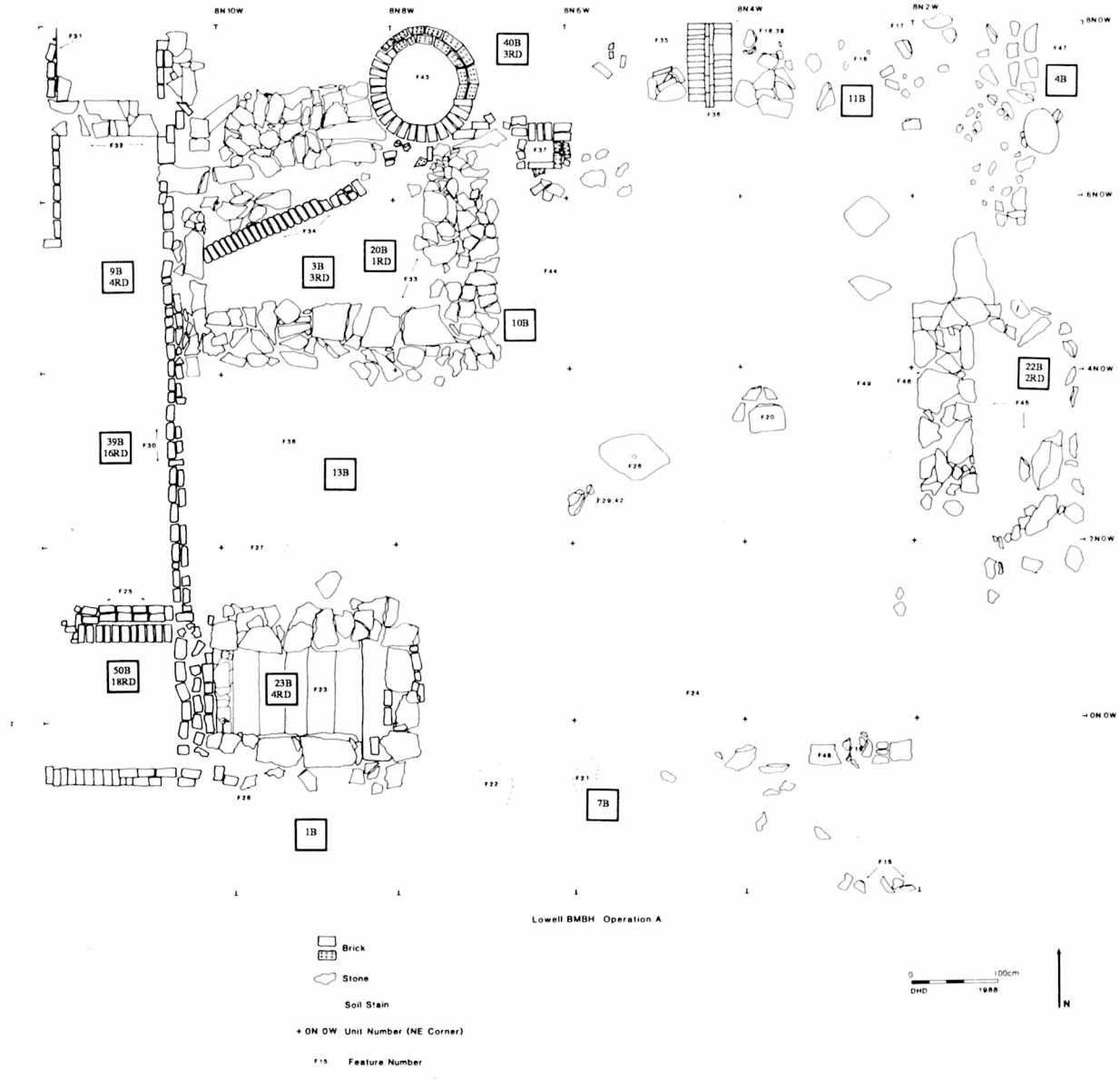


Figure 9-4. Plan of Operation A showing distribution of bone fragments and bones with rodent damage. B-bone fragments, RD-rodent damage.

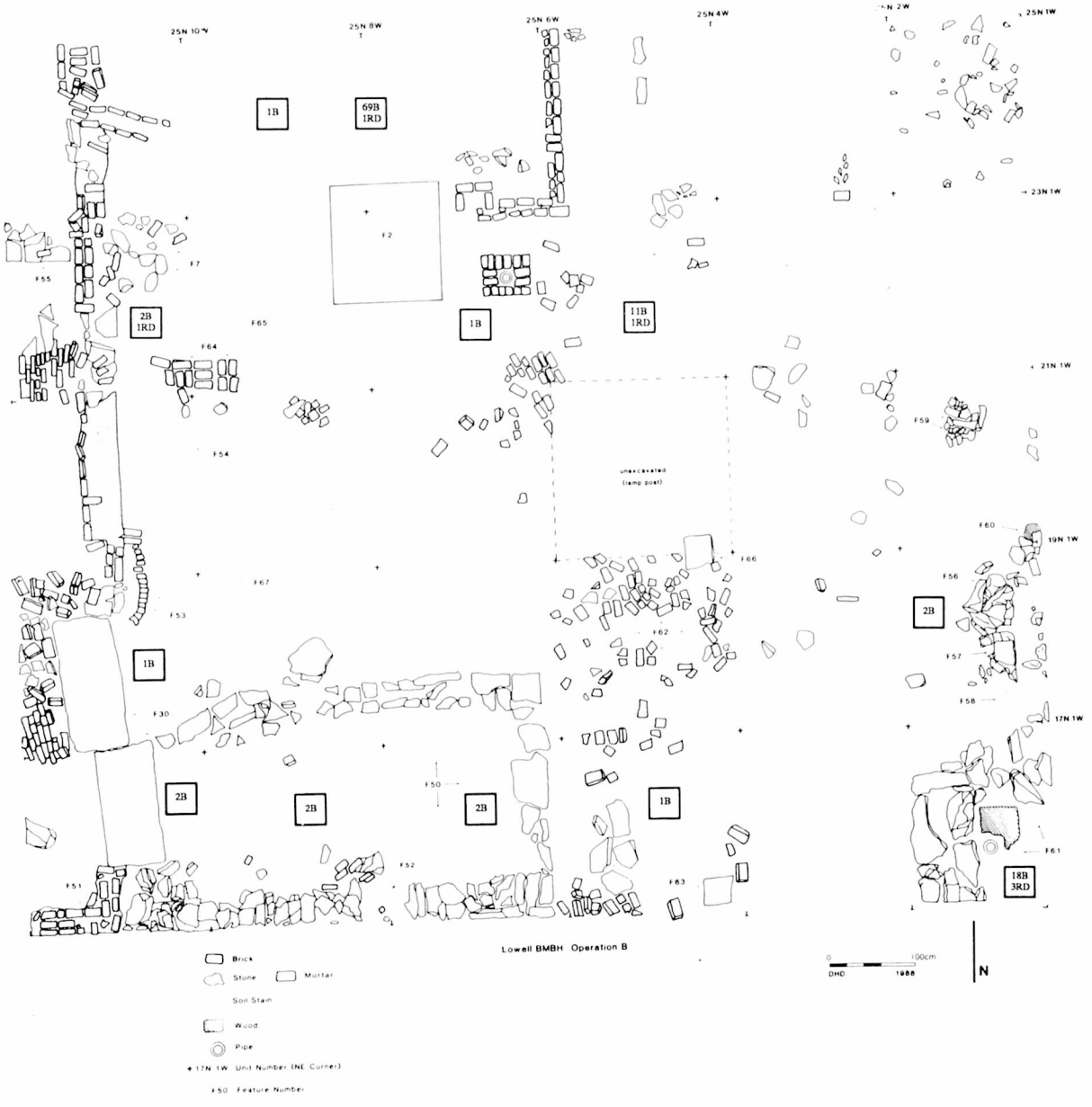


Figure 9-5. Plan of Operation B showing distribution of bone fragments and bones with rodent damage. B-bone fragments, RD-rodent damage.

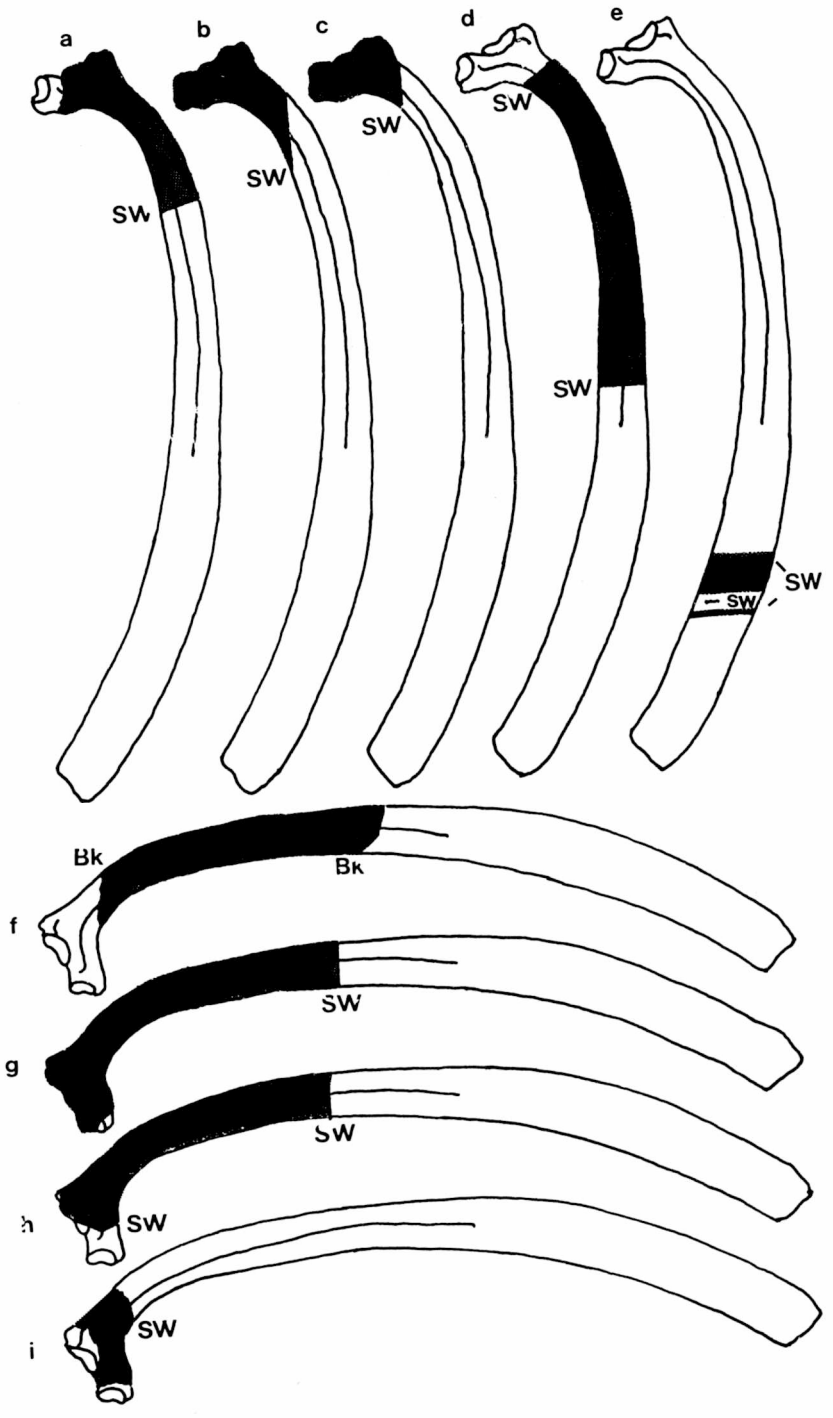


Figure 9-6. Butchered sections of *Bos taurus* and size 5 ribs from the boardinghouses. All views shown are of right ribs, medial view. Shaded areas represent the portion present. SW-saw, BK-break

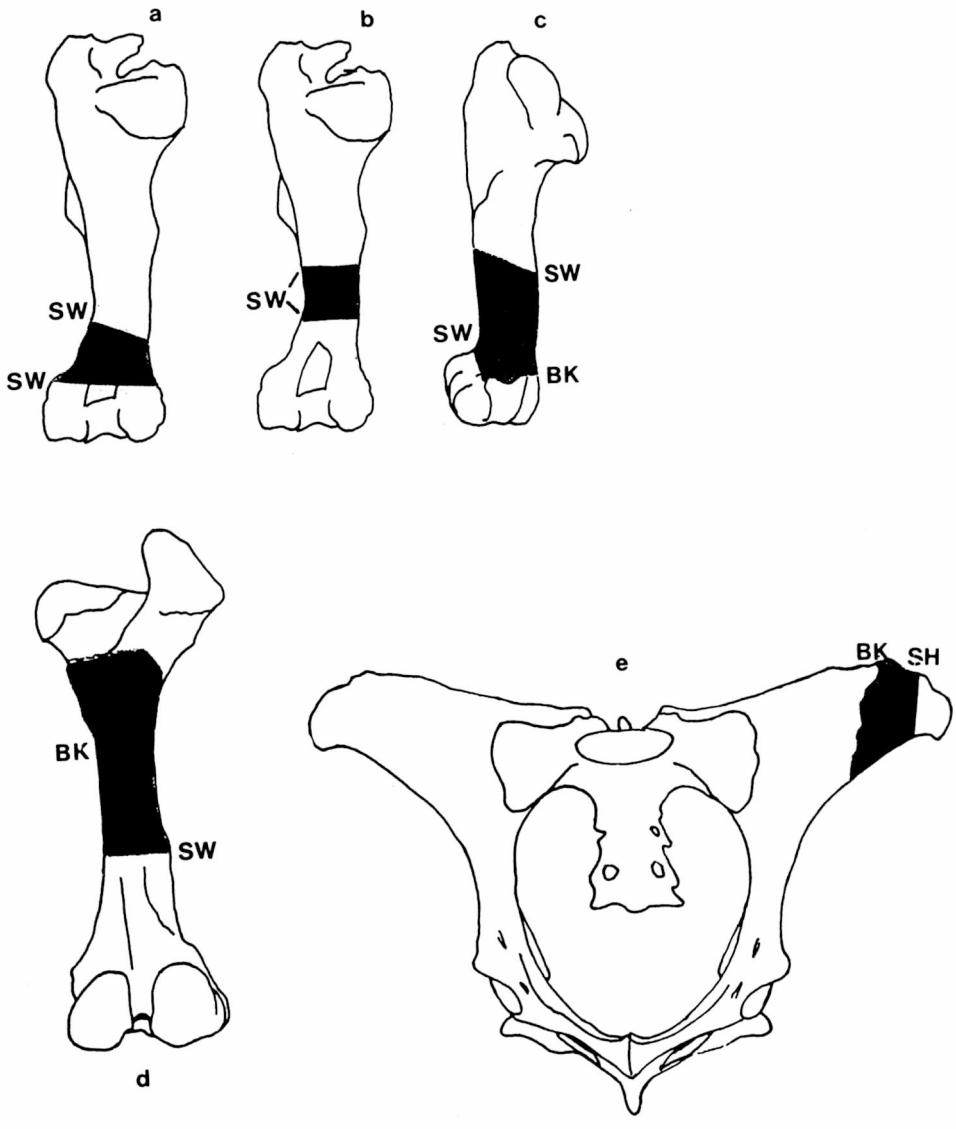


Figure 9-7. Butchered sections of *Bos taurus* bones from the Boardinghouses. Shaded areas represent the portion present. SW-saw, BK-break, Sh-shear. Not to scale. a, b) Left humerus, volar view. c) Left humerus, lateral view. d) Right femur, plantar view. e) Pelvis and sacrum, slightly ventral cranial view. Additional cut and chop on caudal side.

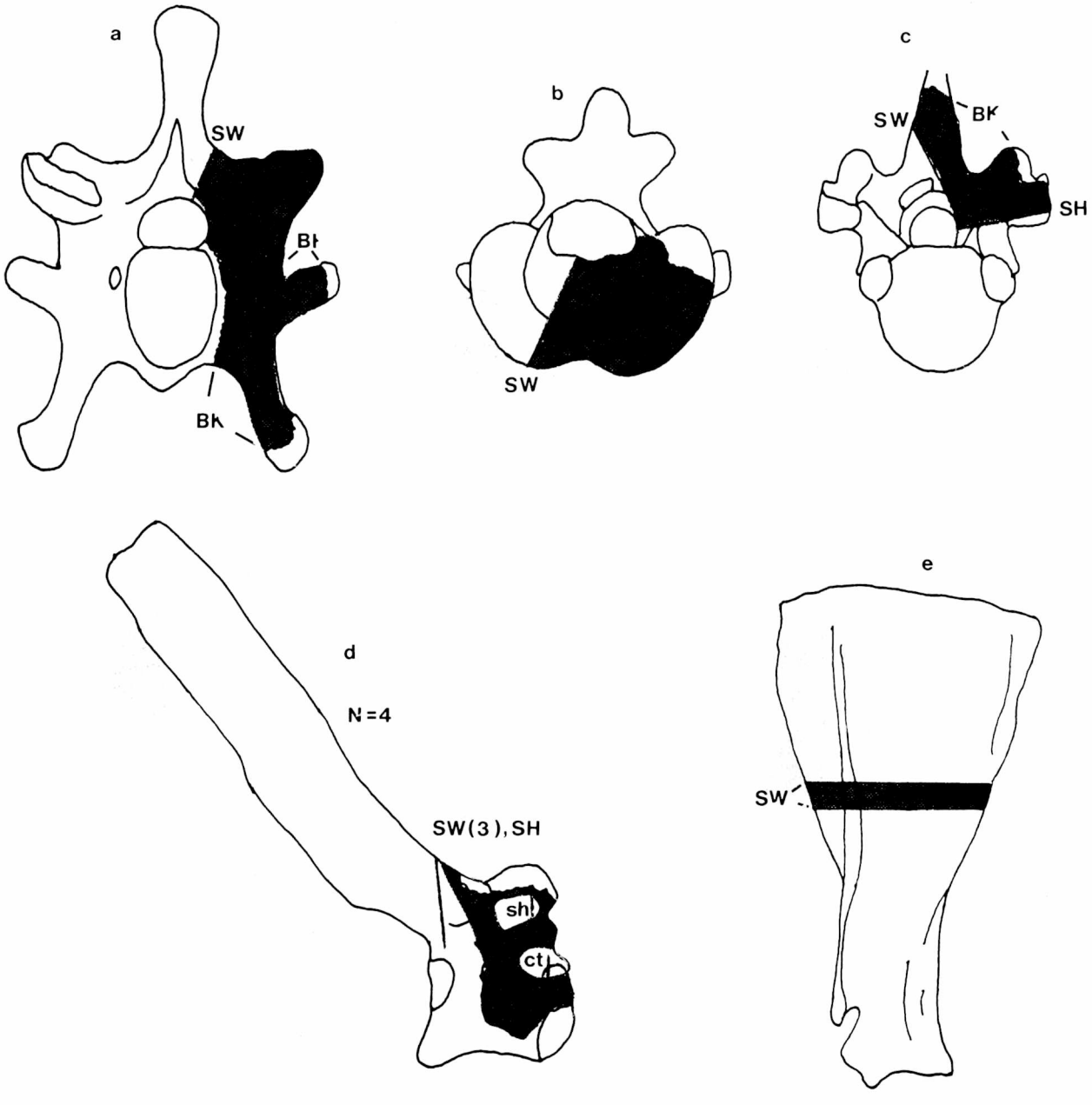


Figure 9-8. Butchered sections of *Bos taurus* and cf. *Bos taurus* bones from the Boardinghouses. Shaded areas represent the portion present. SW-saw, SH- shear, CT-cut, BK-break. Not to scale. a) Cervical vertebra, caudal view. b) Atlas, cranial view. c) Thoracic vertebra, cranial view. d) Thoracic vertebra, right lateral view. e) Left scapula, lateral view.

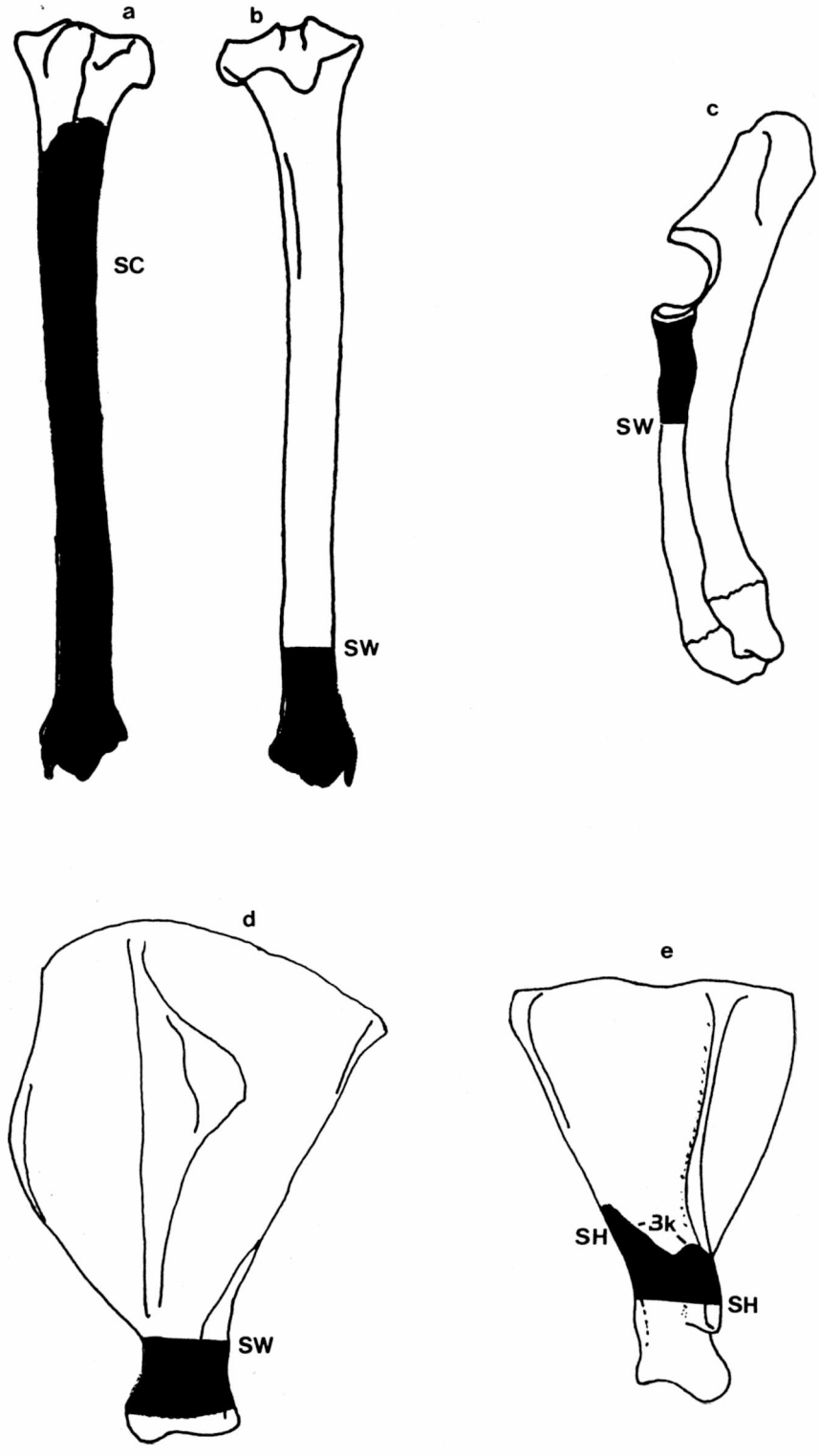


Figure 9-9. Butchered sections of *Sus scrofa* and *Ovis/Capra* bones from the boardinghouses. Shaded areas represent the portion present. SW-saw, SC-scrape, SH-shear, BK-break. Unlabelled jagged lines represent breaks. Not to scale. a) *Ovis/Capra,* left tibia, dorsal view. b) *Ovis/Capra,* left tibia, plantar view. c) *Sus scrofa,* left radius and ulna, lateral view. d) cf. *Sus scrofa,* left scapula, lateral view. e) *Ovis/Capra,* right scapula, lateral view.

Table 9–4. Quantification of butchery marks on the boardinghouse bones.

Type of Mark	*Number**	*%*
Scrape (SC)	10	7.8
Cut (CT)	14	10.8
Chop (CH)	1	0.8
Shears (SH)	57	44.2
Saw Marks (SW)	47	36.4
Total	129	100.0

*Multiple butchery marks on a single bone were all recorded; only 95 bones (17.4% of TNF) actually had butchery marks. Seventeen bones had two butchery marks, seven had three butchery marks, and one had four butchery marks.

The major purpose behind the concern with recording butchery marks and butchered portions of bone was to be able to make correlations between the faunal elements represented in the collection and specific cuts of meat. In addition to recording individual marks, some fragments which seemed to have been butchered in a particular fashion were recorded on line drawings of different skeletal elements (Figures 9–6, 9–7, 9–8, and 9–9). The small sample size makes it difficult to formulate any generalizations about butchery or specific cuts of meat, but certain features can be noted (see Lyman 1979 for comparison of butchery patterns). In Figure 9–6, three functionally different manners of butchering the ribs seem apparent. Figure 9–6g and h both include a significant portion of the body of the rib with the head, Figure 9–6b, c, d, and i all show a more dorsal separation of the body of the rib from the head, and Figure 9–6a, e, and f all show different manners of apportioning the rib body. The three humeri shown in Figure 9–7a, b, and c, all show different ways of dividing the humerus. In this figure, c and d both suggest the scale of the boardinghouse food preparation, as each derives from large roasts from the major limb bones.

For the vertebrae represented in Figure 9–8a, b, and c were all butchered in a slightly angled dorsal–ventral manner, apparently to split the vertebra. The single most common type of patterned butchery was recorded for four thoracic vertebrae and is represented by Figure 9–8d. In this case, a dorsal–ventral pattern of butchery perpendicular to the vertebral column seems to have been utilized to separate the dorsal spine from the body of the vertebra. Finally, Figure 9–9c and d are potentially related butchery marks, as they would respectively be the most proximal and distal divisions of a pig carcass around a shoulder cut. Interestingly, Figure 9–9d and e both show a similar cut of the scapula across the neck above the glenoid even though one example is from a pig and the other a caprid. While these observations are based on a very small sample, they do offer some insight into butchery practices and seem to be indicative of relatively regularized butchery patterns.

Interpretation

The small size of this faunal sample makes generalizations difficult to make and justify. In terms of the overall dietary pattern at the boardinghouses it offers no real conclusive evidence. Domestic mammals seem to have provided the bulk of meat, with almost negligible quantities of fowl, fish or other seafood represented. This probably relates not just to dietary patterns, but also to the survival of faunal material as well as the sampling procedures. In all likelihood microfauna would be recovered more extensively if flotation samples were analyzed, and this might increase the quantity of fish and other small animal bones. It is also possible that the excavation emphasis on horizontal expansion introduced sullegic biases, perhaps missing richer faunal deposits buried, purposely or otherwise, further beneath the surface. The small sample size is probably partially a result of the fact that trash was collected from the boardinghouses. It remains unclear what disposal decisions resulted in the deposition of this material on the site or how this might have biased the composition of the sample.

One potentially informative avenue of interpretation is to try to examine the fauna that was recovered in terms of the purchasing patterns of meat by correlating specific elements with cuts of meat of documented price. This has been attempted by a number of different historical archeologists in different fashions and with varying degrees of success (Henn 1985; Lyman 1987; Schulz and Gust 1983). Schulz and Gust (1983) compared the economic rank (based on the cost per pound) of beef cuts represented at a number of different commercial and institutional establishments in Sacramento, California. The major thrust of this study was to correlate faunal remains with socio–economic status. As Lyman has pointed out, the concept of socio–economic status they were using was ambiguous and of questionable utility (1987: 59). Further, Lyman suggested that in addition to focusing more explicitly on income level (as opposed to socio–economic status), a

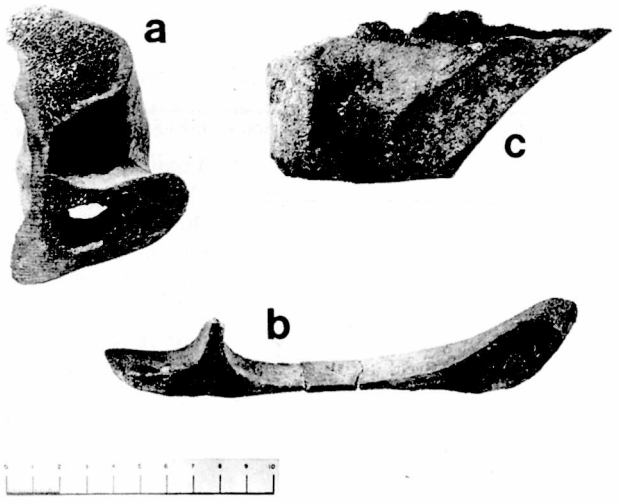


Figure 9-10. Butchered portions of cow bones. a. left humerus, distal view. b. left scapula, distal view. c. left illium, caudal view (rotated 90° counterclockwise). See also Figure 9-7a, e and Figure 9-8e.

better measure of the "value" of a cut of meat would be the cost–efficiency, or edible meat yield per unit of money expended, which does not necessarily correlate with the "value" of a cut as represented by the cost (1987: 62). This seems to be a legitimate suggestion, though not without inherent problems. The interpretation of cost–efficiency makes the implicit assumption that the bones present in a sample were once purchased with a given quantity of meat attached to them, an assumption that is never really addressed.

On a slightly broader level of criticism, both Lyman and Schulz and Gust are misguided to think that there is necessarily a correlation between either socio–economic status or income and the purchase of cuts of meat of a particular price or cost–efficiency. To start with relative economic rank, it must be recognized that price (on which rank is based) is a function of aggregate demand and supply. As a result, there is no reason to believe that an individual making purchases of meat necessarily values the same cuts in the same manner. A large number of other factors besides income could strongly influence purchases including ethnicity and personal preference. Similarly, income is not necessarily correlated with the cost–efficiency of meat purchased, especially if it is defined solely on the basis of meat yield per unit of money spent. For example, a small household might make less "cost–efficient" purchases of meat in order to obtain smaller portions, or perhaps even for ease of preparation. In order to avoid some of these problems it is necessary to think of meat purchases in a slightly broader framework. The market provides a range of potential opportunities for purchases of different prices. Within this framework, individuals make their purchases based on their own value system and the constraints imposed by their income. In a sense the focus should be on looking at purchasing patterns with the realization that income is one of many possible factors that could influence the pattern represented.

With the caveats mentioned above in mind, the cuts of meat represented, their economic rank, and possible cost–efficiency are summarized in Table 9–5. Since none of the cuts are represented by a very large number of identified specimens, it seemed unnecessary to try to quantify them by minimum numbers, as some authors have suggested (e.g., Lyman 1987).

Several problems with this must be pointed out. Identifiability has a very large impact on the potential for interpretation. For example, the thoracic vertebrae and the dorsal ribs could come from either the relatively expensive and cost–inefficient rib cut or from the less expensive more cost efficient chuck cut depending on their specific position in the carcass, something very difficult to determine. In addition, the large quantity of long bone shaft fragments, rib fragments, and other bones identified only to a size category would very likely change the results if they were completely identified. Some of the size 3 rib fragments could easily be the remains of mutton chops, the most expensive cut. These problems must be kept in mind as the cuts that were identified are discussed in more detail.

The initial historical research on boardinghouse foodways suggested that the need for economization in food purchases strongly influenced the purchasing patterns of the boardinghouse keepers (Landon 1987). The

Table 9–5. Meat cuts represented,* economic rank,† and cost–efficiency rank‡ for the boardinghouse bones.

Body Part	*Cut*	*NISP*	*Economic Rank*	*Cost–Efficiency Rank*
Beef§				
cranium	head?	1	9	**††
atlas, cervical vertebrae	neck	3	8	**
thoracic vertebrae	chuck/ rib	4	5/2	3/7
lumbar vertebrae	short loin	1	1	8
scapula	chuck	1	5	3
humerus	arm	3	6	5
distal radius	foreshank	1	9	6
illium	sirloin	1	2	9
femur shaft	round	1	3	4
dorsal rib	chuck/rib	8	5/2	3/7
ventral rib	short/cross rib	9††	6	1
Pork‡‡				
tooth	head?	1	? (9)	**
humerus, scapula, radius	shoulder	3	7	**
tarsals, metapodials	feet	5	9	**
Mutton§§				
scapula	forequarter	3	3	**
tibia	leg	2	2	**
phalanx, tarsal	foot/shank	4	? low	**

*Sources: Landon 1987; Lyman 1987; Schulz and Gust 1983.

†Economic rank reflects the cost per pound as compared to other cuts of the same type of meat, with 1 being the highest. Based on Landon 1987 and Schulz and Gust 1983.

‡cost–efficiency rank is based on the amount of meat yield for different cuts based on spending the same amount of money, with 1 being the highest. Derived from information in Lyman 1987.

§Includes fragments identified as *Bos taurus*, cf. *Bos taurus*, and Size Category 5.

††8 of these fragments are very small, pointing out one problem with using NISP.

**Since cost–efficiency is meat yield per unit of expenditure the beef cuts without cost–efficiency ranks can be thought of as follows: head – low yield, low cost and neck – moderate yield, low cost. No cost–efficiency ranks are avaiable for pork cuts. Since cost–efficiency is meat yield per unit of expenditure the pork cuts can be thought of as follows: head and feet – low yield, low cost and shoulder – high yield, moderately low cost. No cost–efficiency ranks are available for mutton cuts. Since cost–efficiency is meat yield per unit of expenditure the mutton cuts can be thought of as follows: forequarter – moderately high yield, moderately low cost; leg – high yield, moderately high cost; and foot/shank – low yield, low cost.

‡‡Includes fragments identified as *Sus scrofa* and cf. *Sus scrofa*.

§§Includes fragments identified as *Ovis/Capra* and cf. *Ovis/Capra*.

livelihood of the keeper depended on meeting expenses with the board fees which were paid, and any residual was the keeper's profit. This would provide a reasonably strong incentive to economize in the purchase of food, including meat. At the same time, there was a certain pressure from the boarders to provide acceptable fare. Historical accounts seem to indicate that the quality of the food was not so much at issue as the quantity (Landon 1987). Taken together these features would suggest that meat purchases should be dominated by medium or lower price cuts that are medium to highly cost–efficient.

A number of the cuts do seem to fit into this pattern. Relatively inexpensive and very cost–efficient cuts are represented by the short/cross rib of beef and probably by the mutton forequarter and pork shoulder as well. There are also a number of middle price range cuts that are of medium cost–efficiency, such as the beef chuck, arm, and round. Leg of mutton would probably also fall into this category as it is a high–yield cut of relatively moderate price. At the same time, however, the pattern of cuts represented actually seems to be considerably more eclectic and varied than might be anticipated from the constraints described above. For example, relatively expensive and cost–inefficient cuts are represented by the beef short loin, sirloin, and possibly the rib cut. At the other end of the spectrum, some relatively cheap cuts of uncertain or moderately low cost–efficiency are also present, such as the pig and sheep feet, beef neck and foreshank, and head of beef and pig.

The sample is quite small and analysis of more faunal material would unquestionably help in the formulation of a better view of purchasing patterns. It is also important to realize that the relationship between the actual meat purchasing pattern and the pattern of faunal remains recovered is very tenuous as there are a large number of factors that could cause a great deal of variation between these two patterns. Nonetheless, it does seem clear that the factors that influenced the meat purchasing pattern which resulted in these remains are more complex and multifaceted than simply the relative cost or cost–efficiency of particular cuts. A variety of factors might have influenced the purchasing patterns of the boardinghouse keeper and it is even possible that the boarders themselves might have had a significant say in the choice of foods, a situation that has been documented for some other boarding operations (Byington 1910: 139).

Conclusions

Analysis of this faunal assemblage from the Boott Mill's boardinghouses offers interesting insight into several issues. The presence of a large number of rat bones and a large number of bones with evident rodent gnaw marks adds some texture to the understanding of living conditions in the boardinghouses. The bulk of the meat diet was derived from domestic animals and generally coincides with historical documentation of boardinghouse diet. By looking at the pattern of cuts of meat represented, it becomes clear that a variety of different cuts were being purchased, and that they displayed a great deal of variation in their relative price and cost–efficiency. This is informative because it suggests some of the complexity that went into decisions about food purchase and food preparation in the boardinghouses even within a context supplying strong pressures for economization. Further, it suggests that a worthwhile area for more research would be to define in greater detail the factors other than economic constraint that influence food purchasing decisions of people in 19th–century Lowell.

Chapter 10

DESCRIPTIVE ANALYSIS OF TOBACCO-RELATED MATERIAL FROM THE BOOTT MILLS BOARDINGHOUSES

by Lauren J. Cook

Introduction

In the discussion that follows, the clay pipe fragments are divided into four categories: stem fragments; mouthpieces; bowls and bowl fragments; and heels. When the materials from Operations A and B were compared, no patterned differences could be discerned between them, except that there was much more material from Operation B. Expected differences were in the age of the material (as represented by the use of the country name rather than the city name), in the percentage of stem fragments with makers' marks, and in the percentages of different mouthpiece treatments between the two operations. Chi-square statistics performed in these three areas indicated that there was no significant difference between the two operations. Therefore, to avoid needless repetition, the collection is described here as a unit. Where applicable, contexts of particularly significant objects are given.

This chapter presents archeological information on the boardinghouse tobacco-related material as well as limited discussion of its contribution to the archeology of the site. The social implications of the material are discussed in Chapter 11.

Nomenclature follows standard practices among tobacco pipe researchers. Figure 10–1 illustrates the location of pipe features that are discussed in the text. The plastic stems are described using terms found in modern tobacconists' literature (Weber 1965: 100–104). In all cases, the orientation of all pipe components is considered to be as if they were on a pipe in the reader's mouth. For example, the left side of the pipe would be on the smoker's left, etc. (Figure 10–1 shows the left side of a hypothetical pipe).

Stems (183)

Unmarked stems (88)

Eighty-eight unmarked stem fragments were recovered during excavations at the boardinghouses. This number does not include unmarked mouthpiece fragments, which are discussed separately below.

Marked Stems (95)

Thomas Davidson, Jr., and Company [1863–1910] (3)

Three stem fragments marked DAVIDSON/ GLASGOW were recovered—one from Trench 2 and two from Operation B (Figure 10–2). These pipes were apparently manufactured by Thomas Davidson, Jr., and Company, a Glasgow firm that was in operation between 1863 and 1910 (Walker 1977: 1010–1011). The fact that all three of the Davidson stems in the Boott Mills collection are impressed GLASGOW indicates that Davidson pipes were reaching Lowell before 1891, but not after that date. One of the fragments bears the stamped mold number "345," which corresponds to the "Light T.D." in Davidson's line of pipe models (ATPM 1900: 43).

Duncan McDougall and Company [1847–1968] (51)

Four pipe stems marked MCDOUGALL/ GLASGOW were recovered, all from Trench 2 and Operation B. One example, with embossed cartouches around the names of the company and city, bore a mold number, either "11" or "111." On the basis of the list from the 1870s, this pipe would be either an "H. C. African" or a "Small Fairy" (McDougall and Co., n.d.; Figure 10–3).

Forty-three examples marked MCDOUGALL/ SCOTLAND are present in the collection. The latter stems were recovered from contexts across the site, and assisted in dating the features in which they were found to post–1891.Three stem fragments could be attributed to the company, but whether they bore the name of the city or the country could not be determined. Mold numbers on the McDougall stems included "326," which was listed in 1900 as a "Thin T.D." (ATPM 1900: 14). The McDougall firm survived into the late 1960s and was the last of the major Glasgow pipe manufacturers to go out of business.

William White and Son [1805–1955] (12)

Eight examples marked W. WHITE/GLASGOW are present in the collection. Mold numbers on these examples include "T78" (Figure 10–4) and

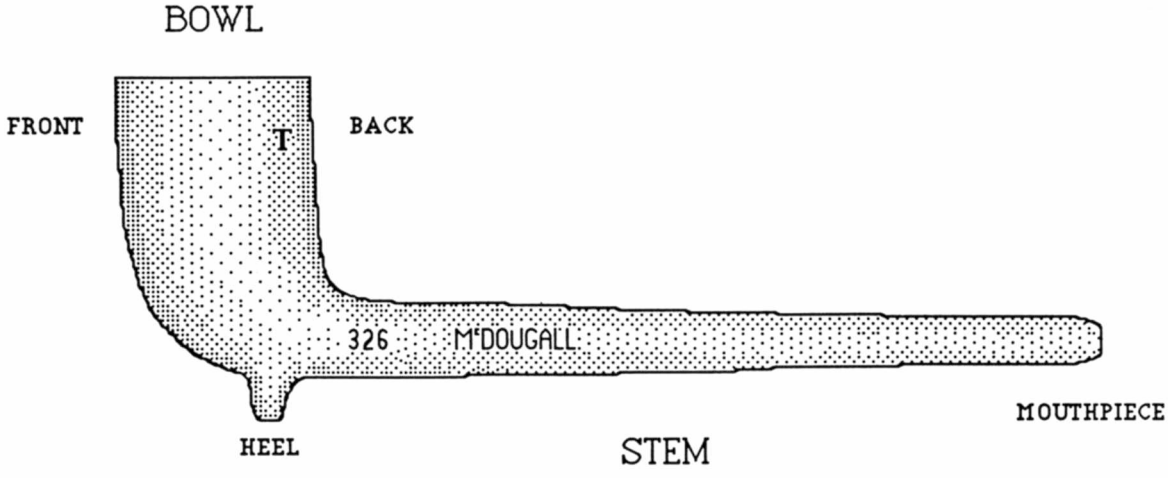
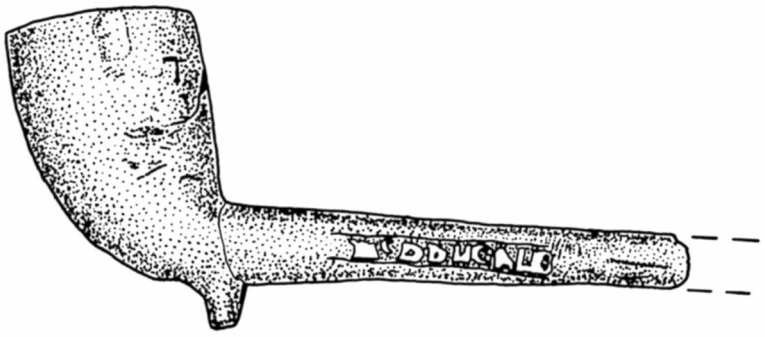


Figure 10-1. The parts of a pipe.

Figure 10-2. "Davidson/Glasgow" pipestem fragment. Made by Thomas Davidson & Co., Glasgow, 1863-1891.



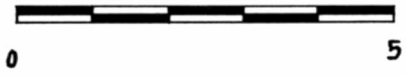


Figure 10-3. McDougall/Scotland pipe. Made by McDougall & Co., Glasgow.

Figure 10–4. "W. White/Glasgow" pipestem fragment. Made byWilliam White & Son, Glasgow, 1805-1891.

"78W." Both of these are apparently variations of mold number "78," which was described in 1900 as a "Small Plain T.D." (ATPM 1900: 19). In all cases the numbers are apparently embossed. One barely legible example with the mold number "78" has a portion of the bowl intact. The back of the bowl has the initials "TD" impressed within raised circles. This particular pipe had been subject to such heavy use that the lettering was so worn as to be barely legible, and the mouthpiece, a broken surface only 5.6 cm. from the back of the bowl, shows very heavy tooth-wear (Figure 10–5). Several of the White/Glasgow fragments in the collection, with the mold number "T78" also have embossed numbers on the heels. One example reads "1"/"G," and the other "1"/"9."

Three stem fragments marked W. WHITE/ SCOTLAND were also recovered. One of these bears the mold number "T78," indicating that this pipe model was in production both before and after 1891.

One stem fragment is attributable to the company, but the name of the city or country is missing. This fragment also is embossed with the mold number "T78."

John Waldie and Company [1870–1929] (1)

A single fragment, marked "...DIE & CO."/ "GLA[SGOW]" was recovered from Operation B. The names of company and city are bordered by cartouches, with lozenges at the ends (Figure 10–6). The only known Glasgow pipe maker whose surname ended in the letters DIE was John Waldie (Walker 1977: 1029–1030).

GLASGOW stem fragments (2)

Two fragments with the manufacturer's name missing, but with all or part of the word GLASGOW were present in the collection. In both cases, the stem may originally have had the maker's name on it. No mold numbers were present that might have permitted even a provisional attribution of these stem fragments to a particular manufacturer.

SCOTLAND stem fragments (8)

Seven stem fragments had the name of their country of manufacture—Scotland—on their right sides, but had the name of the maker broken off or missing. Two of these bore the mold number "326." Although by 1900 most of the Scottish pipe makers manufactured models with this number, the evidence of the marked pipes from this collection indicates that these two examples were probably made by Duncan McDougall and Company (see above), whose model 326 was a "Thin T.D." (ATPM 1900: 14).

One example was marked SCOTLAND, but with an illegible maker's mark or mold number on the left side. The fact that the former was impressed and the latter apparently embossed indicates that the illegible portion was probably a mold number.

Stem fragments with mold numbers (12)

A total of 12 stem fragments bore what appeared to be mold numbers, without the name of the maker or the place of manufacture. Eight of these were marked "326" (two embossed, six stamped or impressed). As mentioned above, these are most likely to be McDougall's "Thin T.D." (ATPM 1900: 14).

Two fragments were embossed with variations of "78" (one "T78," one "78S"). These are apparently variations on William White's "Small Plain T.D." (ATPM 1900: 19).

One stem fragment bore the impressed number "111" on its left side, with the beginnings of a "rope frame" immediately to its left. Similar frames were used by the major Scottish pipe makers as decorative borders for their names and the names of the cities in which they were located (cf. Gallagher 1987: fig.12:2, 13:6; Gallagher and Price 1987: fig.1).

German stem fragments (3)

Three pipe stems marked with all or part of the country name GERMANY were recovered. Two of these (T2/9d and 21N 0W/1) had the name impressed, probably imparted by the mold with which they were made (Figure 10–7), while the third (19N 2W/1) had the name embossed in serif letters. In each case, the country name was on the left side of the stem, and none of the examples exhibited the maker's name. One example (T2/9d) had a small portion of the bowl left, with a cylindrical, peglike heel. The fact that the country name is present, and in English at that, indicates that these pipes were made after 1891, for the export market.

Dutch stem fragment (1)

One stem fragment (T2b/9c) bore the embossed lettering, GOUDA/HOLLAND, in serif letters (Figure 10–8). Again, as with the German stems mentioned above, the fact that the country name is present in English indicates that

Figure 10-5. William White & Son "Small Plain T.D." pipe fragment. This badly worn example bears the mold number "78," and was smoked after the stem was broken off.

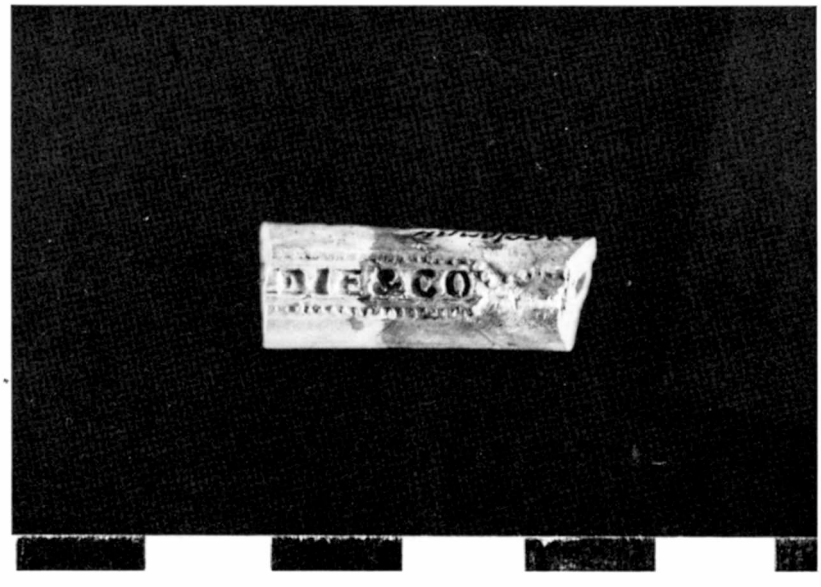


Figure 10-6. John Waldie & Co. pipestem fragment, made in Glasgow, 1870-1891.

Figure 10-7. German pipestem fragment, post-1891.

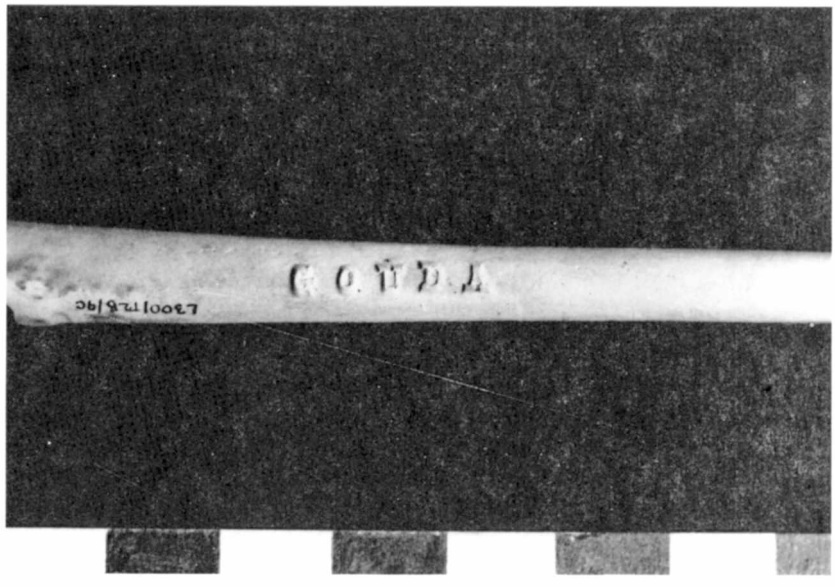


Figure 10-8. "Gouda/Holland" pipestem fragment, post-1891.

this pipe was made after 1891 for the export trade.

Boston stem fragment (1)

One embossed stem fragment reading "S.T.& C."/"BOSTON" was recovered from T4E/4 (Figure 10–9). This is apparently not a maker's mark, as no maker with those initials is either documented in the city directories or other sources (Calver 1950: 289; Sudbury 1979: 165–166). Rather, the mark was apparently that of Stephen Tilton and Company, wholesale tobacconists, who did business in Boston between 1840 and 1904 (Boston City Directories). Tilton apparently commissioned pipes with the name of his company on them. McDougall of Glasgow, for example, offered "pipes stamped with name on bowl or stem 2d per gross extra"—presumably the name of the person ordering them (McDougall and Company n.d.). In the case of the Tilton stem fragment, the source was probably closer to home. The decorative border around the lettering—three hollow circles, connected by lines along the top and bottom—resembles borders on pipes made by Bannerman and Company of Montreal (e.g., Sudbury 1980a: 8). Bannerman made pipes in Montreal between 1858 and 1907, and operated an American factory, at Rouse's Point, New York, between 1875 and 1884 (ibid.: 4–5). The Rouse's Point factory apparently enabled Bannerman to avoid paying duty on the products of his Montreal factory.

The Tilton stem fragment was clearly made between 1840 and 1904—the documented timespan of Tilton's company. The stem's extremely large bore diameter—6/64"—is of no use in narrowing this date, as stem bores of various sizes were in use at any given time (Harrington 1954). If the pipe was made by Bannerman, it would have to have been made after 1858. Although it is tempting to point to the quality of the lettering as indicating an early date, the lettering on the post 1891 GOUDA/HOLLAND example described above is at least as skillfully executed. Although a close date for the stem fragment is not forthcoming, its presence indicates that Tilton's wares, presumably tobacco as well as pipes, were traded to Lowell from Boston.

Geometrically embossed stem fragment (1)

An interesting embossed stem fragment was recovered from 2N 8W/3. The fragment, several centimeters long, is decorated with a geometric pattern consisting of alternating rows of one and two dots, separated into horizontal registers by embossed rings. At one end, the geometric design is replaced by horizontal ribbing, indicating that this example had a bowl that was at least partially ribbed (Figure 10–10). Such geometric designs are reminiscent of the decorated stems of the French pipemaker Peter Dorni, although no exact parallels to this design are present either among Dorni's work, or that of his many imitators (Cf. Omwake 1965: fig.1e,f; Reid 1976: fig.6:S1). A similar, but not identical example was excavated from the site of a military barracks at Port Arthur, Tasmania (Jack 1986: fig.5g).

Other marked stems (5)

One stem fragment is marked with "S..." on the right side, so far forward that it is practically on the bowl. The lettering is embossed, and is too far forward to be part of the country name (i.e., "Scotland")...The other four marked stems are completely illegible through various combinations of poor marking, worn markings, and breakage.

Mouthpieces (48)

Forty-eight mouthpiece fragments are present in the collection.[1] These were catalogued according to a classification scheme proposed by Michael A. Pfeiffer (1978: Fig. Pi–1; 1982: 124–125) after Cal Richie, modified of course to suit the requirements of the present sample. Three of the types defined by Pfeiffer are present in the Boott Mills Boardinghouse collection; tapered mouthpieces (Figure 10–11); flat mouthpieces, on which the end appears rectilinear when viewed from the side; lipped mouthpieces, which have a lip on the end, enabling a better grip with the teeth (Figure 10–12). Two mouthpiece types that are not encompassed by Pfeiffer's typology are present in the collection. The first of these (represented by only one example) is a lipped mouthpiece that has been flattened laterally in front of the lip, ensuring that the pipe will face upwards when the stem is gripped between the teeth. The second type consists of "broken" mouthpieces, where a portion of the stem has been broken off, and the remaining portion used as a mouthpiece. Unlike the other types, broken

[1] Five of these mouthpieces contain other more important elements, such as bowls or maker's marks, and are discussed at length and are counted elsewhere in this chapter under those elements.

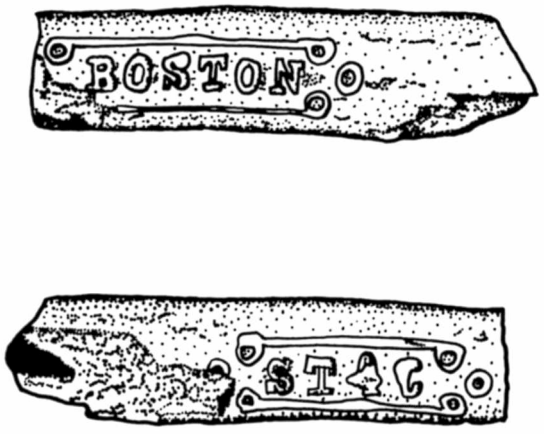


Figure 10-9. "S.T.&C./Boston" pipestem fragment, apparently produced for Stephen Tilton & Co. of Boston, wholesale tobacconists, 1840-1904. Not to scale. (Drawing by Lauren J. Cook.)

Figure 10-10. Geometrically embossed pipestem fragment.

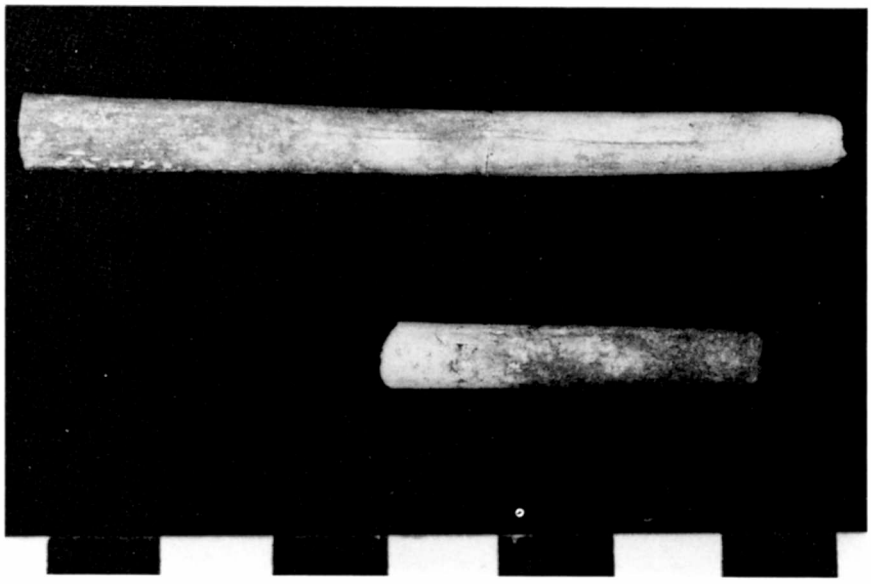


Figure 10-11. Tapered mouthpiece.

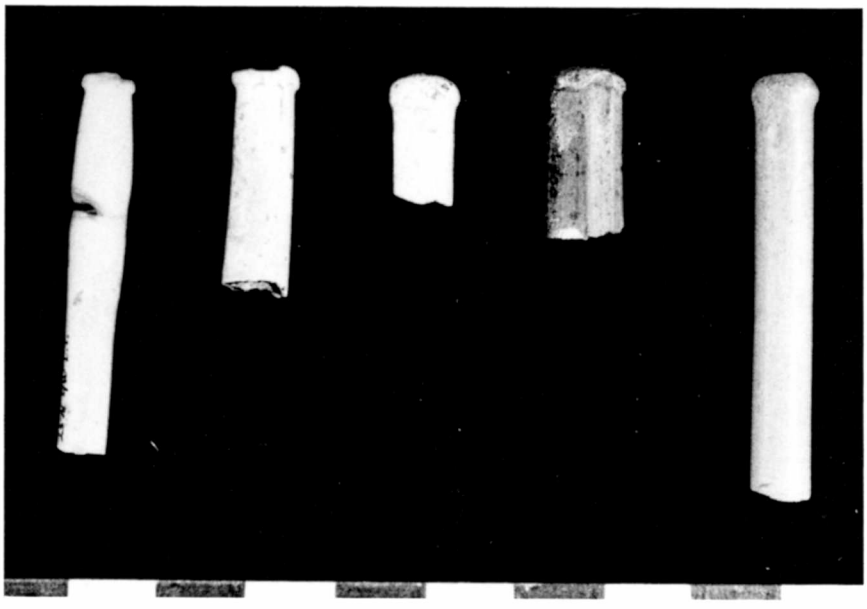


Figure 10-12. Lipped mouthpiece.

Figure 10-13. Broken mouthpiece showing tooth wear.

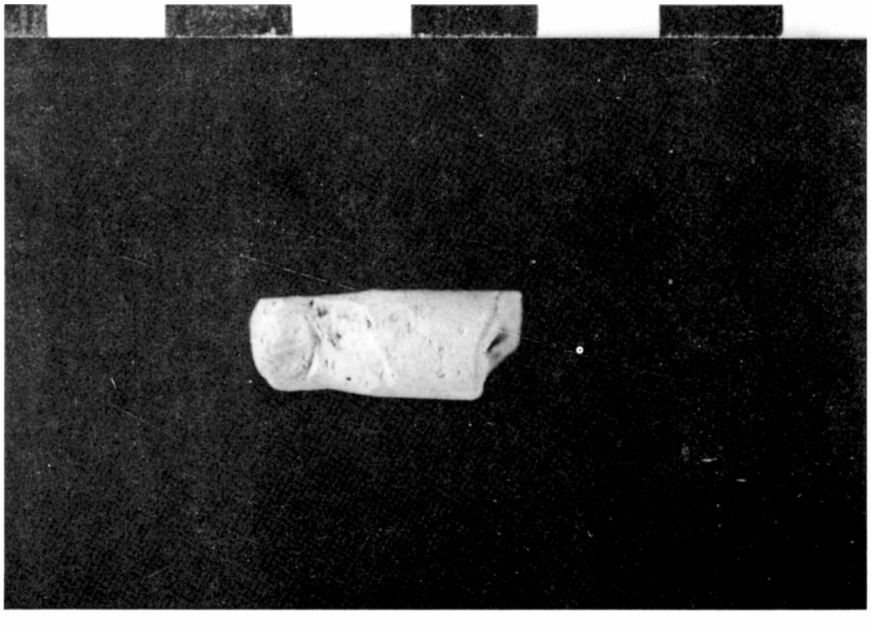


Figure 10-14. Whittled mouthpiece.

Figure 10-15. Left, "Apple shape pipe bowl fragment, impressed "IF..." or "IR..." on bowl back. Right, "Woodstock shape" pipe bowl, maker unknown.

Figure 10-16. "Home Rule" pipe bowl fragment. Maker unknown, but possibly R. Bannerman, Rouse's Point, N.Y., or Thomas Davidson, Glasgow. Not to scale. (Drawing by Lauren J. Cook.)

Table 10–1. Modification of mouthpieces, all contexts.

	Lipped/ Tapered	*Flat*	*Lipped*	*Flattened*	*Broken*	*Total*
Unmodified	17	8	2	1	*	28
Tooth wear	2	2	2	0	9	15
Grinding	0	0	0	0	3	3
Whittling & Grinding	0	0	0	0	1	1
Whittling & Tooth wear	0	0	0	0	1	1
Total	19	10	4	1	14	48

*There were 195 unmodified broken stem fragments, but it is unreasonable to assume that any but a small percentage of these ever functioned as mouthpieces.

mouthpieces are recognizable only when they are modified by the smoker.

Several types of modifications were noted on the mouthpieces in the collection. Sixteen mouthpieces bore some evidence of tooth wear, which in some cases was extreme (Figure 10–13). Four examples gave indications of some form of grinding, and two mouthpieces were carved or whittled to provide a more satisfactory purchase for the smoker's teeth or gums (Figure 10–14). Nearly 60% of the mouthpieces in the collection were unmodified. Table 10–1 shows the number of mouthpieces of each type, and the ways in which they were modified.

Mouthpiece modifications are significant because they offer information on smoking behavior. Tapered and flat mouthpieces tended to occur on the popular "T.D." models (cf. American Clay Pipe Works 1988: 16). The fact that so few of the mouthpieces of this type in the collection exhibit visible tooth wear indicates that many of them were broken off before use. This conclusion is supported by the relatively large number of broken ends of stem fragments that show either such wear, or more conscious modification such as grinding or whittling. These were the new mouthpieces that were formed after the original ones were broken off.

The very small sample of more elaborately finished lipped mouthpieces is problematic. These were no doubt more likely to be applied by the manufacturer to models that were considered less likely to have their mouthpieces broken off. It is possible that the several examples of this type were from pipes that were broken before seeing use, although it is noteworthy that the American Clay Pipe Works offered to supply "rubber sleeves" for such pipes "at an advance of 25 cents per gross" over the wholesale cost (American Clay Pipe Works 1988: 14). These were elastic bands that encircled the mouthpiece above the lip, and that were apparently intended to prevent the smoker's teeth from touching the stem. These almost certainly would have affected the degree of tooth wear on mouthpieces, but it is not known whether they were in common use.

The extent of modification on the mouthpieces in the collection implies an active preference for short clay pipes, to the extent that pipes were broken off until they were sufficiently short. The social and symbolic ramifications of this behavior are discussed at length in Chapter 11.

Bowls

Undecorated bowl fragments (155)

Six of these fragments mend with one another, to form two partial bowls. Two of the unmarked bowl fragments in the collection have heels, also unmarked.

"Woodstock" bowl fragments (3)

These fragments, which mend to form two pipe bowls, are in the popular "Woodstock shape." This shape is noted for thick-walled bowls, and for thick stems, as the examples in the collection show (Figure 10–15, right). These pipes both have 7/64" bore diameters, which are the widest in the collection, and it is very possible that this type generally had wider diameters at any given date than the range of diameters in other styles.

TD Bowls (17)

Seventeen complete or nearly complete bowls, with the letters TD marked on the back of the

bowl, are present in the collection. One of these, a W. White pipe, has the mold number 78 on it . Any mold numbers that may have been present on the other examples were broken off with the stems. As mentioned above, W. White's model 78 was a "Small Plain T.D." (ATPM 1900: 19). Unfortunately, none of the the rim on this pipe is present, making measurement difficult. The lettering on this example is impressed in raised circles. The remaining 16 bowls have embossed lettering.

Ten of these bowls have unmarked heels. The heel of one example is marked with an embossed horseshoe on each side. Another is marked with an embossed design similar to a quotation mark joined at the bottom, and a third is marked with an embossed isosceles triangle. The heels on the four remaining bowls are broken off.

TD Bowl fragments (28)

Four of these fragments mend into one. There are 14 "T"s, nine "D"s, and two "TD"s. One "T" and one "D" are surrounded by a border of radiating dashes, but these do not mend with one another, and clearly represent two separate pipes. There are therefore 18 separate TD pipes represented in these fragments. Two of the "T"s are impressed, while all of the other examples are embossed.

"Home Rule" Bowls (2)

Two bowls that apparently bore the Irish nationalist slogan "Home Rule" are present in the collection. The first, and most complete of these, is rouletted below the rim, with the rouletting smeared at the rim as though hastily done. An impressed oval on the back of the bowl contains the partial words "...ME" and "...ULE" one above the other (Figure 10–16). The second example is nearly identical, except that all of the inscription except the "...E" at the end of the word "home" is missing.

Most of the major Scottish pipemakers made "Home Rule" pipes, as did Bannerman's factory at Rouses point, New York (ATPM 1900; Sudbury 1980a: 13). The examples in the collection bear very strong resemblance to a catalogue illustration of Thomas Davidson's model 174 ("Home Rule"), in that the rouletting is below the rim and the lettering is in an oval on the back of the bowl (Gallagher and Price 1987: 132). The Davidson pipe has a stem of about three inches in length and no heel, while the Bannerman examples have heels, and larger impressed ovals and lettering than the pipes in the Lowell collection (Sudbury 1979: Plate 6, numbers 3–4).

"Dhudeen" Bowls (2)

Two fragments of bowl backs that bore the word "Dhudeen," the Gaelic term for a short clay pipe, were recovered during the excavations. The first of these is an entire bowl back, with a bore diameter of 5/64", and the word "DHUDEEN" impressed in a rectangle about 1 cm. below the rim (Figure 10–17). The letters "DHU" fall to the left of the seam, while the letters "DEEN" fall to the right of it. The pipe has an unmarked heel, and appears to be unused. The fabric may be tan clay, although rust stains on part of the fragment indicate that it may have become discolored in the ground. The second example is a rim fragment, and is similar to the first, although only "D...DEE..." is legible.

"Wolf Tone" Bowl (1)

Three fragments mend to form a single bowl with the words "TONE" on the left side, "ERIN" on the right side (Figures 10–18, 10–19). Other decoration includes shamrocks on both sides of the bowl, and a wavy foliate decoration on the seams. An illustrated example of a more complete specimen recovered in Glasgow indicates that the Lowell example originally bore the legend "WOLF"/"98"/"TONE," in descending order on its left side, and a harp on its right side (Gallagher 1987: fig.24). The pipe commemorates the Irish patriot Wolf Tone, who was captured and executed by the British in 1798—it is a reasonable supposition that the pipe was produced to mark the centennial of Tone's death.

Nautical motif bowl fragments (2)

Two bowl fragments, which do not mend, apparently depict nautical scenes. One of these (Figure 10–20) is embossed with what appears to be part of the hull of a warship or whaler with gunports, waves, and the embossed letters "...BIA." The other fragment shows a gaff-rigged mainsail (or mizzen spanker) and topsail, of a vessel that is clearly facing to the right. Although the two fragments do not mend, the hull portions on both are very similar, indicating that they may be from the same model of pipe, or even from different sides of the same pipe.

Figure 10-17. "Dhudeen" pipe bowl fragment, maker unknown.

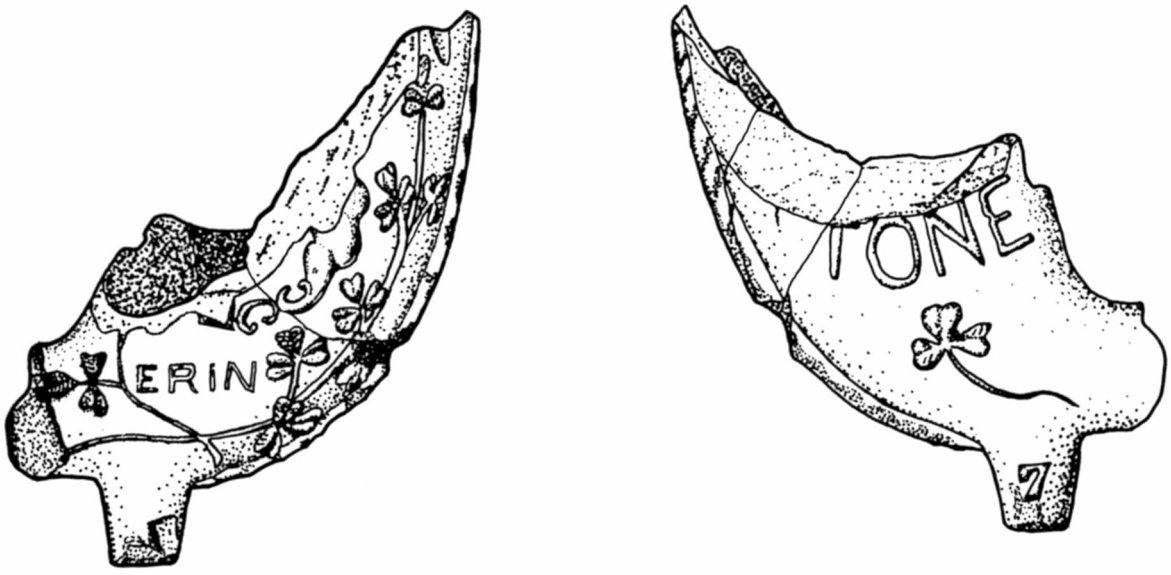


Figure 10-18. "Wolf Tone" pipe bowl, side views. Not to scale. (Drawing by Lauren J. Cook.)

Figure 10-19. "Wolf Tone" pipe bowl, showing front seam.

Figure 10-20. Nautical motif pipe bowl fragment. Not to scale. (Drawing by Lauren J. Cook.)

Fluted bowl fragments (4)

Two rim fragments from fluted bowls were recovered. One of these is a bowl front with a poorly finished foliate front seam (Figure 10–21). The interior of the bowl shows no signs of use. Although no archeologically recovered examples with both fluting and floral seams have come to the author's attention, A Thomas Davidson, Jr. & Co. catalogue illustrates two—one as model number 2 ("R Head") and the other as model number 248 ("C[arved] Hunter") (Gallagher and Price 1987: figs. 17, 22; ATPM 1900: 34, 40). A second rim fragment does not have the front seam present and shows evidence of moderate to heavy use but is otherwise similar to that described above.

A third fluted bowl fragment shows signs of very heavy use, and contains tobacco remains. Of the two flutes present on this fragment, the one that was apparently closer to the front of the bowl has been milled diagonally by hand after the pipe was removed from the mold.

The final fluted example is a bowl base with a broken heel Figure 10–22). The flutes are broad and end about 1.6 cm. above the base. It would appear that the fluting was interrupted partway up the bowl and either continued to the rim after the interruption, or was replaced by another design. Partially fluted bowls are widely known from the literature, and were made by major export firms such as McDougal and Davidson (see Gallagher 1987: fig.14, no. 14; Gallagher and Price 1987: fig.22). The catalogue illustrations of the Davidson examples indicate that they were variations on model number 6, "Carved English" (ATPM 1900: 34). It would appear that pipes with fluted bowls fell within a more inclusive category of "carved" pipes.

"Claw" bowl fragments (2)

Two mending terra cotta bowl fragments form a partial bowl in the shape of a ball held by a claw (Figure 10–23). This bowl is extremely small, with the height of the extant portion at just over 2 cm., and the diameter of the bowl at 1.3 cm. Both Davidson and McDougall in Glasgow made "claw" pipes Gallagher and Price 1987: figs. 7, 20; McDougall n.d.), but pipes with the same motif are known to have been made between 1864 and ca. 1874 in East Alton and Wolfeboro, New Hampshire by a pipemaker named John Taber (Watkins 1968: 134–135; Sudbury 1979: 172–173). The boardinghouse pipe is less ornate than catalogue illustrations of the Davidson material, nor does it resemble illustrated Taber material (Watkins 1968: fig.85c). In fact the closest analog to the pipe in the Lowell collection is a red clay pipe bowl recovered from Fort Custer, Montana, which is almost exactly twice its size (Wilson 1971: fig.14).

Armorial bowl fragment (1)

One bowl rim fragment with an unidentified seal as decoration was recovered. The fragment, perhaps from the back of the bowl, has a rouletted rim, with the upper portion of a seal with a beaded rim, foliate decoration, and the word "OF" in the upper center (Figure 10–24).

Miscellaneous lettered bowl fragments (3)

Three fragments with partial lettered inscriptions were recovered. The first of these is a thick walled fragment showing heavy use, apparently of a "bent," "billiard," or "apple" shape (cf. Herment 1954:36; Weber 1962: 51; Sherman 1970: 80–81). The left rear of the bowl bears the impressed letters "IR..." or "IF..." in an impressed rectangle which ends, of course at the point where the lettering is broken off. The rectangle is located approximately 1.1 cm. below the rim (Figure 10–15, left).

A second fragment, badly burned after discard, bears the embossed letter "...T" in an impressed rectangle, about 0.5 cm. below the rim. The fragment is apparently the left part of a bowl back, but because of its small size and its condition, it is difficult to be certain of this.

The third fragment in this category is a left portion of a bowl back in an "apple" or "billiard" shape with the impressed initial "H" or "W" in an embossed circle with a diameter of 0.7 cm., located 0.8 cm. below the rim. This fragment shows evidence of heavy use.

Rouletted bowl rim fragment (1)

This fragment has rectangular rouletting below the rim, which is smeared as it approaches the rim. The rouletting is identical to that on the "Home Rule" pipes described above (Figure 10–15), although the fragment does not mend with them.

Foliate embossed bowl rim fragment (1)

A single fragment bearing a foliate design in high relief is present in the collection. The design is similar but not identical to that on a fragment recovered from Port Arthur Tasmania (Jack 1986: fig.3i). The Lowell fragment appears

Figure 10-21. Fluted pipe bowl fragment, showing foliate front seam.

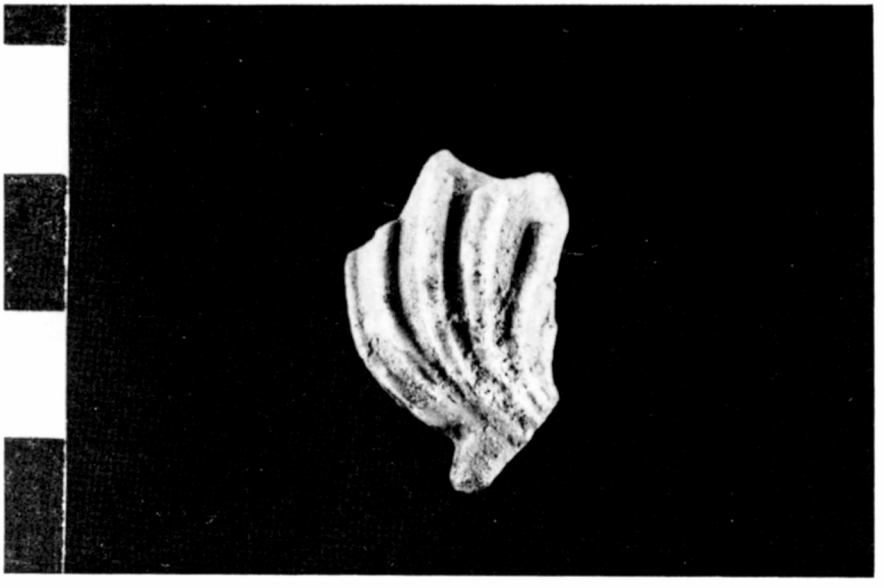


Figure 10-22. Partially fluted pipe bowl base fragment.

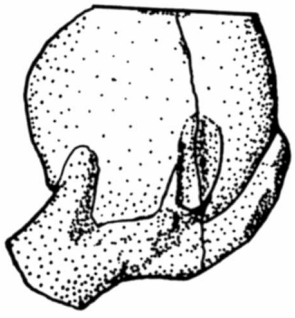


Figure 10-23. Terra-cotta "claw" pipe bowl fragment. Not to scale. (Drawing by Lauren J. Cook.)

Figure 10-24. Armorial pipe bowl fragment, with unidentified seal on bowl back.

Figure 10-25. Plastic pipe mouthpieces. Top, Operation A, feature 44, level B. Bottom, Operation B, 21n8w, level 2.

to consist of the front of the bowl, and shows no signs of use.

Heels (4)

Four heels, which had broken off of bowls, were recovered. None of these heels were marked, and none of them matched any of the bowls in the collection from which the heels had been broken.

Bone Mouthpiece (1)

A fragment of what appears to be a lipped bone mouthpiece was recovered from 8n10w/2, in Operation A (Figure 10–11, second from right). This piece is very crudely made, apparently on a lathe, and exhibits some hand-filing as well. The bore is drilled, with a diameter of 6/64". There is some apparent brown staining along the bore, and there may be tooth-wear on the lip as well. What kind of pipe this mouthpiece may have been used with is not known, although its wide circumference (nearly a centimeter) would tend to make its use uncomfortable.

Plastic Mouthpieces (2)

Two plastic mouthpieces were recovered, one from Feature 44, level b, in Operation A (Figure 10–25, top), and the other from 21n8w/2 in Operation B (Figure 10–25. bottom). The two stems, which would have been used in either a clay (cf. American Clay Pipe Works 1988: 5, 8), a brier, or less likely, a meerschaum bowl, are very similar, but not identical. Both are of molded amber-colored plastic, in bent shape, with saddle bits and "wedge" bit orifices (see Weber 1965: 99–105 for terminology). Both joined to the shank as push, or "stag" bits, and exhibit signs of heavy use. Heated smoke has warped and checked the plastic on those portions of the bits that firt inside the shanks.

The example from Operation B is in fairly good shape and was probably lost rather than intentionally discarded. It appears to be a "three-quarter curved" stem. It has prominent seams, and was used in a bowl with a shank-hole diameter of 0.8 cm. There is pronounced tooth-wear on both the upper and lower surfaces adjacent to the lip.

The example from feature 44 has the lip broken off, after which the user filed it down and smoked it until the stem wore through and cracked. There is extensive tooth-wear on the upper and lower surfaces near the broken end, indicating continued use. This stem appears to be a "one-half curve" shape, and was used with a bowl that had a shank-hole of about 0.85 cm.

Cuspidor Fragments (2)

Two mending fragments of a redware cuspidor, or spitoon, were recovered. The larger fragment was recovered from trench 2, level 9b, and the smaller fragment from Operation B, feature 61, level 2. This vessel had a wide, flaring lip with a diameter at the edge of 18 cm. The rim sloped inward to a constriction of 10 cm. interior diameter, about 3 cm. below the edge. The body of the vessel bellied out below the constriction.The interior of the vessel was glazed with a dark brown lead glaze that begins below the constriction. The surfaces of the exterior and the interior of the rim are covered with a blue-green substance that may be a copper-based pigment used to decorate the vessel. The exterior of the rim is molded in bas relief with a repetitive pattern of scrolls. The fact that this vessel was recovered from the boardinghouse yard is a clear indication that at one point chewing tobacco was in use at the boardinghouse.

Pocket Calendar Fragment (1)

A single fragment of a blue plastic calendar was recovered from above feature 9 in Trench 2 during preliminary testing (Figure 10–26). The calendar was about 8 cm. in length, and had been torn from top to bottom. The surviving portion contained the following information, above the calendar itself:

...GHER
Gorham St.,
...ASS.
...BACCO

The remaining portion of the calendar bears dates for the period from September, 1895, to February, 1896. Earlier dates were apparently present on the fragment or fragments that were not recovered. The calendar was probably intentionally destroyed and discarded at some point after February, 1896. Dating was possible because the legend "1896" appears between December and January, but a perpetual calendar was used to verify that the remaining legible dates occurred during 1895–1896.

Gorham Street begins several blocks to the southeast of the Boott Mills Boardinghouses, and is within convenient walking distance. Research in the Lowell City Directories published during the 1890s failed to disclose any grocers or tobacconists with surnames ending in

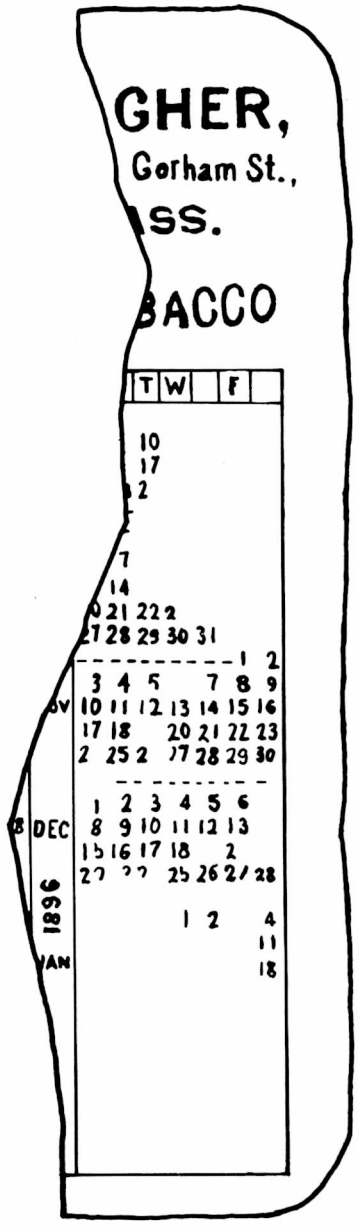


Figure 10-26. Blue plastic pocket calendar fragment, 1895-1896. The business that distributed this calendar has not yet been identified.

"...gher" doing business on Gorham Street in Lowell during that decade. The business in question may have been located in a neighboring community or nearby city with a Gorham Street, or it may have referred to a temporary business location that was not entered in the directories. It is also possible that the calendar was a misprint.

Archeological Implications of the Material

The most striking aspect of the clay pipes in the collection is their late date. Although the Binford pipe stem formula produced a date of June, 1761, for the collection as a whole[2], the fact that this date is more than 60 years before the city of Lowell was established indicates the well-known dangers of using the formula on small samples of material later than ca. 1780 (cf. Noël Hume 1963: 22–23). Information derived using other methods in this case provides much later (and much more secure) dates. The practice for much of the 19th century was to mark pipes with the name of the city where they were manufactured. The McKinley Tariff Act of 1891 required that all items imported to the United States bear the name of the nation where they were made, at which time pipe makers began marking their pipes with the name of their country. Until recently, pipes with "Scotland" as the country of origin were known only from a few sites in this hemisphere, while pipes marked "Glasgow" and "Edinburgh" are ubiquitous. The virtual absence of pipes marked "Scotland" indicates that very few sites dating later than 1891 have been analyzed and published (Walker 1983: 13). Of the legible Scottish pipes in the boardinghouse collection nearly 80% are marked "Scotland." The immediate implication of this is that much of the material in the collection was manufactured—and hence used and discarded—after 1891. By that time the very presence of clay pipes would seem on the basis of documentary evidence to indicate working-class occupation.

Using the shift from "Glasgow" to "Scotland" as providing a terminus post quem of 1891, it is possible to assign dates to some of the features encountered at the boardinghouses. Of 65 features encountered during the preliminary testing and the excavation of Operations A and B, 17 contained clay pipe material. Of these, 10 contained Scottish stem fragments marked with the place of origin. Table 10–2 shows the feature

[2]The exact number, based on 276 stem fragments and bowls, was 1761.4821.

numbers, locations and brief descriptions of those features that could be dated post–1891, on the basis of their containing stem fragments marked Scotland.

Table 10–2. Post–1891 features.

#/Level	*Operation*	*Locus*	*Feature Type*
2/9b, c, d	B	Tr2	Well
6	B	Tr.2	Pipe trench
24	A	2N4W	Black lens/stain
25/d	A	0-2N10W	Bulkhead entry
37/b	A	8N6W	Brick drainbox
44/c	A	6-8N6-8W	Drainbox trench
45/b	A	4N0-2E	Privy
61/2	B	17N0W	Privy

An examination of Table 10–2 indicates that the bulk of the marked material in sealed feature contexts was recovered from Operation A. This is probably due in large part to the differential stategies that were employed in regard to the excavation of features between the two operations. This issue is discussed more fully in Chapter 5. Note that the dates derived using this dating criterion are consistent with those derived from other material for features 45 and 61 (both privies), which were apparently filled in the second decade of this century. The 1891 terminus post quem for feature 25 (bulkhead entryway) is interesting. This feature was sealed off from the cellar and filled in at some point before the 1920s, when the structure was demolished. It is clear from the pipe materials in the feature that this occurred after 1891.

It was hoped that the pipe materials could assist in dating contexts other than sealed features, specifically the deposition of levels, in the same way that they were useful in dating features. Tables 10–3 and 10–4 show the distribution of marked Scottish pipe stems in the excavated levels in Operations A and B.

It is clear from Table 10–3 that the earlier, pre-1891, marked Scottish material is concentrated in level 1 of Operation B. By contrast, the post–1891 material is distributed across the site, and although most of it is in level 1, there is a fair amount in level 2 as well. One possible explanation for this difference between distributions of earlier and later material between operations may lie in the fact that Operation A lies behind units that were occupied as tenements for much of the period during which the dwellings were occupied, while Operation B was the boardinghouse yard. It is likely that differences in both the frequency of usage by tenants and the degree of responsibility that occupants felt (or were held to by the company) for the cleanliness of their yards lie behind differential deposition and maintenance of the two yards (cf. Beaudry 1989).

Table 10–3. Distribution of Scottish pipe stems marked Glasgow by operation and level.

	#	%
Operation A		
Level 1	0	0.0
Level 2	0	0.0
Total	0	0.0
Operation B		
Level 1	8	100.0
Level 2	0	0.0
Total	8	100.0
Site Totals		
Level 1	8	100.0
Level 2	0	0.0
Total	8	100.0

Table 10–4. Distribution of Scottish pipe stems marked Scotland by operation and level.

	#	%
Operation A		
Level 1	10	45.5
Level 2	2	9.1
Total	12	54.6
Operation B		
Level 1	7	31.8
Level 2	3	13.6
Total	10	45.4
Site Totals		
Level 1	17	77.3
Level 2	5	22.7
Total	22	100.0

Summary

Although the tobacco-related materials recovered from the backlots of the Boott Mills Boardinghouse fall too late for the application of common quantitative dating methods such as Harrington's histogram dating method, or Binford's regression equation, the shift from the use of the name of the city of manufacture to that of the country of manufacture provides a broad dating criterion. This enabled some eight contexts at the site, five from Operation A and three from within Operation B, to be assigned a post–1891 date (see Table 10–2). In addition, differences in distributions of pre-1891 pipes between levels were observed between operations, which may have resulted from differential land use patterns in the two backlots.

Chapter 11

TOBACCO-RELATED MATERIAL AND THE CONSTRUCTION OF WORKING-CLASS CULTURE

by Lauren J. Cook

"Tell me what you smoke and I will
tell you who you are"
—*Journal Pour Rire*, 1851 ("Historicus" 1924)

Introduction

As recent research has shown, the degree to which relationships among concepts and ideologies can be demonstrated through the archaeological record provides a fertile field of study (Deetz 1974; Hodder 1982; Leone and Potter 1988b). Such research draws on a considerable body of work in material culture studies and semiotics, which holds that artifacts have meanings that may be read. Artifacts are seen as concrete encapsulations of social relationships—embodying the attitudes and behaviors of the past:

> The underlying premise [of material culture study] is that objects made or modified by man reflect, consciously or unconsciously, directly or indirectly, the beliefs of the individuals who made, commissioned, purchased, or used them and, by extension, the beliefs of the larger society to which they belonged. (Prown 1988: 19)

Problems of definition abound. Each of those engaged in this type of research appears to have a better idea where he or she stands in terms of theory than of where others stand. Those who look for meaning in the archaeological record have their choice of a variety of theoretical frameworks through which they can approach the subject, including structuralism, cognitive semiotics, economic theory, marxism, and critical theory. With this theoretical smorgasbord spread out before us, considerable effort has gone into presenting these approaches in all of their variety. Examples of recent syntheses and edited volumes that approach the issue of meaning in the archaeological record include Hodder 1982, 1986, 1989; Leone 1986; and Leone and Potter 1988b. These techniques have been applied to such diverse components of the material record as architecture (Glassie 1975; Bourdieu 1977; Leone 1977; Anderson and Moore 1988), ceramics (Deetz 1974; Wall 1989; Burley 1989; Yentsch n.d.b), formal gardens (Leone 1988a; Leone et al. 1989), and cemeteries (McGuire 1988).

The present study examines the relationship between a set of behaviors—those involved in the use or consumption of tobacco—and their effect on the archaeological record. The focus here is on what tobacco behaviors and their material components meant in 19th-century culture. It is possible to approach those meanings through the examination both of documentary sources and artifacts, each of which conveys meaning in different ways.

A number of factors influence tobacco behavior. Primary among them are the social class, ethnicity and gender of the actor, and it is these three social divisions that I have used to structure this essay. Other factors, such as the situational contexts in which tobacco may be used, the age of the user, and regional patterns of use, are woven across the major threads of class, ethnicity, and gender.

Style and Symbol

At this point it will be useful to discuss the ways in which objects are used as symbols, and how they function as such. In semiotic terms, meaning is said to be signified by a particular signifier (a word, a written character, an image, or an object). This relationship between representation and meaning—signifier and signified, is known as a sign. For example, red roses signify passion, and when used intentionally to do so, they constitute a sign of passion (Barthes 1957b: 197–198). A symbol is an arbitrary sign, such as a red traffic signal—there is no particular reason that a red traffic signal should be a sign to stop, except that that meaning has been assigned to it by society (Hawkes 1977: 129). The function of the symbol is one of linkage in the process of communicating about the unknown by means of the known (the symbol itself). That is, properties assigned to the symbol by consensus may be transferred by the observer to the situation in which the symbol is employed. The symbol and the symbolized are not seen as being in a static cognitive relationship, but rather articulate with

one another as components of a shifting and dynamic relationship (Turner 1974: 25–30). Symbols are signs used in a communicative, semiotic process. Objects often function as symbols and have been approached semiotically by scholars (Krampen 1979).

While particular objects and their symbolism vary between cultures, the use of objects as symbols is pan-cultural. Attempts on the part of prehistorians to identify symbols and symbolic domains in the material culture of pre-literate populations (e.g., Shanks and Tilley 1982; Shennan 1982), are predicated on the universal role that the relationship between symbolic action and object-symbols plays in social interaction. Csiksentmihalyi and Rochberg-Halton argue quite persuasively that our interaction with certain categories of objects as material entities is inextricable from our interaction with them as symbols. The domestic objects that clutter our living space may be viewed as "meaningful only as part of a communicative sign process and are active ingredients of that process" (Csiksentmihalyi and Rochberg-Halton 1981: 173). As symbols, artifacts fix on their owners and users certain culture-specific attributes—in effect, they serve as "the visible part of culture," by "making firm and visible a particular set of judgements in the fluid processes of classifying persons and events" (Douglas and Isherwood 1979: 66–67). The use of material items in facilitating judgement and classification is central to this essay. Through it we can approach the ways in which individuals constructed their cultural identity.

The role of leisure activities, or those activities that are not considered work, is important to self-definition and self-expression. All of us spend part of our time working and part of our time doing other things. While the importance of work in the process of self-definition is undeniable, there is a considerable body of literature supporting the contention that it is through leisure, or at least non-work, activities that the greater part of self-definition and self-expression takes place (Pieper 1952; Huizinga 1970; Godbey 1981: 98, 123–125)—people "create strong and complex selves by investing their psychic energy in activities that are usually called 'leisure' " (Csiksentmihalyi and Rochberg-Halton 1981: 48). In a capitalist, industrialized society the working class will not control the means of production, but its members will express themselves individually and as a subculture through other components of what Csiksentmihalyi and Rochberg-Halton (1981: 49) call "the means of action." They define the means of action as "any object or sign that allows a person to 'make his self manifest,'" (including, where applicable, the means of production).

Social psychologists tell us that the process of classifying others and assessing their intentions and motives is a transitory, swift, and necessary component of public interaction. Through a staggering variety of signs (including objects), gestures and postures, we communicate to those with whom we interact, telling them who we are and what we are doing:

> Everyone knows of course, that the individual necessarily provides a reading of himself when he is in the presence of others. Gender, age, class, state of health, ethnicity will all be conveyed, in the main unwittingly. (Goffman 1971: 127)

Those social psychologists specializing in urban interaction emphasize that these presentations of self occur in the arena of the street (cf. Sennett 1978: 164–166). Lyn Lofland refers to this process of classification of others as "appearential ordering," a term that stresses both the classificatory function of the activity and its reliance on appearance as the criterion of judgement. In such a "problematic world of strangers," as the city,

> all the city dweller had to go on, to know anything at all about these other people, was the information he could glean by looking at them... . City life was made possible by an "ordering" of the urban populace in terms of appearance and spatial location such that those within the city could know a great deal about one another by simply looking. (Lofland 1973: 22)

The process of "decoding" the appearance of others is based on the use of visible symbols encoded primarily in forms of dress and other bodily adornments (jewelry, hair styles, etc.) as well as in behavior (Praetzellis, Praetzellis, and Brown 1987). The Victorian context was marked by a "miniaturization" of visible symbols, in which appearential ordering turned on the smallest details of dress or appearance (Sennett 1978: 165-168).

The power of material symbols to communicate often lies in their use "out of context"—that is in contexts other than those in which the dominant cultural tradition would apply them. An extreme example would be the "Punk" usage of safety pins as earrings rather than as fasteners. Such recycling of the mundane in a symbolic context is informative to the initiated (cf. Barthes 1981: 58).

> The tensions between dominant and subordinate groups can be found reflected in the surfaces of subculture—in the styles of mundane objects which have a double meaning. On the one hand, they warn the 'straight' world in advance of a sinister

> presence—the presence of difference—and draw down upon themselves vague suspicions, uneasy laughter, 'white and dumb rages.' On the other hand, for those who erect them into icons, who use them as words or curses, these objects become signs of forbidden identity, sources of value. (Hebdige 1979: 2–3)

Style, then, communicates subculture, and is instrumental in group definition and boundary maintenance. Ethnic and class subcultures wield style as an tool to identify those who "belong," and occasionally as a weapon to annoy those who do not.

The focus of analysis that follows is intended to look beyond the distribution of material culture as a function of wealth, or as a function of differential access to resources. The purpose is to build on the notion of "consumer choice" as it has been used recently by archaeologists (e.g., Spencer-Wood 1987), and extend the motivations that underlie choice to include factors that are not strictly economic, and that are not often easily quantifiable. The central thesis is that material items have symbolic meanings to those who use them, and that through intentional (if not self-conscious) manipulation of those items in social contexts, those symbolic meanings are articulated and communicated to others. Those meanings include moral and aesthetic decisions. Consumer choice is in large part a function of the symbolism attached by the consumer to the consumed. A purchased item is "consumed in its image" as well as through usage (Barthes 1957a: 150). Differential choice is often a reflection of different moral or aesthetic choices on the part of consumers—that is of different symbolic values being attached to objects (cf. Miller 1987: 106–107). Members of different social classes, different ethnic groups—different subcultures—will choose different symbols in the construction of social reality, and this will be reflected, often alongside economic concerns, in the material record (cf. Beaudry 1984b).

The definition of class favored here is E.P. Thompson's, who argued that class is a historical process that can be studied through the "observation of behavior over time" (Thompson 1978: 147)—a relationship between people that "must always be embodied in real people and in a real context" (Thompson 1963: 9–10). Class thus exists only when it is articulated. The clearest examples of articulation are those occasions when behaviors conflict—the resulting "flashpoints," to use Gareth Stedman Jones' term, are fertile areas for the study of class relationships. But as Jones points out, looking only at conflict distorts our view of class relations—"it is as if the only records of the bourgeoisie came from the bankruptcy courts, and the only records of marriage from divorce petitions" (Jones 1977: 163). This has resulted in an overemphasis by scholars on efforts by the bourgeoisie to change working class leisure behavior, at the expense of the study of the workers' resistance to change. Often resistance was expressed through non-verbal behavior—petty, everyday acts that may have been patterned but were seldom part of a planned program—and often it was at least partially communicated through the medium of material culture.

There is a wealth of documentary evidence on tobacco use during the 19th and early 20th centuries. Tobacco use is a form of behavior that occurs in episodes, some of which are described in the contemporary documentary record. In some cases, the sources describe the observations of a single episode, in other cases, they summarize the collected experience of a number of episodes. In all cases, they offer information about the motivations of the participants—what it is that they wish to communicate by their behavior—and how they do so. The sources testify to the biases and motives of their writers as well. This information is relevant to the beliefs and values of the society at large.

If the manipulation of symbols in the expression of the self is indeed so strongly centered in behavior that occurs in non-work contexts, then the stress on "leisure" and "popular culture" in the writing of social historians interested in the construction and nature of working-class culture is understandable.[1] Equally important, the implications for urban historical archaeology of the industrial period are considerable. Because of the increasing tendency to separate the workplace and the household, the greater part of the material that we recover and analyze relates to household life, rather than to work (the exception to this is of course traditional industrial archaeology, where the means of production is often under direct observation).

The archaeological record offers information that is more specific than that in the documentary record. The boardinghouse materials are the results of individual episodes that communicated specific meaning to actual people. They are not as informative as the documentary sources, but they have what Prown calls "veracity"—as the less conscious products

[1] For example, Gutman 1973: *inter alia*; Thompson 1974; Jones 1974: 476-480, 485-488; Jones 1977; Yeo and Yeo 1981; Rosenzweig 1983; Couvares 1984: 31-51; and Denning 1987.

of behavior, the artifacts are "potentially more truthful" than the documentary sources (Prown 1988: 21). More important in the context of the Boott Mills research, in examining working class behavior we must remember that the documentary sources communicate middle and upper class assumptions—the only testimony that we have from the working people themselves in this case are the fragments of the items that they purchased, modified, used, and threw away. In combination with information on kin networks and resistance to the social control exercised by the company (Beaudry 1989: 28; see also Bond, Chapters 3 and 5, this volume) the artifacts can provide us with a clearer picture of the construction of working-class culture.

"Power Pipes"?

> Power is not a general system of domination exerted by one group over another. Rather, power is everywhere, produced at every moment in every action. (Hodder 1986: 66, summarizing Foucault 1977[2])

An approach to class subcultures is essential to historical archaeology—such a perspective will permit an understanding of the ways in which class divisions combined with ethnic and gender differences to give pattern to past material life. Such patterns arise both out of differentials in wealth, and equally important, different concepts of how class identity should be mediated. As discussed above, mediation of subcultural identity constitutes a discourse in which both subcultures and majority cultures engage. For this reason, theoretical stances that ignore or downplay the richness of symbolic interaction among and between members of all classes will provide only incomplete explanations of past processes and events. For example, in a recent essay, Robert Paynter (1988) presents some preliminary thoughts on an "archaeology of capitalism". He makes many valid points, among them that historical archaeology must be informed by both world and class perspectives. But by dismissing the study of symbolic aspects of the past as "idealist," he severely limits the scope of his analysis (Paynter 1988: 408–409). Rather than examining what Csiksentmihalyi and Rochberg-Halton call the "means of action," Paynter's analysis is confined to the much narrower means of production. He concludes that change in material culture (in the narrowly defined area of manufacturing technology) is the result of increasing mechanization spurred by a desire to cut labor costs in the face of union demands. This should be of considerable interest to industrial archaeologists, but will be of limited utility to researchers working on residential sites. Inasmuch as class membership occurs both within and outside of the workplace, class-based models are as useful (or as necessary) for interpreting the consumption of goods as they are for interpreting their production.

Much of the documentary record reflects opinions, desires, and omissions consciously or unconsciously imparted to it by its authors. As those authors were very often members of the class or classes that either perceived themselves as dominant in society, or wished to be dominant, their views of class, society, and commodity consumption must be approached critically, as Mark Leone and others have demonstrated (Leone, Potter, and Shackel 1987). A critical approach alone is not, however, enough. There is a strong temptation to limit one's analysis to the classes that produce the documentary record. They are after all the groups whose symbolic universe and ideology are most clearly reflected in the documents, and whose homes are the most likely to be the subject of research-oriented archaeological programs. One danger in doing this is that in concentrating on the lifeways of the literate and propertied, it becomes all too easy to forget that there were working-class people, and that it is possible to approach their lives as well. If we can do archaeology from the top down, we can do it from the bottom up as well. This will require that most documents be "scrutinized upside-down," as E.P. Thompson (1978: 157) recommends, and that we continue to give priority to material expressions, in order to focus on working class motivations. We must do this if we are to provide a balanced view of past life.

In a particularly well-published example of class analysis of material culture outside the workplace, Mark Leone and others at Historic Annapolis, Inc., have explored the ideological function of William Paca's garden (Leone 1984, 1986, 1987,1988a, 1988b; Leone et al. 1989). Paca was a lawyer and jurist, a signer of the Declaration of Independence, and the Governor of Maryland from 1782 to 1785—by any standard of measurement, he was a member of that state's economic and cultural elite (Malone 1946: 123–124). Analysis of Paca's reconstructed formal garden has centered around the symbolism of power over nature, as a metaphor for power relations in society. In a critique of the role of ideology in the work of Marxian archaeologists, Ian Hodder (1986: 61–70) uses

[2]See also Foucault 1980: 141-142.

Leone's research on the Paca Garden to illustrate four problems in the treatment of ideology:

> 1. "There is no indication anywhere that the same material culture may have different meanings and different ideological effects for different social groups" (Hodder 1986: 65). The assumption is that all of Annapolis shared Paca's view of the garden.
>
> 2. There is a tendency to oppose social reality and ideology, with the latter falsifying, "naturalizing or masking inequalities in the social order" (Hodder 1986 65). Rather than obscuring Paca's elite status, his garden would appear instead to emphasize it.
>
> 3. Insufficient attention is paid to the specific historical context in which the garden is supposed to have served its ideological function.
>
> 4. The linkage between the functions of ideologies and their purported products is not well drawn. "One is left with the question, where does the particular ideology...come from?" (Hodder 1986: 69). For example, the principles of perspective that Leone sees as serving the social function of legitimating Paca's dominant position in society are within a historical tradition of landscape construction that can ultimately be traced back to the Classical world. These concepts of order may have played a role in creating Paca's aspirations, as much as they were a tool for realizing them.

These problems with the treatment of ideology have important implications for an archaeology of social class. In regard to the first problem, one of the most disconcerting features of analyses of Paca's garden is their treatment of the role of ideology in class relations. They rely on the "Dominant Ideology Thesis," drawn from Louis Althusser's (1971) essay on the function of ideology on the state level, which holds that the ideologies of the dominant groups in society are imposed on submissive groups. This thesis denies subordinate groups the ability to formulate their own ideologies and has been found to be subject to many exceptions when measured against historical situations (Abercrombie et al. 1980; Miller 1987: 162–163; McGuire 1988: 439–440; Rojek 1989: 100–101). The result is a "trickle down" model of relationships between the classes, a model that tends to deny the very existence of a working-class culture.

The problem seems to be that Leone's analyses have examined only Paca and his activities and motivations, ignoring those of the "ruled." For example, if we assume an ideological content for Paca's garden, why not for every other garden, formal or otherwise, in Annapolis. The consideration of common dooryard gardens and their symbolism would be much more relevant to the material lives of most Annapolitans. All gardens may be considered to be "power gardens" (cf. Leone et al. 1989), in that they manipulate the environment toward a social end—in this sense, most if not all artifacts are powerful. But we must be careful not to equate the powers of artifacts with the power of their owners or users.

Hodder's critique of Leone's treatment of the specific historical context of the garden may arise from the fact that Leone's analyses have never been published in the form of a report or monograph, but exist instead as journal articles emphasizing different aspects of his argument. When a final report is produced, it will no doubt present much information of the kind that Hodder felt was lacking, as well as empirical data on Paca's garden and the other Annapolis gardens that Leone has discussed. Certainly one context of the garden that must be considered in depth is that of Paca's family status. As the garden was built in about 1765 (Leone 1987: 615), within a few years of Paca's 1763 marriage to Mary Chew, whose family possessed "a very considerable fortune" (*Maryland Gazette*, June 2, 1763, quoted in Malone 1946: 123), the garden may be as much a function of power relationships within the Paca household as outside it. Family relationships may be particularly significant, as analysis of formal gardens elsewhere in the Middle Atlantic region indicates that they may have served a symbolic role as a metaphor for the growth of families over generations (e.g., Yentsch et al. 1987: 24–25)—and as there is fairly conclusive evidence that horticultural pursuits were within the "women's sphere" in 18th-century domestic life (Weber 1989). In any case, there is no need to assume that gardens, or other artifacts, are capable of serving only one symbolic function, and a good deal of reason to assume that they can mediate a variety of meanings, often simultaneously.

It is clear that the "Dominant Ideology Thesis" implies a degree of social control on the part of elites that makes it particularly unsuitable as a model for class relationships in developed, industrialized societies. What is needed is a class-based model of relationships within and between subcultures that is flexible enough to account for the accommodations of interest that in fact occur among and between social classes and ethnic groups (and that can be demonstrated to have occurred in the historical past). One framework that appears to have the potential to subsume complex processes of cultural change involving class, ethnic and gender groups has been used extensively by British students of popular culture (e.g., Bennett

et al. 1981, 1986; Hargreaves 1989). This is the notion of "cultural hegemony," adapted from the work of the Italian marxist, Antonio Gramsci.

Gramsci was expressly concerned with the tendency of "scientific" marxism to view ideology as a passive reflection of an economic substructure, rather than as a "real" entity, active in its own right. According to Gramsci, members of social classes put forth competing ideologies, centered around what they perceive to be their own interests. Class relationships consist of the negotiation of these ideologies in the cultural arena. Symbols may be adopted and manipulated by the members of different groups, in a process through which each group "seeks to negotiate opposing class cultures onto a cultural and ideological terrain which wins for it a position of leadership" (Bennett 1986: xv).

"Hegemony," then, is an ever-shifting "prevailing consciousness," negotiated among interest groups, that is internalized or accepted to varying degrees by members of those groups (Boggs 1976: 39). Raymond Williams (1977: 110) sees hegemony as transcending what is traditionally defined as ideology, to include experience as well:

> It [hegemony] is a whole body of practices and expectations, over the whole of living: our senses and assignments of energy, our shaping perceptions of ourselves and our world. It is a lived system of meanings and values—constitutive and constituting—which as they are experienced as practices appear as reciprocally confirming. It thus constitutes a sense of reality for most people in the society, a sense of absolute because experienced reality beyond which it is very difficult for most members of the society to move, in most areas of their lives. It is, that is to say, a 'culture,' but a culture which has also to be seen as the lived dominance and subordination of particular classes.

Discussions of "lived" hegemonies, then, must involve detailed examination of the historical contexts in which they arose and operated.

A model based on cultural hegemony rather than dominant ideology has several advantages. First, it does not equate economic or political domination with social or cultural domination. For example, while elites may control much of the economic and political structures, it may be the bourgeoisie that has the most influence on the prevailing consciousness. Second, cultural hegemony is seen as based on control through consensus rather than coercion. This requires consideration of the *accommodations* reached by parallel, or even opposing, interests, as well as the equally important areas of conflict that are more easily and more often studied (Jones 1977: 163). Third, and most important, hegemony is not seen as ever being complete (Boggs 1976: 40). Initiatives and contributions emerge that are alternate and oppositional to existing hegemonies, although usually framed in the same terms of discourse, and some of these may be negotiated into hegemonic positions (Williams 1977: 114). Thus, contributions from the working classes may find acceptance, or at least toleration, by the bourgeoisie and elites. This allows working-class ideology and working-class culture creative, active roles in the social process, rather than viewing them as dictated by and distilled from the ideologies and cultures of politically or economically dominant groups.

The idea of cultural hegemony is fully compatible with the communication-centered model for material culture that was outlined above, and therein lies its usefulness to archaeology. An important dimension of material culture is its communicative function, and much of that function takes place in the day-to-day negotiation of hegemony. The 18th-century merchant with his matching dishes and symmetrical house and grounds and the 20th-century "punk" with his safety pins and engineer's boots are equally involved in those negotiations, and much of what is recovered archaeologically may be seen as the product of hegemonic discourse, intentional or otherwise. In fact we may see the range of items available at any given time, with their varying moral and symbolic values, as extensions of contemporary hegemony—or even as a "material hegemony" that is every bit as shifting and fluid through time as is cultural hegemony.

A class-based archaeology based on cultural hegemony permits us to interpret our material in its communicative and symbolic aspects, and opens up new avenues for inquiry. For example, if Georgianization was the cultural contribution of the merchant class during the 18th century, as several archaeologists have recently proposed (Leone 1988b; Harrington 1989), then it may be viewed as an element in hegemonic discourse. While we could simply note that Georgianization occurs fairly universally across that class, it would be much more interesting and informative to go beyond this normative viewpoint to examine the ways in which other classes and cultural groups adopted, changed, or rejected the Georgian world-view and its associated material culture—to examine where Georgianization came from, how it became hegemonic in the 18th century, what it meant and how those meanings changed over time, how and by what it was superseded in the hegemony, when and why it re-entered the hegemony in "revivals," and what remains of it today.

The present study will view tobacco use as an element of hegemonic discourse between classes and ethnic groups, as well as between men and women. The focus is on the 19th and early 20th centuries, although both earlier and later tobacco use is both interesting and relevant. While tobacco use may seem a minor area in which to approach major issues of class relations, those relations penetrated daily life and were interwoven with its threads. Class provided, and provides, contours for the surfaces of everyday activities and interactions, such that its operation may be seen in the most mundane and trivial actions.

The episodes of tobacco use that are found in the historical record are analysed along three major dimensions (after Mercer 1986: 54, who modified the procedure from Foucault 1972: 50-55). The first of these is the *site* of use—the position, in space, in time and in social context, in which the episode occurs. The second dimension considered is that of the *status* of the event—who the actors are, and their relative positions in structures of authority. Finally, the *subjectivities* of the behavior—the meanings that are conveyed—are considered wherever they are accessible.

The material record, or at least that portion of it that came from the backlots of what were once the James Street boardinghouses, is viewed as part of a hegemonic discourse that has much to tell us that is not illuminated by the documentary record, as well as much that is. The material adds a texture, a *reality*, to the surfaces of the past that are revealed in print, filling out what Raymond Williams (1977: 110) called "the whole substance of lived identities and relationships." Material is not seen here as just a passive product of economic behavior, but as an instrumental component of symbolic actions. The fact that symbolic behaviors are ephemeral makes their material traces that much more important.

* * *

Even today, tobacco communicates. Cigarettes, cigars, pipe tobacco, chewing tobacco, and snuff are all more or less accepted ways of taking tobacco, depending on where the user is and the circles in which he or she moves. Each allows us to make a statement about our identity, about how we would prefer to be seen by others, as well as about the company we keep. With our choices in clothing, food, and shelter, and our speech, the form of tobacco we use (or even the fact that we abstain), makes up a portion of the image that we present to the rest of society. In short, tobacco use is part of appearential ordering, part of our presentation of self.

Since the First World War, when cigarettes were first issued to the military, they have gained a progressively larger share of the tobacco market. To the extent that they have done this, cigarettes have relegated many other forms of tobacco to the role of symbols of regional cultural identity. In America at least, cigarettes began as a predominantly middle and upper class form of expression, more favored by women than men. Until the invention and widespread introduction of high volume cigarette rolling machines in the late 19th century, other forms of tobacco consumption were more common (Heimann 1960: 212). Tobacco use may still be a means of communicating implicit and explicit statements about social class, gender relationships, and ethnicity, but my contention is that it was much more often used as such before the boom in cigarette use.

During the 16th, 17th, and 18th centuries, pipes made from white ball clay were by far the most prevalent type on both sides of the Atlantic. The introduction of other materials, such as meerschaum, a rare mineral found in Asia Minor, had little impact on the popularity of "clays." Meerschaum was more fragile and much more expensive than clay, which limited its use to all but the wealthiest smokers. It was not until the introduction of sturdier and more reasonably priced brier pipes in the 1850s, and the introduction of the cigar from Spain and the Spanish colonies later in the century, that the predominance of clay pipes was threatened.

In the meantime, clay pipes had been changing. From the 16th century on, bowls steadily became larger (Oswald 1951), and stems grew longer. By the early 18th century, "alderman" pipes, with 18-inch stems, were in use. By the close of the century, "churchwardens," more than two feet in length, were being manufactured, although most of the pipes in use were considerably shorter (Walker 1977: 13). After the introduction of moderately priced brier pipes in the 1850s, which provided the middle class with an alternative to hot-smoking clays, the clay pipe itself, however short or long the stem, came to be identified with the working classes.

As a form of behavior, tobacco use has some unique aspects that should be taken into account. First and foremost, although tobacco is often mentioned in connection with

"flashpoints" of class, ethnic, and gender conflict, it is rarely the source of the conflict. Often instead tobacco use is mentioned to mark, or identify, the actual source of conflict for the reader, who is generally assumed to be of similar background to the writer. This marking is a function of the symbolic values that were attached to the smoking act, and which form identifiable patterns.

Another potential source of information is, of course, the archaeological record. In the course of tobacco use, people interact with and modify material culture, and their behavior may be approached through its material remains. That this is rarely done is the result of several factors discussed below, factors that have combined to form a sizable "blind spot" in the analysis and interpretation of archaeologically recovered clay pipes.

"Workingman's Cutties"

In July 1889, the residents of Elm Street, on Worcester's fashionable West Side, were reportedly ecstatic. A vacant lot in their neighborhood was sold to a local industrialist who wanted to build a home, putting an end to fears that Leonard Harrington, the previous owner, would attempt to erect a tenement there. Harrington was already unpopular for his practice of renting the other half of the duplex in which he lived to "representatives of all nations," whose behavior scandalized their more respectable neighbors.

> At one time a family of French [Canadian] people lived in the house. The men folk sat around the house and on the front doorsteps in their shirtsleeves and smoked *white clay pipes*, and of course that did not tend to soften the feeling of discontent among the neighbors that the Harringtons were lowering the tone of that particular section of the city (Worcester Sunday Telegram, 7 July 1889, p. 6, emphasis added).

In this case it was probably the deshabille of the offenders in such a public setting and the fact that they took their leisure in full view that upset their neighbors. In fictional treatments, the sight of a man in shirtsleeves on a front doorstep was grounds to sell one's house and move to a better neighborhood (cf. Whitehill 1968: 119–120). Although it may appear that the white clay pipes were in themselves offensive, it is more likely that they were mentioned only to remind the reader that Harrington's tenants were members of the working class and thus out of place on the West Side. By the 1880s, clay pipes were solidly established as the workingman's preferred mode of smoking.

During the 18th century, short-stemmed clay pipes became popular among the working classes (Fresco-Corbu 1964), probably because they could be easily smoked while working, while pipes with longer stems would prove unwieldy. Short pipes became known as "cutty pipes" or "cutties" to the Scots and British (from the 1770s) (Oxford English Dictionary II: 1296 [hereafter OED]), while the Irish referred to them as "dhudeens" (Walker 1977: 14). A British meerschaum smoker, writing as "Caius" in the 1830s, described a porter that he hired to carry his portmanteau from the coach office to his hotel as "smoking from a short pipe the whole way" ("Caius" 1836: 386). The distinction between long and short-stemmed clay pipes clearly involved a social differentiation as well; a later writer commented on this, as well as on the popularity of clays in Britain on the eve of the First World War:

> The old pipe rack, with its long row of churchwardens and Broseleys—at one time an indispensable fitting in most bar-parlours—has vanished. These pipes survived long after the sixties of the last century and the advent of meerschaums and briars. Professional men and tradesmen met nightly to smoke their long pipes and to discuss scandal and affairs of state. By an unwritten law working-men and their habiliments were excluded, except under the wing of a protector. *He was a bold man who would enter with a short clay pipe in his mouth.* This curious notion concerning the appearance of the short clay still exists, although the enormous quantity of them sold shows it is a general favourite with smokers (Moseley 1913, emphasis added).

Indeed the churchwarden, "beloved of Carlyle and Tennyson," was easily distinguishable from the "short clays of the farmhands and other labourers" (Anonymous 1913; Prideaux 1913).

Figure 11–1, Henry R. Robinson's lithograph, "The Smokers," provides a satirical American view of the class differences involved in smoking behavior during the 19th century (the lithograph is dated 1837). Two Black laborers, a chimney sweep and a bootblack, discuss the relative social and economic merits of "half Spanish" cigars, and those made entirely from domestic leaf. On the right, a gentleman in top hat and tails exclaims, "'I follow in the footsteps of my illustrious predecessor,' the greatest and best, and smoke a pipe." Indeed the pipe is a churchwarden nearly as long as the smoker's arm. The smoker is seated on a chair, with his legs crossed—as if to emphasize the ridiculousness of attempting to smoke such a pipe on the street! By contrast, a silent figure on the extreme left goes about his work in his shirtsleeves, with a hod on his shoulder. He is also smoking a clay pipe, but one that projects

Figure 11-1. "The Smokers," Henry R. Robinson, lithograph, 1837. Arents Tobacco Collection, New York Public Library. (Courtesy New York Public Library.)

only a few inches from his mouth. The class message is clear—gentlemen smoke long pipes, laborers smoke short ones. The lithograph vividly illustrates that acts of tobacco consumption carried with them symbolic import, serving to reinforce class and ethnic distinctions, to the extent that they could be stereotypical.

As the 19th century progressed, the identification of clay pipes with the working classes became more pronounced. An 1869 article surveyed clay pipes of different materials and observed that in the category of white clay pipes one would include "the 'common run' of democratic or workingman's clay pipes" (Anonymous 1869: 147). A forward-looking 1897 author saw an evolution towards greater "spiritualizing of smoking...in the change from the blackened 'cutty' of the laborer to the light, quickly consumed, neat, and delicate cigarette" (Anonymous 1897). In 1903 it was observed that "in almost every cigar shop window [in New York], in the mouth of every third laborer met...this snow white little instrument of comfort and amusement may be seen" (Anonymous 1903).

Clays were favored not only by laborers, but by skilled workers as well. When Sherlock Holmes went undercover in "The Adventure of Charles Augustus Milverton," he did so as

> a plumber with a rising business...a rakish young workman, with a goatee beard and a swagger, [who] lit his clay pipe at the lamp before descending into the street (Doyle 1963: 166).

Doyle certainly understood the importance of the pipe as a symbol in the presentation of self and used it as a brilliant device to convey the authenticity of Holmes' disguise as well as the effectiveness of his attention to detail.

Economic factors certainly played a role in dissuading the working classes from following the middle class in the direction of briers and meerschaums. Clay pipes were far and away the least expensive. In 1869, clay pipes cost between 50 cents and $1.20 per gross, briers cost between $5.00 and $25.00 per gross in Europe, prior to being shipped to America (where they were certainly more expensive), and the price of meerschaums was "always comparatively high and may reach fabulous, or 'fancy' prices" (Anonymous 1869). In Boston in 1883, clay pipes sold at retail for as little as one and two cents each (Walker 1983: 39).

Such economy could be supremely important. The average Lowell mill worker's wage in 1900 was $0.10 per hour, or $6.20 per week (Brown 1976: 148n). At about this time, the average price for brier pipes listed in the Sears, Roebuck and Company catalogue was nearly $1.25, and the cheapest block meerschaum pipe was $2.83, an amount that exceeded the weekly room and board fees at the boardinghouses (Sears, Roebuck and Company 1908: 1044–1046; see also chapters by Bond and Landon, this volume). Under such circumstances, it is understandable why a working-class smoker might prefer as inexpensive a pipe as possible.

Economy, however, was not be the sole motive behind workingmen's preference for short clay pipes. Just as the middle class used pipes to determine who should be included in their gatherings, so could the working classes use them as a signal of identity, even a symbol of pride. This was not lost on pipemakers. All of the manufacturers in Glasgow, the major producers of pipes for export, made a "workman" model of pipe by 1900—W. White & Son made a "Workman's Cutty"—most also made "Miner" pipes (Associated Tobacco Pipe Makers' Society of Scotland and Ireland [hereafter ATPM] 1900). A mule spinner who appeared at his local saloon with a 28-inch churchwarden might find himself the butt of his fellows' humor.

A short stem will result in a hot smoke, so another motivation may have been the desire for such an effect—smoking for sensory stimulation, as much as for the relaxation and reflection that often motivated the middle class (Anonymous 1835: 134–135, 1867: 124; "Caius" 1836: 386–387) Compare this with the belief among Colombian mestizo laborers that it is "particularly pleasurable" to smoke a cigar with the lit end inside the mouth (Reichel-Dolmatoff and Reichel-Dolmatoff 1961: 198). There is some evidence that middle-class smokers preferred milder tobaccos than did the working classes (Loftus 1881: 12, 17), but on the other hand, there is also evidence evidence that while short stemmed pipes may have smoked hotter, they "colored," or broke in, easier and that once this process was complete they provided a mellow smoke (Anonymous 1868: 26-27; Machen 1884: 54).

One middle class satirist, writing in the 1880s, commented that short clay pipes were "light and easy to be carried in the mouth," and that they become "saturated with tobacco, and so excellently sweet," and finally that they were

> an insult to "decent society"—I considering "decent society" as a filthy and obscene harridan which every *man* does well to trample on and defy (Machen 1884: 54, emphasis in original).

Some working-class smokers no doubt shared Machen's attitude toward "decent society," and used short clays to announce their presence to the middle class using an upsetting but easily understood symbol. In short, one element of the

pleasure derived from short clays must have been the discomfort of others. This seeming lack of concern for hegemonic sensibilities was a common working-class approach to class relationships (Meacham 1977: 20-21), and constitutes an important element of "style," in Hebdige's usage.

The fact is that there simply is not enough documentation from workers themselves on the subject to be able to say for certain why they preferred clay cutties. Like the laborer in Figure 1, the working classes themselves tend to be silent in the documentary record. When they do speak in the writings of the middle class, as does so-called Caius' porter, there is an air of deference and acceptance of "station"—not surprising, if he hoped for a tip!

In New England, and probably elsewhere in America as well, clay pipes were known generically as T.D.s, after the initials that appeared as decorative elements on the most popular models—the one to two cent models mentioned by Walker's unnamed source as coming from Scotland (Walker 1983: 38–39). "T.D." was apparently a generic name for clay pipes as late as 1908 (Cooper 1908: 381). A statistical exploration of wholesale price and labor cost information on the two existing Scottish pipe lists (McDougall n.d.; ATPM 1900) revealed that on the 1875 list, T.D. pipe models had significantly lower wholesale values than the list of types as a whole, supporting the interpretation that their low price was a factor in their popularity (Cook 1988: 16).

By the early 20th century, middle class use of the long-stemmed pipe was taking place in what was apparently a ritual setting, as William L. Calver explained in 1931:

> Even in our day the breakage of the "Churchwarden" in transportation is enormous, and the price consequently high. At the annual meetings of certain societies, "Churchwardens" are smoked by the members present and their guests. With due care the pipes used are borne to the homes of the smokers, and are there deposited with other implements of their kind—a ceramic record of the smokes of other years (Calver 1950: 287).

Unfortunately, neither the names nor the purpose of those "certain societies" is provided, but it is likely that at the time that Calver was writing, clay pipes were rapidly being replaced by cigarettes among the working class. What is clear about the middle class preference for long-stemmed clay pipes is that it derived from their relation to what Veblen called "conspicuous leisure." The very fact that one could do no menial work while smoking a pipe with a 24-inch stem implies that one could afford the time to do nothing (cf. Veblen 1899: 43). It is also informative to look at artificiality of pipe materials and the degree of mechanization involved in their manufacture. Clay must be substantially altered to be useful, and clay pipes were mass-produced, albeit largely through manual labor (Anonymous 1852). Briers and meerschaums on the other hand are of natural material, unmodified except in the carving process, which must be done by hand, increasing their value as status goods (cf. Fussell 1983: 52–53, 73).

What is most interesting about the expression of class differences through pipe preferences is that it does not appear to be a source of overt class conflict. When they appear in situations of actual conflict (as in Worcester in the 1880s) or potential conflict (had any laborers attempted to horn in on Moseley's gossiping tradesmen in the 1860s), clay pipes are present more as a visible symbol of the class differences that underlie the conflict, rather than as objects of contention in and of themselves.

Unlike drinking, smoking among the working class was often viewed by middle class writers as something held in common across class boundaries. "Caius," writing in the 1830s, was careful to point out the difference between "smokers" who enjoyed, and "puffers" who merely followed habit, designations that he allowed could be independent of class. One anonymous humorist observed that both the immigrant "from the Emerald Isle with his short dhudeen" and the "west End exquisite, with his real Havannah" contributed their share of smoke to the London fog (Anonymous 1842: 66).

Where smoking engenders conflict it is more often a matter of disagreement over the appropriateness of public versus private performance of certain actions. In short, working class leisure often involved recreation and relaxation, including drinking and smoking, in public places, such as streets, saloons, and public parks, while the middle class preferred that such activities take place indoors. The friction generated by conflicting notions of proper behavior led the middle class to attempt to legislate their concepts of correct behavior, and was a major factor in the residential segregation that characterized the industrial city (cf. Rosenzweig 1983). The British and New England standard of propriety held that

> A gentleman should as soon be seen eating his dinner in the public streets, as smoking a segar [sic]. Both are proper in their places; and both may become, in some situations, worse than ridiculous. (Anonymous 1835: 134)

and that

> It is vulgar to smoke in the streets and parks, (unless in a very secluded part of the latter,)...The linen-drapers' shopmen, *et id genus omne*, delight in strutting with segars in Regent Street; and what gentleman smoker wishes to be identified with such? ("Caius" 1836: 387)

As late as the 1880s, one could be "too much of a gentleman to smoke on the public thoroughfare, or in the immediate presence of ladies" (Gould 1886–1887: 511).

These conceptions of proper behavior varied according to region, as well as according to class. John Richard Dennett, who visited the North Carolina legislature immediately after the Civil War, remarked upon several members smoking (long stemmed pipes, of course) during an address. Another member removed a quid of tobacco from his mouth and held it in his hand while speaking, that he might speak more clearly! Dennett (who was from Massachusetts) observed that such behavior, "in a Northern assemblage of similar character, would have provoked animadversion or laughter" (Dennett 1965: 157).

By the mid-20th century, tobacconists and others could recommend clay pipes to the serious connoisseur as an occasional change from briers and other pipes (Herment 1955: 20; Anonymous 1952). By this time, clays had apparently lost their symbolic connections with the working classes.

Tobacco, with drinking and other activities, was an element in the discourse over leisure behavior. Alternate hegemonies divided along class lines contested control of public space, and smoking was one of the weapons wielded by the working classes. By the mid-20th century the working-class contribution, smoking in public places, had become hegemonic, illustrating the ability of working-class culture to negotiate at least some of its practices into cultural dominance

The attention of social historians who have investigated class relationships has inevitably been drawn to points of conflict—strikes, riots, and resistance to changing technologies in the workplace—what Gareth Stedman Jones (1977: 163) has called the "flashpoints" between classes. This is perfectly understandable, as open conflict of any sort tends to be well documented, especially if it is ultimately mediated in the legal system, and at "flashpoints," the issues and interests of historical participants become visible to the historian. Class differences that do not involve conflict are not as easily visible and do not call as much attention to themselves.

Consumption of alcohol was the focus of considerable conflict between the working class and middle and upper class interests throughout the 19th century and well into the 20th century. Tobacco consumption generated a fair amount of rancor in some quarters, but the issue was not divided along the clear class lines of the temperance movement. In fact, an anti-smoking law in Utah failed during the 1920s because it was aimed at an acceptable middle class pleasure, after-dinner smoking in restaurants. The first (and only) arrests were of several businessmen and a newspaper manager—the law was repealed at the insistence of the Salt Lake Chamber of Commerce, the Salt Lake Lions Club, and the Utah Manufacturers Association (Dillow 1981: 95, 106–107).

In sum, smoking in and of itself was not a class-based activity. There were, however, distinctively class-linked elements to smoking behavior: the smoking materials used, their practicality and their cost; and the context in which smoking occurred—whether in public, in full view of all, or in the privacy of the study or club room. These aspects of material culture and situation commanded contemporary attention to the extent that they figure more prominently in written discourse than the everyday nature of smoking behavior would suggest.

Part of working-class "style" may have consisted of the intentional breaking of middle-class rules that dictated the proper places to smoke. Arthur Machen felt that short clay pipes were most appropriate "to be used in the parks and public places for the annoyance of fools" (Machen 1884: 55), and there is no reason to believe that he was alone in that respect. One cannot help but suspect that Elm Street's immigrants derived a certain satisfaction from the irritation that their attire and smoking behavior caused among their more genteel neighbors.

Tobacco use has aspects that set it apart from other means of class expression. It sometimes appears in connection with conflicts between classes, and although it is seldom the cause of conflict its presence and involvement offer evidence of the ways in which material items and non-verbal behavior communicated class differences. That clay pipes in the mouths of French Canadian immigrants could figure so prominently among the concerns of their middle-class neighbors testifies to the power of such commonplace items to become symbols and to affect people in unanticipated ways.

"Representatives of all Nations"

Just as modes of cultural self-expression varied according to class, they also varied with ethnic background (e.g., Samson 1960). The status inherent in and the class messages conveyed by different methods of smoking or taking tobacco are cultural variables and are interpreted differently by members of different cultures, much as with the consumption of alcohol. The ethnic groups that settled the New World, either by choice, from necessity, or against their will, either brought distinctive tobacco-related behaviors with them or adopted them once here.

Tobacco use in Europe began with the Spanish and the English and spread across the continent from those two nations. The Spanish tobacco tradition centered around the cigar, while the British tradition centered around the pipe. To some extent these generalizations may have reflected the native practices in the colonies of each nation (Walker 1977: 55).

Within the British Isles, there were some ethnic differences that developed by the early 17th century. Snuff became extremely popular in Scotland and Ireland and remained so in Scotland well into the 19th century (ibid.: 49). As the 19th century progressed, Scotland became the primary manufacturing center of the United Kingdom for clay pipes for export, and the Irish came to be associated with the Scotch product.

By the time that the Irish began to arrive in America, they were often identified as smoking the "dhudeen," a particular Irish term for the short-stemmed clay pipe. The stereotypical figure of the "bog-trotter of the Emerald Isle with his short dhudeen, and his mouth full of 'taith'" (Anonymous 1842: 66), or the "Irish coal-whipper...with his dhudheen..." ("Caius" 1836: 385) was a familiar caricature in the mid-19th century. The image is so strong to this day that it crops up every Saint Patrick's Day in the form of the Leprechaun—with the stem of his pipe now long and curved.

An article that illustrates a Canadian collection of unique pipes (Anonymous 1904) indicates that one of the pipes, of white clay with a stem about four inches long, was "smoked by A. Molley Maguire [sic] while being hanged." Despite the apparent typographical error, it is clear that the smoker in question was a member of the Molly Maguires, a secret society among Irish immigrants in the Pennsylvania coalfields. The society, which was active between 1862 and 1875, approached labor relations according to established Old World tradition—by sending anonymous threatening letters, and by blackening their faces and committing assaults and offenses against property (Coleman 1936: 47, 78–91). The Molly Maguires were infiltrated by the Pinkertons, and 20 were hanged in 1877 (Broehl 1964: 340). The presence of the pipe in the collection points up its use as a symbol of Irish-American working-class solidarity and labor activism.

There is no question but that clay pipes were preferred by the Irish. This is reflected in the model names in the Glaswegian firm of Duncan McDougall & Company's "Irish Price List," dated ca. 1875 (McDougall & Co. n.d.), and in their wage list of 1900 (ATPM 1900: 5–16). In the earlier document, 31 of the 168 pipe types (18.5%) appear to have Irish connotations. By about 25 years later, the percentage has dropped slightly, but 69 of 410 types have Irish associations. The "Dublins" and "Derries" in these lists are are almost certainly references to pipe shapes, while "Erin Go Bragh," "Harp," and "Flag of Ireland" are more likely to refer to decorative motifs. Some of the sentiments, such as "Home Rule," had political connotations. That such pipes were actually made and imported to the United States is borne out by importers' catalogs (Sudbury and Pfeiffer 1983: figure 1), as well as by excavated examples (Alexander 1986). Several such pipes, including a "Home Rule" pipe (see Figure 10–16) and an "Erin/[Wolf] Tone" pipe (see Figure 10–18) were recovered from the Boott Mill Boardinghouse excavations, and are discussed in Chapter 10.

There is some evidence that African Americans also smoked white clay pipes. Newspaper advertisements in the South referred to clays as "Negro Pipes"—clay pipe fragments are frequently encountered on slave cabin sites (Otto 1984: 76). The extent to which conditions in the South may be applied to other areas in the country is questionable, although clay pipe fragments have been recovered from free Black sites in the North as well (Geismar 1982: 143, 224–225). In fact, at least one pipe fragment marked "[ne]gro pipe," apparently made by a London pipemaker active during the second half of the 19th century, has been published (Pfeiffer 1983).

Immigrants from Germany and the Slavic areas of Eastern Europe had their own smoking preferences. Although the German upper classes favored meerschaums, the working classes preferred composite pipes, with separate mouthpieces, stems, and porcelain bowls (Machen 1884: 51; Walker 1977: 67). William Long, who started business as a tobacconist in Philadelphia in 1845, his inventory included six "German pipes," valued at $.09 each (Long n.d.: 4). By the turn of the century, such pipes were in

common enough use in this country that Sears and Roebuck sold several varieties, ranging in price from $.79 to $1.33, along with replacement stems (Sears, Roebuck and Co. 1908: 1045). A smaller and less ornate pipe is shown in use in Byington (1910: opp. p. 137).

As mentioned above, the Hispanic tradition favored cigars over pipes, and it was apparently through the Spanish colonies that the cigarette entered the New World. In areas where Anglo-Americans and Hispanic Americans came into direct conflict over land and resources, as in California during the 1850s, ethnic conflict could be expressed in terms of tobacco use. An Anglo-American judge in early San Francisco, who clearly had no liking either for the "Chillenos" or the cigarettes that they smoked, made his sentiments known from the bench. One trial for horse theft reportedly consisted of the following exchange:

> "Do you smoke cigarettes?"
> "Si, señor."
> "Do you blow the smoke through your nose?"
> "Si, señor."
> "Then I find you guilty as charged, and may God have mercy on your soul! Constable, take this fellow out and shoot him! He stole that horse, sure enough!"(Asbury 1947: 49–50)

Again, as with class conflicts, it would appear here that the underlying conflict is not the smoking behavior in question, but rather in its ethnic implications.

The smoking behaviors of other ethnic groups are more problematic, largely because of a paucity of documentary evidence. French-Canadians made up a substantial percentage of the workforce in New England textile communities, including Lowell. Although there are a few tantalizing glimpses, such as the 1889 Worcester incident, that suggest that their smoking behavior may have been similar in some respects to that of their Anglo-American counterparts, more research needs to be done on their expression of ethnicity through smoking behavior. We may assume, however, that cases such as that of Andre Beaulieu are atypical. Beaulieu preferred a corncob pipe, and was smoking nearly two packages of tobacco each week. This attracted the attention of the Lowell Humane Society, which felt that Andre should have been cultivating habits more typical of other three-year-olds. When they confiscated his pipe, which he had been smoking daily since he was 18 months of age, Andre "screamed with anger and aroused the neighborhood." His mother, who would have been 15 years old when Andre was born, was probably telling the truth when "she claimed to be unaware that tobacco would hurt the child," and the Humane Society allowed him to remain at home (New York Times, 15 December 1906: 1). The whole episode is probably more indicative of a working-class teenage mother's desperation than of any ethnic practice.

A problem in examining the relationship between ethnicity and smoking behavior is that it is often difficult to distinguish between class and ethnicity. If arriving immigrants began life in America at the bottom of the social and economic scale, as many did, how can one determine the extent to which ethnicity, rather than class, influenced their behavior? Or for that matter, how can we be certain that 19th-century observers were not interpreting ethnic behavior as class behavior—saying, for example "laborers," when they meant "Irish laborers"? The answer is that very often we cannot be certain, and in fact it is probably sufficient to be aware that class and ethnicity are often closely interrelated, and that both could be symbolically mediated simultaneously, often through manipulation of the same objects.

While tobacco use was an element of the "lived system of meanings and values" of all ethnic subcultures, and thus formed part of their contribution to the hegemonic discourse, there is no evidence that ethnic differences were ever as contested as class differences in the domain of smoking behavior. Rather than the "competing hegemonies" of class-based behaviors, ethnic differences in smoking behavior seem to have been accepted by the majority culture as legitimate characteristics of ethnic subcultures. In short, they constituted "alternate hegemonies" in a sphere of life—ethnic identity—which was not contested through smoking behavior, except where that behavior was perceived as class-based.

"No man shall dictate to me"

The issue of gender-based differences is both fascinating and complex. The question of how many women smoked during the late 19th and early 20th centuries is subject to many popular misconceptions. Advertisements for Virginia Slims cigarettes over the last several decades have attempted to place women's right to smoke among the goals of the women's suffrage movement. These advertisements are intended to portray smoking as an act of rebellious self-expression (by women attired in the trappings of the middle class) in the face of societal disapproval—that is, to capitalize on the renewed women's liberation movement of the 1960s and 1970s. In an unusual form of sexploitation, they reflect a distorted view of

turn-of-the-century middle and upper class attitudes, through blatantly fabricated vignettes. Although this kind of alteration of the past can occur unintentionally, it is plain here that the intention was to link the product with a historical activity—resistance to irrational and petty authority—even if that activity has to be invented. In short, "we alter the past to become part of it as well as to make it our own" (Lowenthal 1985: 331)—appropriating and articulating it in the service of present-day goals. The Virginia Slims ads are a clear example of what Roland Barthes called the mythologizing of the ordinary. In Barthes' terms, mythologization occurs when the normal semiotic relationship is duplicated on another level (Barthes 1957b: 199–200). The symbolic act—the woman smoking to signify resistance to male strictures—constituted a sign in its original context. Here, it has been appropriated in its entirety as a signifier of something else altogether—a brand of cigarettes, or at least the desirability of smoking them. Resistance has in this case been trivialized and neutralized. So what if women make half as much as men? At least they're allowed to smoke now (i.e., "You've come a long way, baby!"). The advertisements may even have had the effect of calming women who were alarmed by the stridency of the contemporary women's liberation movement—trivializing past conflict makes the present conflict seem less threatening (Lowenthal 1985: 345).

The fact is that smoking was not an arena in which the drama of suffragism was played out, and few if any suffragettes expended their energy on such peripheral topics. An examination of any sample of historical writings on women's issues in the late 19th and early 20th centuries will indicate that if women were forcing their own arrest and being jailed, it was because they wanted the right to vote, not to smoke. Both the open conflict over the right to vote and the friction over tobacco-use were forms of resistance to male conceptions of what constituted the women's sphere in society. As a form of symbolic behavior, smoking could be used by women to bring essential issues into view.

On 21 January, 1908, New York Alderman Timothy "Little Tim" Sullivan, succeeded in passing an ordinance to prevent women from smoking in public places. There were some questions about the law's validity, and it was set aside by the Mayor in early February (*New York Times*, 21 January 1908: 1; 4 February 1908: 1). Although questions of whether or not the Aldermen had overstepped their authority provided the justification for the mayor's decision, the reason was more likely the law's potential as a ground for conflict.

Only one person was arrested and charged for violating the "Sullivan Law." Two days after the law took effect, a Patrolman Stern arrested 29-year-old Katie Mulcahy for lighting a cigarette on the Bowery. The accused refused to divulge her address or to pay the $5.00 fine. She was led away to spend the night in jail, "carrying her package of cigarettes." Her parting words to the judge (which for some reason never made it into the Virginia Slims ads) were "No man shall dictate to me"—a singularly accurate appraisal of the ordinance's intent (*New York Times*, 23 January 1908: 1).

There is ample evidence that women smoked, in both Britain and America, in the 17th and 18th centuries (cf. "St. Swithin" 1909; Hodgkin 1909; Heimann 1960: 89). A British writer remembered seeing "respectable old women smoking 'churchwardens' here and there in country places," during the 1850s (Anonymous 1909), and it was apparently at about this time that smoking among women in both Britain and America began to decline (Heimann 1960: 90). There is no evidence that it was considered particularly daring or disgraceful for women to smoke before mid-century. In fact, the wives of Andrew Jackson and Zachary Taylor both were pipe smokers (ibid.: 90).

The evidence for a decline in smoking among women is admittedly based on information concerning the middle and upper classes in urban contexts. By the 1890s, smoking was not an activity in which "respectable" women (or men, for that matter) engaged while in public. It is difficult to say how thoroughly, if at all, this ethic was adopted by working class women and by women in rural areas. A broadside on the ill effects of tobacco from the 1870s or 1880s mentions women smoking pipes in Ohio (Anonymous 1964), indicating that the practice continued among some rural women.

There is every reason to believe that among working class women smoking remained popular. A British woman, herself a smoker, allowed that "among the lower classes there are a few women who smoke," counting vendors of fruit and fish among them, as well as

> the aged women of the Negro and Celtic races, exemplified in the old freed slaves and Scotch and Irish croons, who have led a life half man-like in toil, half brute-like in its obedience to unreasoning instincts. (Hunting 1889–1890: 220–222)

By contrast, the same author found smoking prevalent among the upper classes, where "so many keep [their smoking] habit as secret from

members of their own sex as from men," although "in some country houses it is no uncommon thing for the ladies to join the gentlemen in the smoking-room, and to mingle the fumes of their dainty, mild-flavoured cigarettes with the more masculine cigar smoke" (ibid.: 221, 222). Women art students and artists were even noted as smoking pipes, including clays (ibid.: 222).

In America, tobacco use among women was subject to considerable regional variability. After the Civil War, John Dennett, a Massachusetts journalist, noted pipe smoking and snuff-dipping among white rural southern women (Dennett 1965: 96, 117). A quarter of a century later, the latter practice either continued, or was popularly considered to do so, to the extent that Hunting could refer to

> those uncultured women, both rich and poor and of all ages, in the southern and western parts of the United States, who indulge openly in streets, tramcars and theatres in the practice of tobacco-dipping, i.e. dipping a short stick into a box of snuff and inserting it in mouth or nostril (Hunting 1889–1890: 220).

In California, the Spanish tradition of tobacco use apparently won out. An 1891 advertisement for A. Coolot, a Sacramento wholesale tobacconist, lists 68 varieties of cigars, exactly half of which are described as "young ladies' cigars" with brand names—"smiles," "sweet lips," "bright eyes," "pansy blossoms," etc—that leave little doubt about their intended market. Coolot was also described as the sole West Coast agent for the "Young Ladies Standard Cigar Factory," which may account for the prominence of such cigars in his line (Weinstock, Lubin and Co. 1891: 116–117). Nevertheless, it is clear that cigars were readily available to women in California and wherever else the Young Ladies' Standard Cigar Factory did business.

Contrast this with the Northeast, where cigars were not for women. Clearly, the ideal in the region from the mid-19th century on was that middle and upper class women did not smoke, and that gentlemen did not smoke in their presence. Travelling through Georgia in 1865, Dennett, seeing cigars sold aboard railway cars, remarked that "it was assumed that the ladies would make no objection if they were smoked" (Dennett 1965: 266). Elizabeth Porter Gould's (1885–1886) discussion of college girls' attitudes towards smoking concerns not women themselves smoking, but rather their opinions of men who smoked—that the women in question did not smoke was a given. The reality was almost certainly that Northeastern women were smoking in private. Tensions began to grow during the first decade of this century, when women began to experiment with the boundaries of propriety, something that their British sisters had done more than a decade earlier. In 1906, an anonymous non-smoking woman observed in the pages of the New York Times that "in this country it is still considered not quite 'the thing' for a woman to take a cigarette so she hides the habit, or attempts to hide it," while "in England it has long ceased to be a matter for comment when a woman smoked either privately or publicly" (Anonymous 1906). She further mentioned that she had never seen a woman smoke until she visited London in the mid-1890s, on which occasion a man offered her a cigarette at a social function, while half a dozen women smoked nearby—the experience led her to question whether she had "got into a crowd that was not exactly 'nice,'" and that it took her about two years to get accustomed to seeing women smoke (ibid.). The experience was an even greater shock to an American man who witnessed women smoking in a London restaurant—he stormed out, apologizing for choosing a disreputable establishment, making it clear that he felt it very forward of the women to be smoking in such a place (ibid.).

It is clear that during the second half of the 19th century, radical changes occurred in the leisure behavior of the middle and upper classes as well as in gender relationships. It would appear that in the urban Northeast, the act of smoking had ideally become exclusively male, practiced alone or in the presence of other men, in places set aside for the purpose and off-limits to women—clubs, smoking rooms, and smoking cars on trains. Hegemonic behavior required female abstention from tobacco, especially in public. Smoking was associated by men and women alike with other male behaviors that were considered coarse and offensive to women. Whatever these behaviors may have been, their association with smoking was so deeply ingrained as to bring forth a deep sense of unease, or even disgust. This is a case where the act of smoking could cause conflict, associated as it was with this implicit ulterior meaning.

Although the structure of this behavioral complex is unclear, some outlines may tentatively be sketched. Tolstoy, at about the same time, held that

> there is a certain well-defined, undeniable interdependence between smoking and the need to silence one's conscience, and that smoking does undoubtedly produce that effect.... When do boys begin to smoke? Almost invariably when they have lost the innocence of childhood.... Why is it that among the female sex the women who lead

> blameless, regular lives are the least addicted to smoking? Why do courtesans and the insane all smoke without exception? (Tolstoy 1891: 179)

This almost pharmacological approach to virtue is misleading. It may in fact be a polite circumlocution to avoid detailing the symbolic meaning of women smoking in the presence of men. It appears that public smoking, or even displaying visible evidence of being a smoker, was a means by which women signalled sexual availability to men. In Victorian Britain, where appearential ordering often hinged on minute details of dress or appearance, a man might interpret a "slight discoloration of the teeth" as a sign of sexuality (Sennett 1978: 166). A 1908 *New York Times* editorial baldly tried to link the importation of cigarette smoking from Europe to "continental" social scandal, which they apparently meant infidelity. The offended American man in the London restaurant was amazed at the respectable appearance of the smokers at the nearby table—"no make-up...rather dowdy in dress"—as though he expected something else entirely (Anonymous 1906).

This aspect of tobacco symbolism is understandably not discussed in the writings of those women who advocated tolerance of public smoking. How women were to maintain the all-important appearance of modesty, while engaging in behavior that signalled the opposite, was a thorny but not insoluble problem. The ruffled dandy's dinner companion was careful to point out that while in England an unmarried woman "in good society" could smoke a cigarette with a man, she was usually chaperoned while she did so (Anonymous 1906).

The extent to which this moral construct applied to the working class as it did for "good society" is not clear. Victorian attitudes toward sexuality and class combine to make any statements about smoking behavior among working-class women highly suspect. William Acton, a 19th-century writer on sexuality distinguished between "the majority of women" and "low and vulgar women," intimating that sexual attitudes varied with class (quoted in Marcus 1964: 32). It may well be that in the case of smoking behavior the bourgeoisie was defining an ethic in opposition to and perhaps in response to what they perceived to be the dominant working class ethic (cf. Montgomery 1980).

Women's agitation for the right to smoke in public coincided with a general revolt among bourgeois women against what many perceived the overly restrictive appearential ordering of the Victorian Era. In the 1890s, women began wearing makeup, silk petticoats and marcelled hair, while drab colors and some physically restrictive garments, such as the bustle, went out of fashion (Sennett 1978: 183-190). It is likely that cigarette smoking was part of this shift in fashion, which was distinct from suffragism, although the two may have influenced each other. Change was slower in coming to America than to England, but by 1910 the moral repugnance of seeing women smoke in the presence of men had begun to diminish in the Northeast, leaving only discomfort in its wake. In December of that year, a woman accepted a cigarette from a man in the dining room of the newly-opened Ritz-Carlton Hotel in New York, and calmly smoked it. She attracted the attention of the patrons, the waiter, the head waiter and the manager, all of whom were either too stunned, or more likely too polite, to interfere (*New York Times*, 18 December 1910: 14). This was by no means the last word on the subject. Thirty years later, Emily Post advised that "a [well-bred] woman does not yet smoke on the street" (Post 1940).

The evidence points to a contested shift in smoking behavior among middle-class women, which took place in Britain in the 1890s and in the urbanized eastern United States during the first decade of this century. Although women often phrased their verbal and written justifications for smoking in public in terms of their being granted the same rights as women in other societies, their insistence, coming as it did at a time when suffragists were agitating for the right to vote, was interpreted as a desire for equal rights with men in their own society. Through the symbolic behavior of public smoking, middle-class women were visibly resisting the limitations of Victorian conceptions of the women's sphere, which was often expressed in strongly moral terms, but they were doing so in a way that could be made to appear politically innocent if necessary. The horrified reactions that their symbolic resistance provoked has led many, (most notably the makers of Virginia Slims) to equate it with Suffragism, which was not necessarily the case. All in all, the most intriguing aspect of this resistance is that rural and working-class women may have been engaging in it long before their more privileged sisters.

The Archaeology of Smoking Behavior: The Boott Mills Data

We have seen from a variety of literary and historical sources that such mundane and insignificant objects as common clay tobacco

pipes played significant roles in the construction of class consciousness and often were instrumental in its articulation. While articulation of class differences is most visible to us in situations of conflict, it is clear that smoking was an integral part of day-to-day relaxation among working people as well as among members of the upper classes.

With such a wealth of documentary information available it is surprising that historical archaeologists and students of material culture have largely neglected the behavioral context of tobacco use. They have concentrated instead on descriptive studies and on investigating technological attributes of clay pipes that relate most closely to chronology.

Clay pipes are among the most commonly described artifacts in the archaeological literature. One reason for this is their ubiquity on archaeological sites in the United Kingdom, much of Europe, English and French North America, and Australia, on sites up to the 20th century, and their presence on late prehistoric and historic period sites in Africa and Latin America. A second reason is that because of the great variability in decoration and marking on pipes, and the usefulness of those marks as dating tools, a number of archaeologists have specialized in their study. Pipe fragments are often examined and published separately from the other site materials, generating an immense bibliography, most of which is descriptive in character. In addition there are several journals devoted to the subject, and a long-running series on clay pipes is published by British Archaeological Reports.

The principal use to which clay tobacco pipes have been put is in dating archaeological sites and features. In addition to the marks of known makers, pipes have been dated by a variety of methods, most frequently through comparing bowl shapes with comparative material of known date, and through examination of the distribution of the values of the diameter of the stem bores, which are known to have grown smaller at a more or less steady rate during the 17th and 18th centuries. The most frequent application of the latter method is the "Binford formula," a statistical treatment that requires a large sample of pipestem fragments, and which breaks down and produces distorted results when applied to contexts later than ca. 1780.[3]

This has led to a gap in the study of clay pipes. Samples from 19th and 20th-century sites are rarely discussed unless they contain specimens with dated marks or complete bowls. Even then there is a problem with American sites. The most prolific exporters of pipes to the New World during the 19th century tended to be the most successful and to be in business the longest—hence, their marks are the least useful for dating purposes. In addition, very little 19th-century material from urban contexts on the Eastern seaboard has been published—attention has gone instead to earlier materials that are more easily dated.

The Boott Mills tobacco pipe collection includes 488 white clay pipe fragments. Of these, 110 were recovered during preliminary testing (Beaudry and Mrozowski 1987a), and 378 during the excavation of operations A and B. Two terra cotta pipe bowl fragments and a terra cotta mouthpiece round out the clay pipe component of the collection. Two plastic pipestems and what appears to be a bone mouthpiece were also recovered. Other tobacco related artifacts included two fragments of a redware cuspidor with molded relief decoration and a fragment of a blue cellulose pocket calendar issued by a local tobacconist in the mid-1890s. All of the tobacco-related material is analyzed in detail in Chapter 10 of this volume, and I refer the reader there for details on the collection.

Dating

Most of the datable clay pipe fragments in the collection were deposited after 1890. Although the Binford pipe stem formula produced a date of 1761 based on bore diameters, this date is more than 60 years before the city of Lowell was established. The shift to the use of the country of origin in makers' marks, which was required by the McKinley Tariff Act of 1891, provides much more secure dates. Of the legible Scottish pipes in the boardinghouse collection nearly 80% are marked "Scotland." The immediate implication of this is that much of the material in the collection was manufactured—and hence used and discarded—after 1891. By that time clay pipes were a badge of the working classes.

This dating criterion permitted the assignment of post-1891 dates to eight features. Most of these were in Operation A, probably in large part because more of the features in that operation were excavated than in Operation B. In addition, there was a difference in the distribution of dateable material recovered from levels, as opposed to features, between the two operations. Earlier, pre-1891 marked Scottish material is concentrated in level 1 of Operation

[3]For extensive discussions of dating methods, see Noël Hume 1963; Walker 1965, 1967; and Pfeiffer 1978.

B, while the post-1891 material is distributed across the site, in level 1, there is a fair amount in all levels. Possible explanations for this difference may lie in both the number of people using the two backlots, and differences in refuse disposal philosophies or company policy between the tenements (Operation A) and the boardinghouses (Operation B).

Consumer Choices

Some of the pipes carry evidence of the ethnicity of their owners. Several examples are impressed with "DHUDEEN," the Irish word for a short-stemmed clay pipe. Several others bear patriotic slogans, such as "HOME RULE." One example, which apparently bore the likeness of the Irish nationalist martyr, Wolf Tone, is about as clear an expression of conscious ethnic identity as one could hope to find. While Lowell's Irish expressed their ethnic identity through parades and other such rituals (e.g., Marston 1987), some chose to do so in more commonplace ways as well.

The most popular type of pipe was one with the initials "T.D." marked on the back of the bowl, facing the smoker. Seventeen of these pipe bowls in complete or nearly complete condition, and fragments of at least 16 more, are present in the collection. "T.D.s," as they were called, were so popular that their name came to be synonymous with clay pipes, particularly those from Scotland (Cooper 1908; Walker 1983: 38, 39). T.D.s sold at retail for only a few cents in Boston during the 1880s (Ibid.), and analysis of price lists suggests that Scottish T.D.s were as a group significantly less costly than other Scottish export pipes (Cook 1988).

Modifications

Perhaps the most intriguing aspect of the boardinghouse pipe material concerns modification of the pipes by their users. It appears that in some cases smokers were breaking off the factory-made mouthpieces, and presumably portions of the stems, before smoking from the pipes. Of 32 clearly identifiable factory-made mouthpiece fragments, only six show any evidence of tooth-wear associated with use. By contrast, 14 broken stem fragments show evidence either of tooth-wear—extreme wear in some cases—or of intentional modification such as whittling or grinding the stem to convenient dimensions for gripping between the teeth. One stem fragment had been carefully scored with a knife and snapped off at the score. The implication is that some of the pipes were modified by shortening their stems prior to use. This indicates that the use of short-stemmed clay pipes by working people was not solely a function of economics, but rather partook of aesthetics as well. They smoked short pipes because they liked to smoke short pipes, and if the pipes that were available were not short enough, they could easily be made suitable.

Indications are that the boardinghouse residents preferred pipes that were short indeed. In the few cases where it is possible to measure or reconstruct the length of modified stems, we find them to be between two and four inches in length.

Discussion

In short, the point at which pipes cease to be easily dated falls in the late 18th century, and coincides roughly with the generally accepted date at which they might become useful as indicators of class. The latter use has apparently never been explored, or even considered by archaeologists. More than half of the Scottish pipestem fragments from the Boott Mills Boardinghouse collection are marked with the country, rather than the city, of origin indicating that much of the material dates after 1890. By that date, the very presence of clay pipes is an indicator of working-class occupation, if interpreted on the basis of the historical data cited above. In addition, examination of tooth-wear patterns and intentional modifications on the stem and mouthpiece fragments in the collection suggests that the users were breaking the mouthpieces and part of the stem off without using them, until they reached a stem length with which they felt comfortable. Several examples indicate that they were used with stem lengths of three to five inches. These lengths are consistent with documented working class preferences.

Ethnicity has been a major concern of historical archaeologists (e.g., Schuyler 1980), but the literature indicates that much of this concern has been at the grossest level possible, i.e., consideration primarily of groups from separate continents (usually, Asians and Africans). Meanwhile, students of history and material culture have been telling us that English regional ethnic cultures are visible in the documentary and material records (Allen 1981; St. George 1979: 13–14), as are regional cultures within our own country (Glassie 1968). During the 19th century, it is clear that regional variation occurred in tobacco use, and scholars are

beginning to approach ethnic differentiation in pipe material (e.g., Alexander 1986).

Issues of social class and "socioeconomic status" have recently become prominent in historical archaeology (e.g., Spencer-Wood 1987; Paynter 1988; McGuire 1988). Various elements of the archaeological record have been examined for their value as indicators of status or their sensitivity to class analysis, including refined ceramics, gravestones, fish remains, vertebrate faunal remains, and location of sites within the cultural and natural landscapes. Clay tobacco pipe fragments have not been seen as useful in the identification of social status in the archaeological record. I suspect this is at least partly because the usual procedure is to determine which elements of material life are indicators of higher status occupation, and to consider their absence, or inverse value as indicative of lower status occupation. That is not necessarily wrong in methodological terms, but the potential value of clay pipe fragments indicates that the procedure may work equally well in reverse. In terms of clay pipe use, the presence of pipes with extremely long stems would indicate the presence of upper class smokers. A problem with recovering such stems is that, unless you have all of the fragments, you have no way of knowing how long the stem was—if a fragment in the middle is missing, there will be no way to match the two pieces of stem to one another. On the other hand, when a pipe with a much shorter stem is discarded, it is more likely to be recoverable. This proved to be the case with the pipe collection from the Boott Mills boardinghouse—in several cases, single fragments of several inches in length were noted, with part of the pipe bowl at one end and heavy tooth-wear at the other, indicating use of short-stemmed pipes.

There was also evidence of modification of the pipes before smoking. The pattern of tooth wear indicated that pipes were less likely to see heavy use until they had been modified by breaking off the factory-made mouthpiece. There is no question that the boardinghouse residents—workers in the Lowell textile mills—preferred short-stemmed pipes and modified the ones that they purchased until they were satisfied with them.

Ethnically-based smoking behavior is also visible in the tobacco pipe material from The Boott Mills boardinghouse. Irish presence is indicated by the remains of a pipe bearing the name of Wolf Tone, an Irish patriot executed by the British in 1798. Several other pipes marked "Home Rule" (and which may in fact have been made in Canada or the United States) testify to the strength of Irish political feeling, despite having emigrated. At least one other pipe is marked "Dhudeen," which is the Irish term for a short pipe.

Thus far the only pipes displaying "legible" evidence of ethnicity at the boarding house are Irish (cf. Fussell 1983: 54–55 for "legible clothing"). There are pipe fragments with as yet unidentified designs and legends, but we cannot be certain that these are ethnic. There may be evidence in the collection that reflects the presence of other ethnic groups in the boardinghouses, but without the same kind of clear evidence that we have for the Irish, the ethnic identifications must remain tenuous, at least for now. For example, several plastic (imitation tortoise-shell) mouthpieces were recovered. Both appear to be of what is known as the "half bent" shape, a type consistent with the composite pipes favored by immigrants from Eastern Europe. Both stems were made to be inserted into pipe bowls of another material (which may even have been brier). Both were very likely inexpensive, and both were used until they were broken or worn through.

In contrast to the class and ethnic information that is present in the boardinghouse pipe material, there is as yet no evidence suggestive of women's smoking behavior. This is almost certainly because we have yet to determine that smoking occurred among woman textile workers in Lowell, to identify what the material components of any such behavior might be, or in what way they might be gender-specific. These lacunae may best be addressed through intensive research in Lowell newspapers and oral history directed towards recovering information on tobacco use.

In sum, archaeologists and students of material culture have tended to neglect the behavioral aspects of tobacco use and their effect on the material record, and have concentrated instead on the chronological uses of the material itself. This chronological focus has diverted attention from the period after ca. 1780, when material is less easily dated. Unfortunately, this is also the period when in tobacco use, the mediation of social class, ethnicity, and gender through manipulation of material culture is most clearly visible. Information drawn from examination of clay pipes translates back into behaviors that may inform us about the class and ethnic context in which the pipes were deposited. It may prove possible as well, given a reorientation of research

goals on the part of clay tobacco pipe scholars, to gain such information for earlier periods.[4]

Summary

Smoking behavior has been used as a means of constructing and communicating class, ethnicity, and gender relationships through manipulation of material culture. Material objects, specifically white clay pipes, have been used to express social and cultural statements—among those statements, the distinctiveness of the working classes, who modified their pipes to make them as different as they could from upper class models for practical reasons.

Use of smoking pipes as a communicative element in class relations has involved making them more visible in episodes of class conflict, although they were apparently not themselves a source of conflict. Similarly, ethnic differences could be symbolized by tobacco-related behavior. Gender appears to be the only area where smoking itself could generate conflict. This was because gender relations were bound up in an ethic that linked smoking with sexuality, and perceived tobacco use as a threat to women's moral standing.

Overall, smoking had moral connotations, but these were primarily situational and reflected prevailing middle class attitudes concerning appropriate leisure behavior. Violation of those attitudes, rather than smoking itself, was the objectionable element of behavior in situations of conflict.

In approaching mundane working class behavior such as smoking, archaeology provides certain advantages. Through control of spatial context, we may be certain that we are examining the end products of a working class behavior, and a behavior at that that is subject to substantial bias in the documentary record. The social context of boardinghouse life as we have delineated it in this report disambiguates the relationships between certain people and certain objects, bringing the social behavior that linked them into focus, in the case of a limited number of artifacts. Clay pipes are by no means the only artifacts that signal subcultural differences, or find use in the construction of selves, social classes, or cultures. Bond's work with alcoholic beverage containers and the drinking behavior that lay hidden behind a façade of company respectability, and Ziesing's study of apparel and the world of public display (both elsewhere in this volume), indicate that those artifacts operated as public symbols, as well as fulfilling more mundane functions.

The approach used here has been a contextual one. The combination of information on the social, cultural and ethnographic contexts of tobacco use drawn from the documentary record, with a considerable body of theory on leisure, material culture and symbols makes it possible to generate a framework of interpretation that returns pipes to their active, systemic, cultural context, giving them a more provocative role than that allowed them when they are approached as mere markers of time in the archaeological context. The use of a model of intergroup relations based on cultural hegemony, rather than the Dominant Ideology Thesis, has permitted a fuller interpretation of the complex processes of culture change, in which those without money or influence have occasionally commanded the power to create at least part of their world.

"Snow white little instruments of comfort" had great power to influence human thought and action, power that was out of proportion to their ubiquitous status as common artifacts involved in day-to-day activities. Their material remains provide the essential key to the meanings that linked people with things and imbued them both with that power.

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[4]Peter Pope's innovative discussion of tobacco use and its material remains in 17th-century Ferryland, Newfoundland (Pope 1988), is a fine example of such research.

Chapter 12

CONTEXTUAL ARCHEOLOGY AT THE BOOTT MILLS BOARDINGHOUSE BACKLOTS

by G. K. Kelso, William F. Fisher, Stephen A. Mrozowski, and Karl J. Reinhard

Most of the deposits investigated in the original boardinghouse backlot excavations had been subjected to post-habitation disturbance. Macrofossil and pollen analysis were limited by the number of interpretable samples available, and phytolith analysis was not attempted. Some macrofossil dietary and groundcover information was recovered, but the interpretation of the majority of the pollen data had to be focused on defining the nature and extent of this post-depositional manipulation of the data context rather than reconstruction of the millworker's leisure-time environment (Mrozowski and Kelso 1987: 150–151).

The original analysis did suggest that changes had occurred in the backlot groundcover which might have resulted from documented changes in the philosophy and practice of boardinghouse management in 19th- and early 20th-century Lowell (Bell 1987a: 67; Bond 1987: 53; Mrozowski and Kelso 1987: 147). This should be clearly recorded in undisturbed archeological deposits, and it is reasonable to assume that evidence of parallel changes in diet and health might also be recovered. The following soil chemistry, macrofossil, phytolith, parasite, and pollen investigations of Boott Mills boardinghouse backlots constitute a cross-disciplinary scientific search for physical indicators of such socially-driven changes in life style and landscape.

Palynology, Land Use, and Site Formation Processes in Urban Archeology: The Boott Mills Boardinghouse Backlots, Lowell, Massachusetts

by G. K. Kelso and William F. Fisher

Introduction

No stratigraphic sequence incorporating the complete occupation period at the Boott Mills boardinghouses was recovered during the initial 1985 excavations in the backlots of the structures fronting on John Street (Beaudry 1987a: 90). Pollen analysis was confined to a profile of the 33 John Street cellar fill and a profile from a postulated clothesline post hole containing ca. 1890 artifacts. The pollen type sequence within the cellar fill shifted from grass dominance in the deeper samples to wind-pollinated Compositae (ragweed relatives) dominance in the upper portion of the fill. Pollen concentration values were highest at the bottom, implying that the cellar fill sequence was reversed stratigraphy. The backlot had apparently been stripped to fill the cellar hole. The upper, grass-dominated backlot deposits ended up in the bottom of the cellar hole where their relatively high pollen concentrations were protected by the overburden, and the older, less polliferous deposits originally at the bottom of the backlot profile ended up on top of the sequence in and over the cellar hole (Kelso 1987a: 145).

The postulated post hole appeared to have been re-opened at one time, presumably to remove the post. The hole was then allowed to fill naturally, producing a sequence in which the homogenized pollen spectra of the original deeper fill is replaced by relatively high grass frequencies that decline toward the top of the profile as the wind-pollinated Compositae counts increase (Kelso 1987a: 146). The sum of these two profiles is a cultural/vegetational history sequence in which early dominant ragweeds in the 33 John Street backlot are replaced by grass during the major portion of the occupation. Ragweed populations apparently recovered as grass declined post–1890 (Kelso 1987a: 145–146). The late 19th-century ragweed episode roughly coincided with a demographic shift toward replacement of natives by immigrants in the mill work force and a functional/proprietary change in many structures from corporation owned

boardinghouses to slumlord-managed tenements and lodging houses. Structure maintenance declined (Bond 1987: 40–41; Bell 1987a: 67), and the pollen data suggest slippage in landscape standards as well.

Reverse stratigraphy and post holes are not data sources in which one may place absolute confidence. The perceived landscape–ownership–occupancy connection in the pollen spectra of the John Street boardinghouses constitutes a hypothesis rather than a conclusion. A primary objective of the pollen analysis portion of the 1986 excavations was to test this hypothesis in the adjoining backlots of the similarity fated 45–48 James (later Sirk) Street boardinghouses.

Documentary and Archeological Background

The poorly-drained terrace above the Merrimack upon which the Boott Mills boardinghouses were constructed first appears in the historical record as part of a ca. 1821 farmstead owned by an individual named Nathan Tyler (Beaudry 1987a: 73). Kirk Boott subsequently established his home on the plot. The 1825 "Plan of the Land and Buildings Belonging to the Merrimack Manufacturing Company" (Figure 12–1) places the impressive Boott mansion (Beaudry 1987a: figs. 7–1,7–2) very close to the plot examined in this report, and the 1837 inventory of Boott's estate provides evidence for formal lawns in the form of a stone lawn roller. What appears to be an extensive garden arranged in distinct geometric plots is depicted on the 1825 map, and the 1837 inventory indicates the existence of a separate "seed room." This may have been a greenhouse or potting shed. The inventory also records the presence of livestock and provides evidence in the form of harrows, scythes, rakes and pitchforks for haymaking on the estate (Beaudry 1987a: 75).

Boott's mansion was relocated after his early 1837 death to make way for the ongoing (1835–1839) erection of the Boott Mills boardinghouses. These had variable histories, some undergoing multiple changes in function and ownership over the next 100 years (Clancey 1987). The No. 45–48 James (later Sirk) Street boardinghouses were owned by the Boott Mills Corporation throughout their existence. Half the ells in the backlot were removed between 1892 and 1906, and the rest were gone by 1924. The block was operated as boardinghouses, tenements, and lodging houses until the company converted them to storage in 1918 (Bond 1987: 41; Clancey 1987: 32). These particular boardinghouses were torn down in April, 1934 (Clancey 1987: 32).

The demographic histories of the various Boott Mills boardinghouses were also variable. The original 1830s–1840s inhabitants of the central, boardinghouse section of each unit were largely native-born single women. The male supervisors and their families were separately housed in tenement units at the end of each block. The numbers of both families and unattached males increased in the 1850s though the 1860s, although the families in the tenements were largely native born, and the women in the work force greatly outnumbered the men. The numbers of foreign workers were rising rapidly during this era, but the regulation that mill workers live "on corporation" had been dropped. The immigrants were just not living in the boardinghouses (Bond 1987: 50). After 1880 this changed; by 1900, males equaled females in number, and immigrants among the boarders exceeded the native born (Bond 1987: 50–53).

Documents and archeology suggest that living conditions changed parallel to demographic shifts. The policy of "corporate paternalism" was never rescinded, but enforcement was apparently relaxed to some extent during the immigrant worker era, and the documentary record implies considerable casual waste disposal in boardinghouse precincts (Bond 1989: 2–3). Archeology supports this interpretation. The major portion of the debris recovered from the backlot dates to the late, post–1890, portion of the occupation (Dutton, this volume) and that portion which can be attributed to a specific social group was apparently deposited by foreign-born males (Cook, this volume).

Methods

Level 3 in 45–48 James (Sirk) Street backlot lay just under the recent parking lot blacktop. It was capped with a thin, relatively continuous layer of broken window glass from the dismantling of the boardinghouses, and the occupation-period deposits appeared to be largely intact. The cultural deposits (levels 2 and 3) were rather shallow, but it was possible to collect profiles of useful length at several locations.

The following four profiles and a single sample of special matrix were selected for analysis: 21N8W, northwest profile (Figures 12–2, 12–8,12–9); 21N8W, northeast profile (Figures 12–2, 12–10, 12–12); Feature 61 profile (Figures 12–2, 12–14, 12–15); Feature 27 profile (Figures 12–3, 12–13); and Feature 65, apparent potting soil lens (Figures 12–2, 12–13). The locations of these are indicated on the site plan of Operation B (Figure

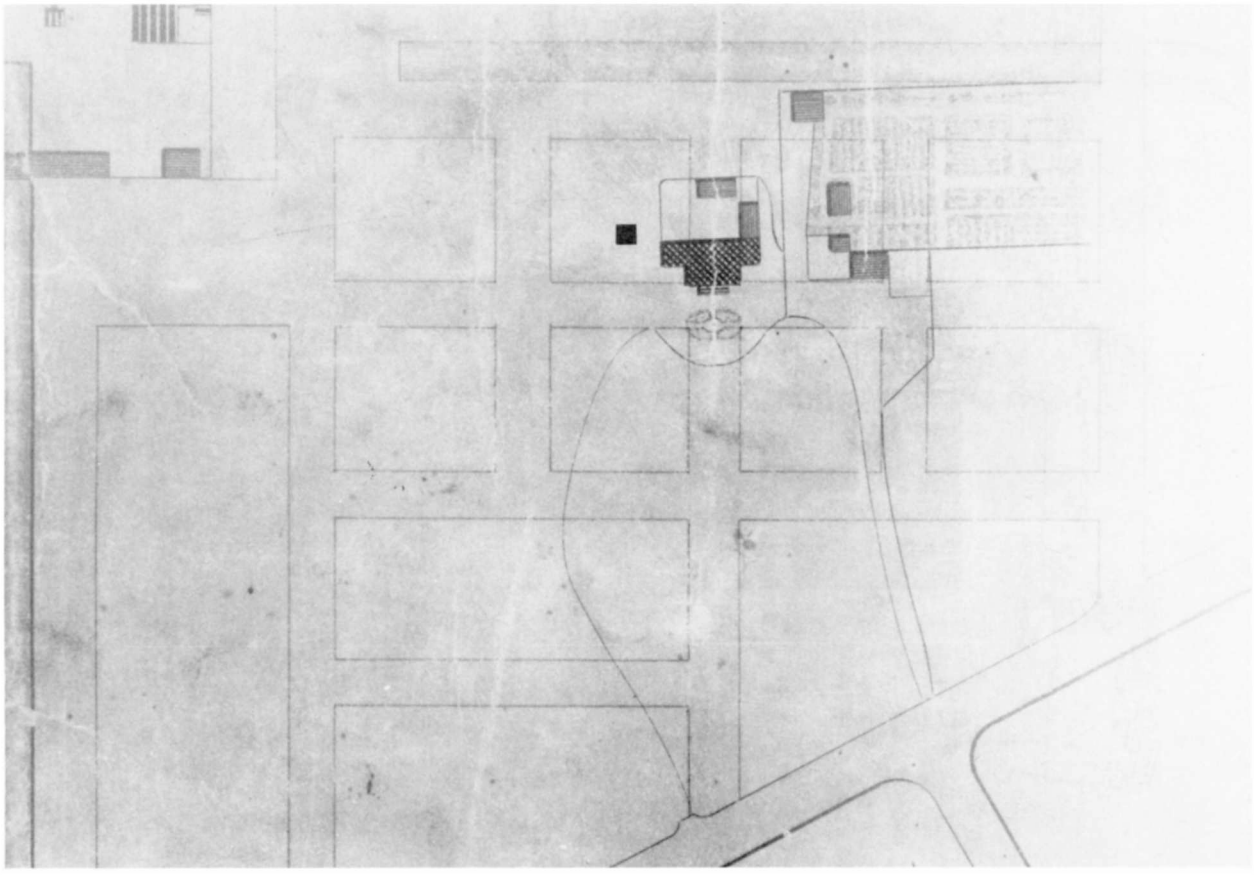


Figure 12–1. The layout of Kirk Boott's estate as shown on "A Plan of the Land and Buildings belonging to the Merrimack Manufacturing Company..." made in 1825 by Geo. R. Baldwin. Excavation unit 21N/8W indicated by shading. (Courtesy Lowell National Historical Park.)

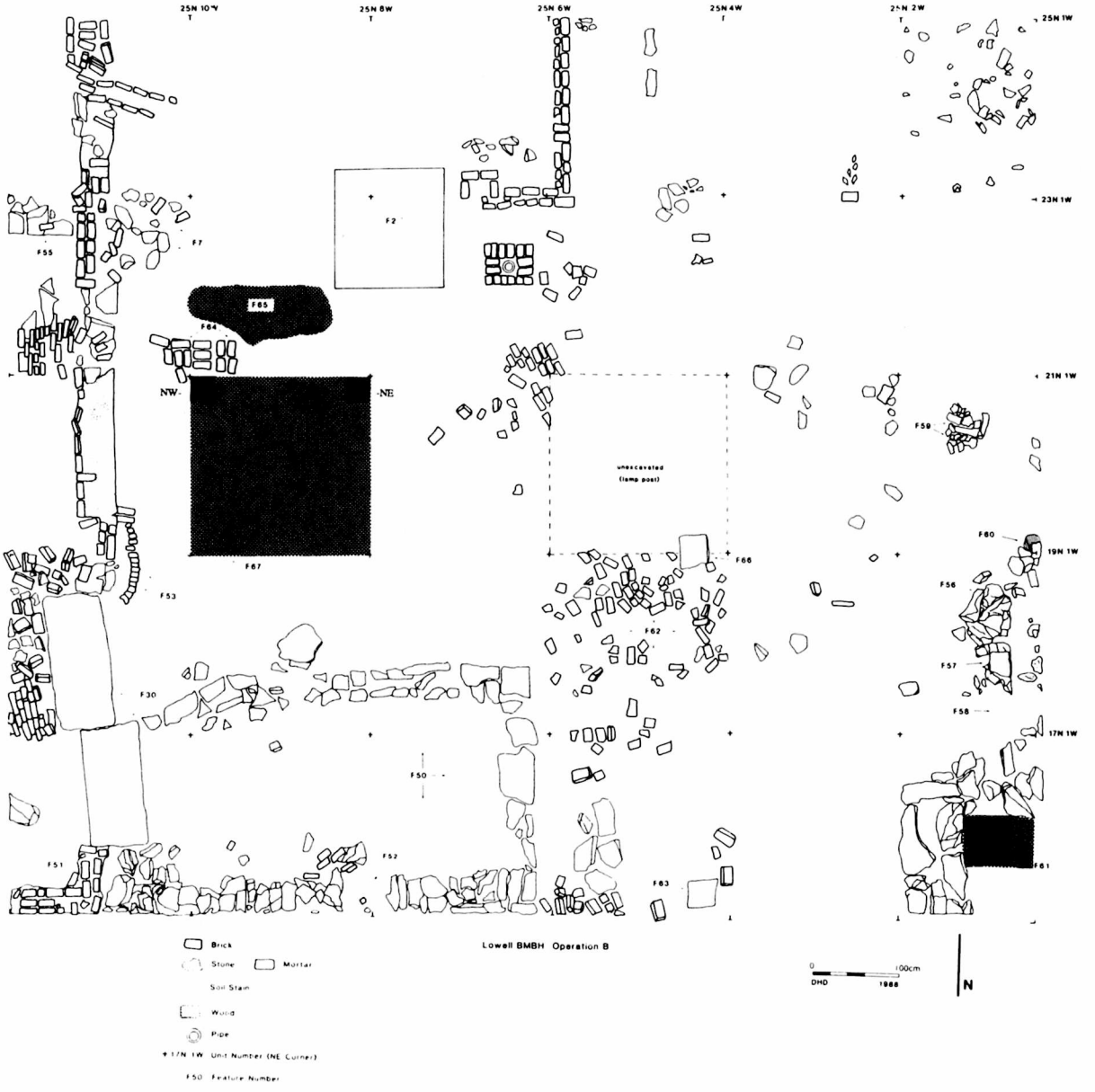


Figure 12–2. Operation B., unit 21N8W. Features 61 and 65 indicated by hatching.

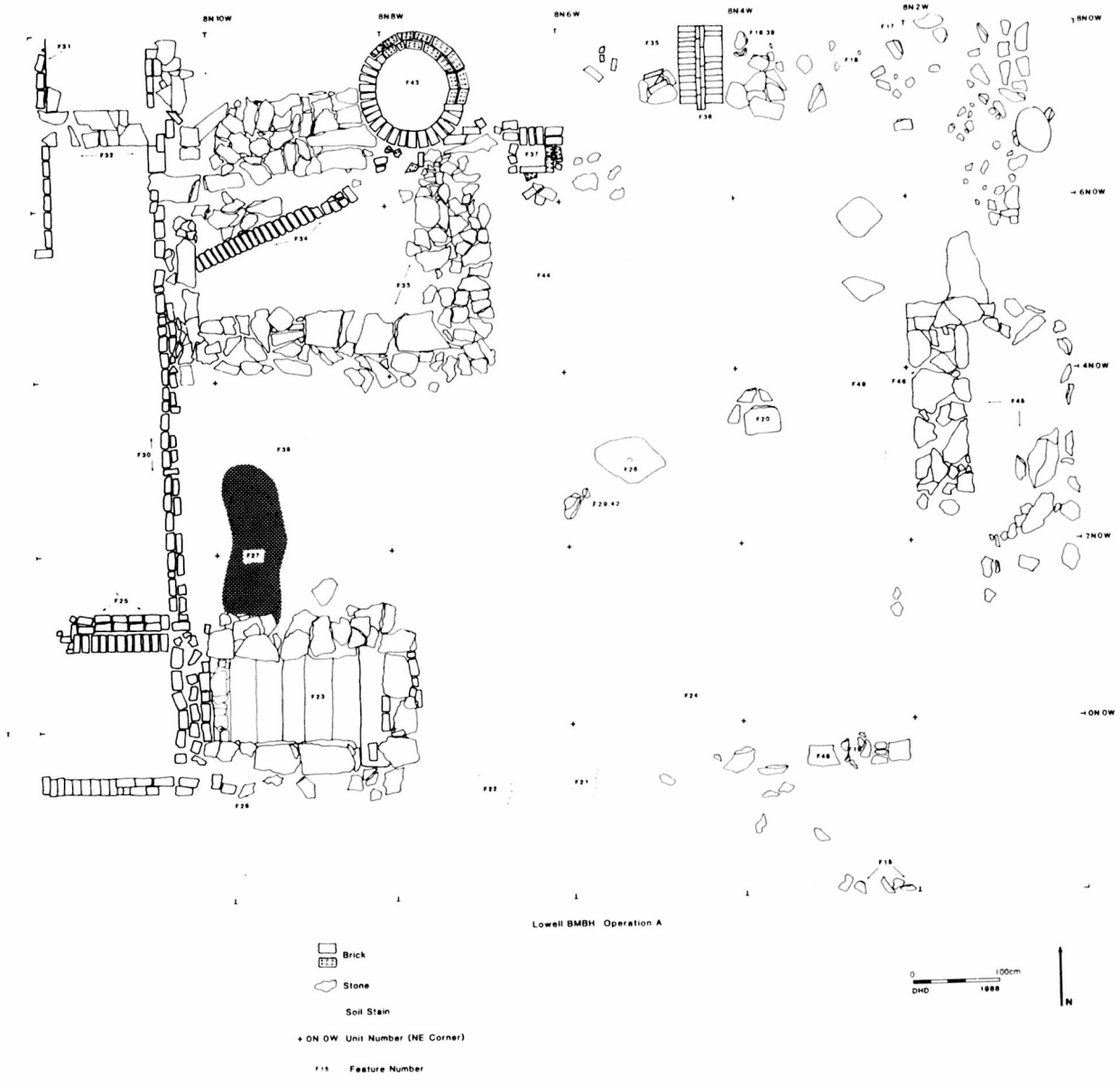


Figure 12–3. Operation A. Feature 27 indicated by hatching.

12–2) and Operation A (Figure 12–3).

The pollen was extracted in the palynology laboratory of the Boston University Center for Archaeological Studies and followed Mehringer's (1967) procedure. Residues were mounted in glycerol for viewing, and analysis was conducted at the Eastern Archeological Field Laboratory, National Park Service, Boston, Massachusetts. The pollen was identified at 400x with problematical grains examined under oil immersion at 1000x. A minimum of 400 pollen grains were tabulated for all samples. All pine pollen grains were examined for the "belly warts" that distinguish white pine (Pinus strobus) from the other species of Pinus growing in New England (Kapp 1969: 38). The pine data did not prove significant at this particular site and were not incorporated in the diagrams. The open line bars in the pollen diagrams are based on relative frequencies (percentages) computed from separate sums for arboreal and non-arboreal pollen types. This separation serves to differentiate the normally tree-dominated regional pollen contribution from the local, largely herbaceous, pollen types to some extent (Janssen 1973: 33) and reduces the statistical distortions that the contributions of pollen types reflecting different phenomena induce in each other. It has the disadvantage of producing possibly misleadingly high percentages in some instances from small counts among the minor types. Total sum diagrams (relative frequencies based on the identifiable pollen of all types) are sometimes of value, in conjunction with those based on separate AP/NAP sums, in ascertaining relationships between local and regional vegetation change. The solid colored portion of the diagrams records this measure.

Historical archeologists most frequently encounter plants under English names in their documentary sources. For their convenience the common New England names for plant taxa are employed in both the text and the diagrams. A conversion table (Table 12–1) of vernacular and Latin names is provided for those who wish to follow the practice of the paleoecological research community.

Pollen concentrations per gram of sample were computed, following Benninghoff's (1962) exotic pollen addition method as a check on relative pollen preservation, but pollen concentration figures were not computed for individual taxa. These would not be meaningful in the absence of chronological control over sedimentation rate and might be mistaken for pollen influx data. All pollen grains too degraded to be identified were tabulated to provide further control over corrosion factors. Unidentifiable pollen grains were taken into account in calculating pollen concentrations. They were not incorporated in any sum from which the frequencies of individual types were computed, because the arboreal or non-arboreal origin of unidentifiable pollen grains cannot be computed. The data for unidentifiable pollen, as a percentage of total identifiable and unidentifiable pollen, and the data for corroded oaks, a prominent pollen type that retains its identity while readily degrading (van Zeist 1967: 49), are presented in the diagrams. The terms "corroded" and "degraded" are used interchangeably here and refer to any kind of pollen deterioration other than tearing. They are not intended as references to the specific classes of deterioration defined under these terms by Cushing (1964) and Havinga (1984).

Site Formation Processes

Much of our interpretation of the Boott Mills boardinghouse backlots is based on analysis of site formation processes. Two aspects of the site formation process that affect the pollen record can be palynologically recognized. One is the nature of matrix origin: normal soil profile development versus episodic fill. The second is natural post–depositional modification of the pollen spectra. Two kinds of post–depositional changes are evident in the pollen record itself: pollen movement and pollen destruction. Several agencies are involved in each.

Pollen Movement

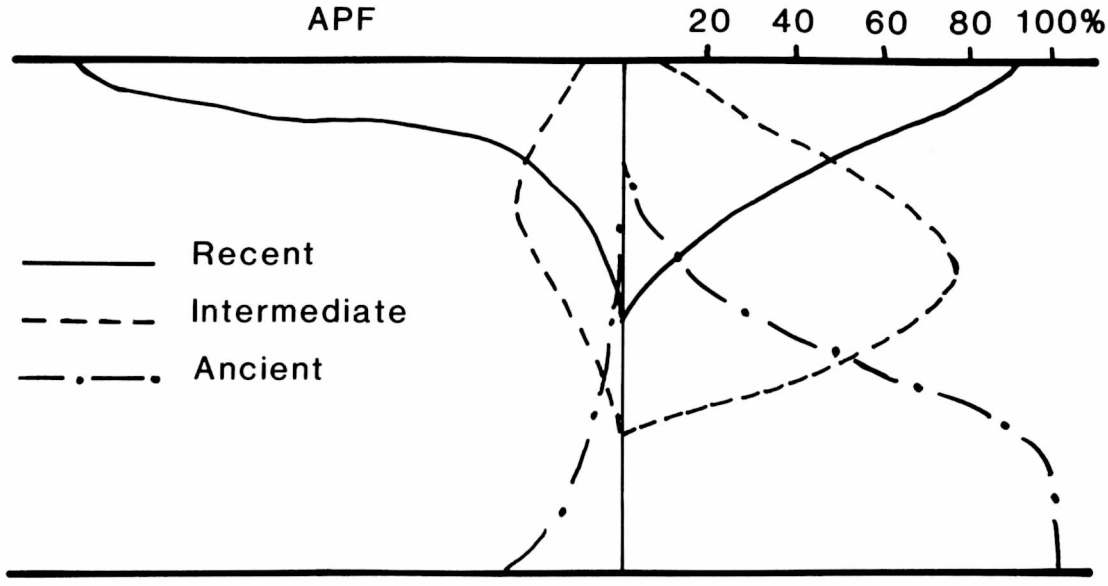
In a lake or marsh profile a palynologist can assume, with certain exceptions (Webb 1973), that older pollen occurs in deeper samples because the deposition of the matrix and the deposition of the pollen are roughly contemporaneous events. This does not hold true in terrestrial profiles. Pollen in soils is moved downward by percolating groundwater. Progressively older pollen is found toward the bottom of normal soil profiles because pollen leaching outpaces stratigraphic matrix accumulation (Erdtman 1969: 147; Dimbleby 1985: 4–9). At the same time, earthworms move pollen up and down in the deposit (Walch, Rowley, and Norton 1970: 42).

Dimbleby's (1985: fig. 3) schematic diagram of the resulting pollen profile presented in Figure 12–4. Most of the older pollen has been leached to the bottom of the profile, but some has been moved back up by earthworms. The youngest pollen is found at the top of the soil, although a

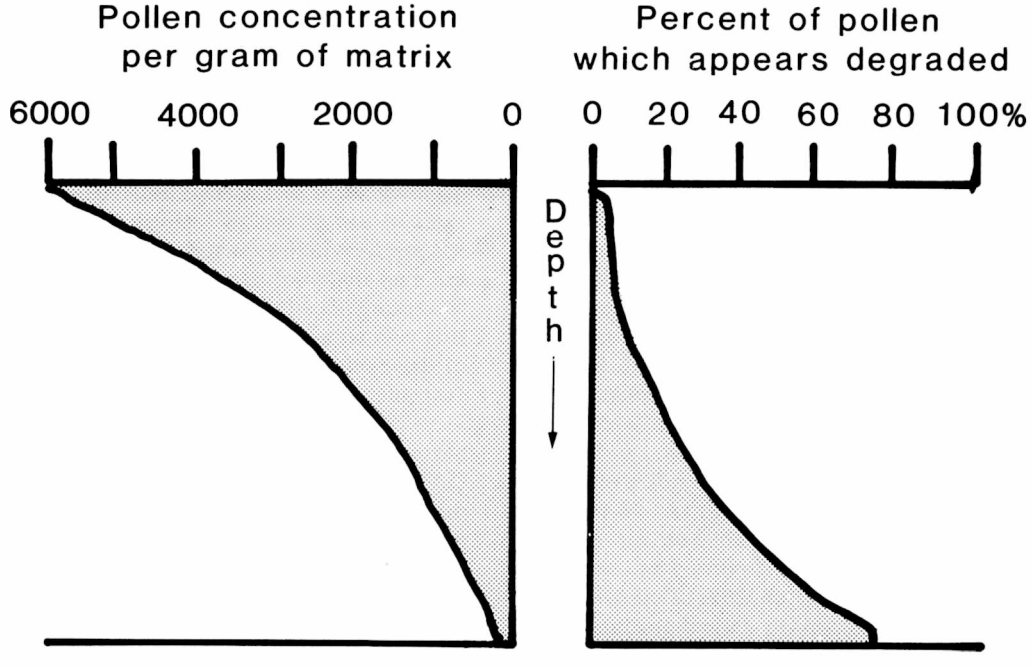
Table 12–1. Vernacular and Latin names of plants.

Pinus – pine
Gramineae – grass
Picea – spruce
Avena fatua – wild oats
Tsuga – hemlock
Cerealia – European cereal grass
Cupressaceae – cedar/juniper
Quercus – oak
Chenopodiaceae – goosefoot family
Fagus – beech
Castanea – chestnut
Compositae – ragweed family
Betula – birch
Artemisia – wormwood
Alnus – alder
Ambrosia–type = wind-pollinated Compositae
Corylus - hazel
Oystra – hornbeam
Aster-type = insect-pollinated Compositae
Carpinus – blue beech
Acer saccharinum –silver maple
Liguliflorae – dandelion type Compositae
Acer saccharum – sugar maple
Acer rubrum – red maple
Cardus – thistle
Platnus – sycamore
Cruciferae – mustard family
Juglans – walnut
Umbelliferae – parsley family
Carya – hickory
Leguminoseae – pea family
Salix – willow
Rumex acetosella – sheep sorrel
Populus – poplar
Fraxinus – ash
Rumex mexicanus – dock
Ulmus – elm
Polygonaceae – smartweed family
Celtis – hackberry
Morus – mulberry
Labitae – mint family
Tilia – basswood
Solanaceae – nightshade family
Rhamnus – buckthorn
Nemopanthus – mountain holly
Solanum – nightshade
Ilex – holly
Physalis – ground cherry
Robinia – black locust
Rosaceae – rose family
Gleditsia – honey locust
Rosa palustris – marsh rose
Cannabinaceae – hemp family
Scrophulariaceae – snapdragon family
Caryophyllaceae – pink family
Sambucus – Elderberry
Lythrum – purple loosestrife
Primulaceae – primrose family
Apocynaceae – Indian hemp family
Urtica – nettle
Thalictrum – meadow rue
Ranunculaceae – buttercup family
Onagraceae – evening primrose family
Plantago-lanceolata – lance-leaved plantain
Plantago-major type – broad-leaved plantain
Onagraceae – evening primrose family
Saxifragaceae – saxifrage family
Ribes – gooseberry/currant
Liliacea – lily family
Malvaceae – mallow family
Vitaceae – vine family
Ericaceae – heath family
Cyperaceae – sedge family
Typha – cattail
Campanulaceae – bluebell family
Euphorbiaceae – spurge family
Ephedra – joint fir
Phragmigtes – reed grass (reeds)

Undetermined – not recognized
Undeterminable – too degraded to recognize



THEORETICAL DISTRIBUTION IN SOIL OF
POLLENS OF DIFFERENT AGES
(after Dimbleby 1985)



THEORETICAL POLLEN CONCENTRATION
AND DEGRADATION IN A SOIL PROFILE

Figure 12–4. Theoretical pollen concentration, degradation and differential age distribution patterns in soil.

few grains have been leached or worm transported to the bottom of the deposit. Pollen of intermediate age is appropriately concentrated in the middle of the profile, with a few earthworm deposited grains at the top and bottom. Pollen stratigraphy has been blurred but not destroyed (Dimbleby 1985: 2–11).

Pollen Degradation

Pollen is destroyed by the oxygen in aerated groundwater (Tschudy 1969: 95) and by aerobic fungi (Goldstein 1960: 453). Both the amount of pollen present in a given unit of matrix and the condition of the surviving pollen grains decline with the length of time the pollen is exposed to these agents of degradation. This may be seen on the left of Dimbleby's (1985: fig. 3) schematic (Figure 12–4,top), where the absolute pollen frequency (i.e., pollen concentration) of the younger pollen at the top of the profile is much higher than that of the older pollen at the bottom. When tabulated, the numbers of pollen grains which are recognizable as pollen but which are too degraded to identify are more numerous in deeper (i.e., older) samples in a normal soil profile where the quantities of surviving pollen grains (i.e., pollen concentration) are smaller (Kelso 1987b: fig. 1; Kelso, Mrozowski, and Fisher 1987: fig. 6–2).

Palynological Record Formation Patterns

The number of possible combinations of cultural site formation processes and natural matrix accumulation processes and pollen record formation processes should be quite large. Several patterns whose validity can be supported with archeological or documentary data have already been recognized.

The Natural Profile Deposition Pattern

A North American historic-era example of Dimbleby's (1985: fig. 3) previously discussed normal soil profile development curve is presented in our Figure 12–5. These pollen data are drawn from a core taken on a formerly forested hillside adjacent to the site of George Washington's 1754 Fort Necessity battleground. The forest was cut off and the area converted to pasture sometime between 1856 and 1880. This produced a leached pollen spectra sequence of arboreal pollen (forest), weed pollen (clearance interval) and grass (pasture) pollen from the bottom to the top of the profile. The resemblance of the Fort Necessity sequence to Dimbleby's model of ancient, intermediate, and recent pollen in a soil profile is unmistakable. The Fort Necessity pollen concentration curve also conforms to Dimbleby's APF model, and distribution of unidentifiable pollen at Fort Necessity falls into the predicted pattern with more corroded pollen at the top than at the bottom of the profile.

Pollen movement is not always evident in normal cultural sedimentation sequences. Leaching was recognized only at the bottom and top of a 17th- through 19th-century profile from downtown Boston (Kelso and Beaudry n.d.: fig. 7) and at the beginning and end of the 19th- and 20th-century site formation processes in the backlot of profile at the Kirk Street Agents' House in Lowell, Massachusetts (Kelso, Mrozowski, and Fisher 1987: 108, 112, figs. 6–2, 6–3). The homogenization of spectra characteristic of earthworm activity zones (Havinga 1974: 451) has been recognized among the corroded oak data from Fort Necessity (Kelso 1987b: 1) but has yet to be reported from a North American urban site. It is possible that sedimentation proceeds too quickly in the urban milieu for pollen movement to register. It is also possible that soil compaction by foot traffic prevented effective leaching and that contamination by industrial and household waste, coal dust for instance, rendered soils inhospitable to worms.

When leaching occurs in slowly aggrading profiles it can be analytically advantageous, because it may serve to separate successive spectra that would otherwise be unrecognizable within the same matrix. The historical pasture grass and subsequent 1843–1845 construction period weeds in the glacial sand at the bottom of the Square "E" profile at the Kirk Street Agents' House (Kelso, Mrozowski, and Fisher 1987: fig. 6–2) and the whole Fort Necessity sequence are cases in point. Such leaching phenomena are, of course, palynologically visible only when there has been a chronological change in the contributing flora.

The Episodic Fill Deposition Pattern

An example of the pollen spectrum of an episodic fill is provided by level 9 at the top of a profile taken in the Wilkinson Hardware Store backlot in the central business district of Boston, Massachusetts (Figure 12–6). This deposit was introduced when the present Blackstone Block of buildings was constructed ca. 1820–1825 (Kelso and Beaudry n.d.). In level 9, pollen concentrations are highest at the bottom of the level, while pollen "too degraded to recognize" and the proportion of "corroded oaks," a

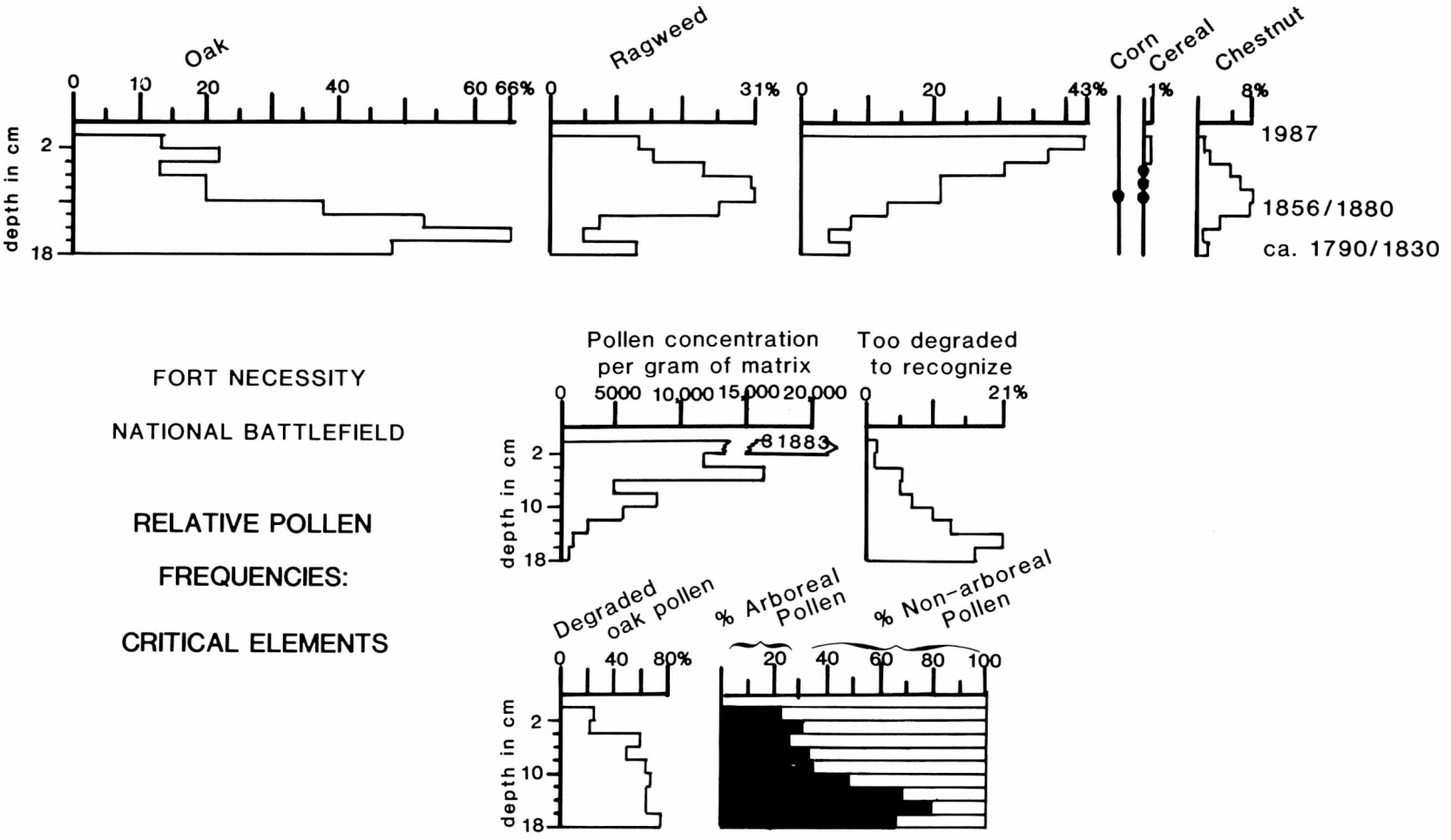


Figure 12–5. Fort Necessity, Pennsylvania. Pollen frequencies, core No. 3.

prominent type which retains its identity while readily degrading (van Zeist 1967: 49), are highest in the upper portion of the profile. No pollen at all was recovered from an additional, undiagrammed, sample at the top of the sequence. Here the pollen at the bottom of the level was protected by the overburden from the corrosive agents that progressively destroyed pollen as they worked their way down from the top. The result was a mirror image of the sequence predictable in a normal soil profile development. This pattern may serve as the hallmark of an episodic fill upon which no ground cover developed.

The Penetration of a Fill Pattern

Modification of the pollen spectrum of an episodic fill by a ground cover developing on top of the fill is illustrated by level 2 at the top of the Square J profile (1843–1930) from the backlot of the Kirk Street Agents' House, Lowell, Massachusetts (Figure 12–7). This layer is identified as a fill by the abrupt change in pollen concentration at the level 3/level 2 interface (Kelso, Mrozowski, and Fisher 1987: 112). The most important type in the spectrum of the original fill was grass, while the ground cover that developed on top of the fill was dominated by the wind-pollinated Compositae (i.e., ragweed). There was less tree pollen and more cereal pollen in the original fill than was characteristic of the pollen rain at the Kirk Street Agents' House.

Sample 14/15 is a highly organic, intrusive lens and should be disregarded. When this is done the pollen concentrations are higher in the samples at the top of the layer and resemble those of a naturally developed deposit. Pollen degradation measures are, however, also higher at top and indicate corrosive agents working their way down from the top, as in an episodic fill. The depth of the penetration of both these agents of destruction and the pollen contributed by the later ground cover is indicated by the grass/wind-pollinated Compositae shift at sample 15, by the notch in the cereal pollen spectrum between sample 15, and by the surface and the block of high arboreal pollen percentages extending from the surface down through level 15.

Results

21N/8W Northwest Profile

Artifact data indicate that this profile covers the entire 1830s to 1930s boardinghouse occupation period. Three gross archeological levels are evident at the sampling locus (Figure 12–7). The oldest of these is the sandy deposit (level 1) at the base of the profile. It contained no artifacts and appeared to be glacial in origin. Pollen samples 1 through 4 (8 cm total) were taken from this layer. Level 2 is the major occupation layer in the profile. It was 18 cm thick where pollen samples 5 through 11 were taken. The artifact content of level 2 suggests that it spans the last three quarters of the 19th century. The majority of the cultural materials were recovered from the upper few centimeters of the layer and appear to have been deposited post–1890 (Dutton, this volume). Level 3 at the top of the profile was 6 cm thick where samples 12 and 13 were taken. Its cultural inventory was dominated by artifacts dating to the first quarter of the 20th century (Dutton, this volume).

The northwest profile pollen spectra (Figure 12–9) correlate well with the documentary record of land use (Bond 1989: 2–3), with the matrix stratigraphy of the profile locus, and with the archeology based material culture history of the backlot (cf. Dutton, this volume; Cook, this volume). Pollen concentrations increased from the bottom to the top of the level 1 (glacial sand) as quantities of pollen grains "too corroded to recognize" declined. This registers a slow, normal soil profile development process with normal pollen leaching and degradation. Level 1 was neither a typical urban active occupation-period archeological stratum (in which development is too rapid for leaching and pollen corrosion), nor an episodic fill (in which the patterns of these phenomena might be reversed).

The presence of grass (Gramineae) pollen resembling that of reeds (cf. *Phragmites*) and sedge (Cyperaceae) pollen in the glacial appearing sand of level 1 confirms Beaudry's (1987: 73) assessment that the locus was poorly drained when first observed in the historical record. Sedge pollen is not widely dispersed (Handel 1976: 223), and these counts appear to indicate the persistence of undeveloped conditions on or very near the sampling locus. Clumps of reed grass have aesthetic appeal, and moist areas could also have been part of the Boott estate landscaping design.

The wind-pollinated Compositae are dominant at the bottom of level 1. This type declines steadily toward its nadir for the profile at the top of the deposit. The insect-pollinated Compositae and dock (*Rumex mexicanus*–type) frequencies increase slightly as those of the wind-pollinated Compositae decrease, while the representation of grass rises as a block in

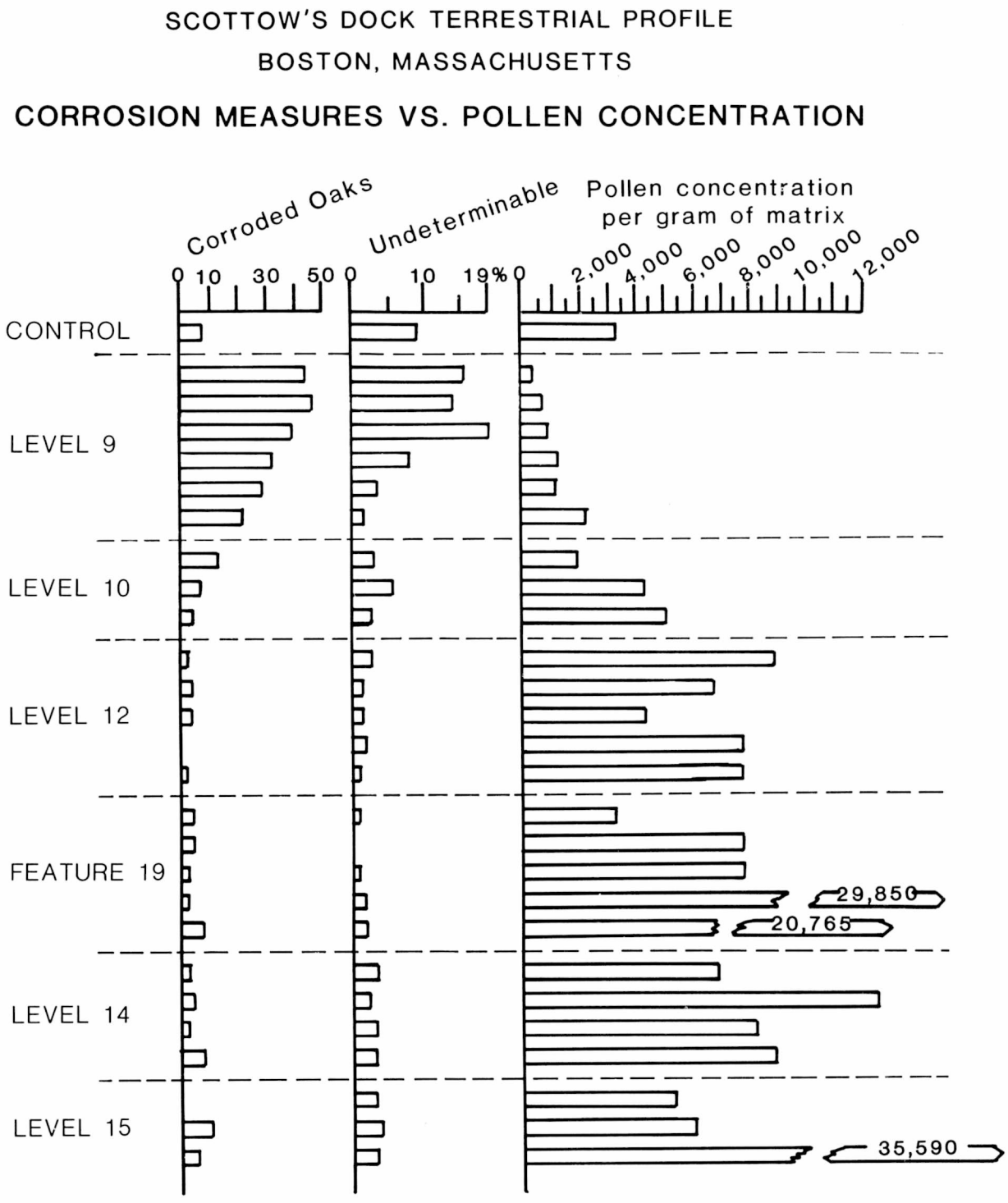


Figure 12–6. Pollen concentration and degradation patterns, Scottow's Dock, Boston, Massachusetts, ca. 1640–1820.

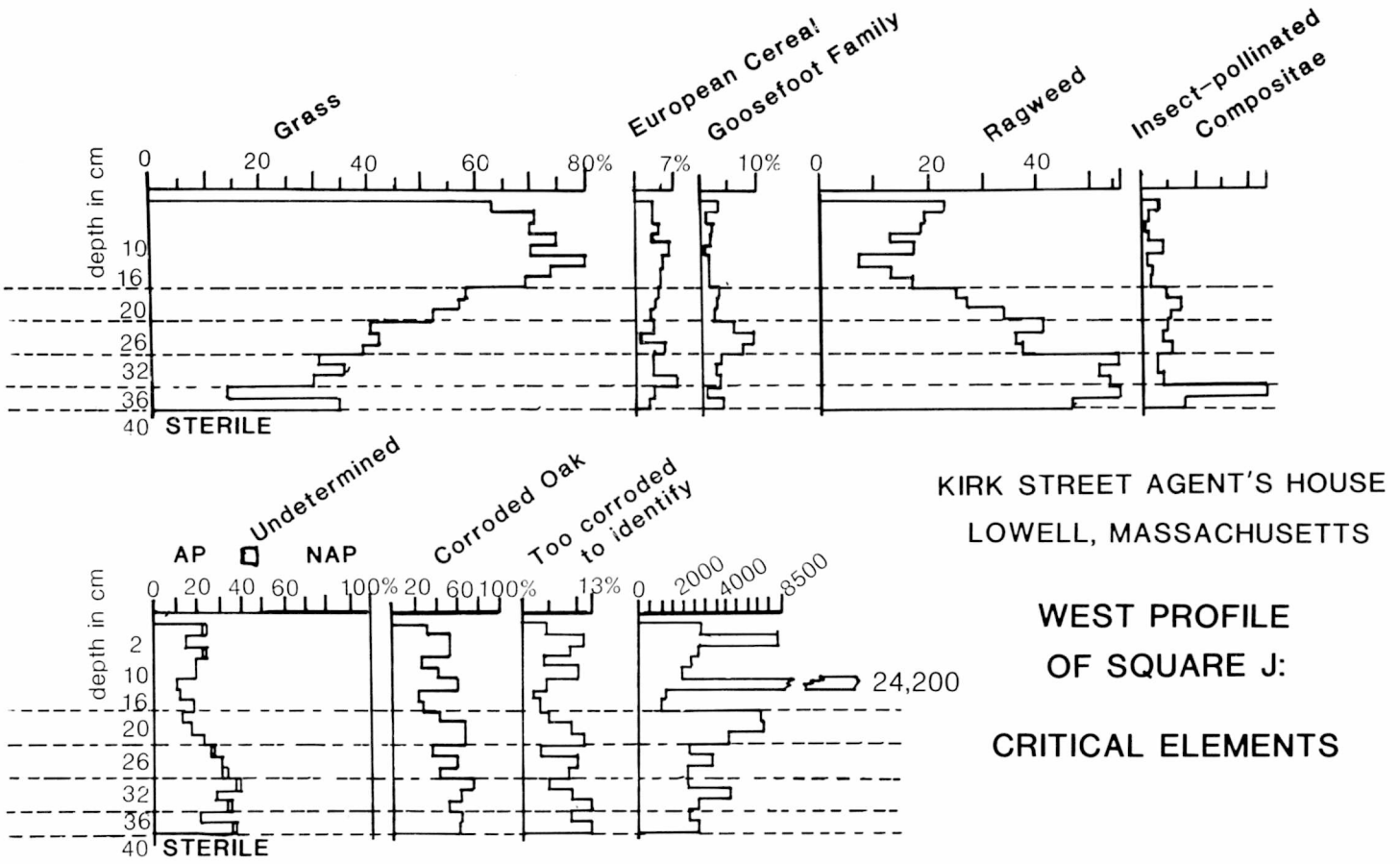


Figure 12–7 Kirk Street Agents' House, Lowell, Massachusetts. Pollen frequencies, Square J.

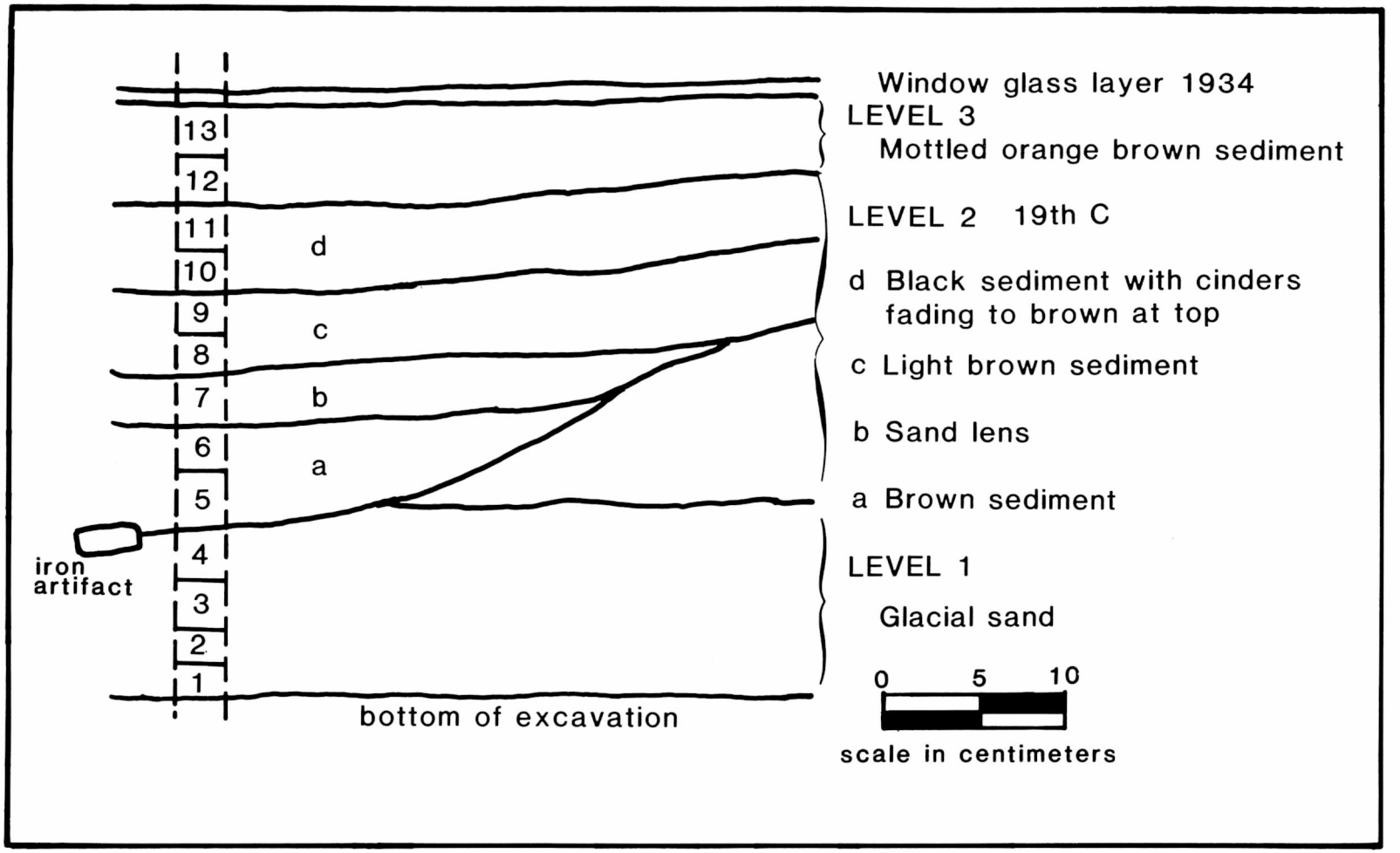


Figure 12–8. Palynologist's field sketch: soil stratigraphy and pollen column location, 21N/8W, northwest profile.

samples 2 through 4. Ragweed (*Ambrosia* spp.) is among the most pollen prolific wind-pollinated members of the Compositae family and probably contributed the majority of the wind-pollinated Compositae pollen in the profile. Ragweeds are the dominant weeds in agricultural fields because they can tolerate the harsh high temperature and moisture regimen of newly-plowed ground (Bazzaz 1974). Weeds such as dock and the insect-pollinated Compositae (the Tubliflorae in Europe) are more prominent in the disturbed but uncultivated waste ground around the periphery of fields and along roadsides (Behre 1983: fig. 2).

In other sequences where grass has replaced ragweed, a reduction in human-caused soil disturbance is historically and archeologically documented (Kelso and Schoss 1983: 73; Kelso 1987b: 1). An opposite sequence of grass declining as ragweed counts grew larger indicated increasing soil disturbance at another site (Kelso, Mrozowski, and Fisher 1987: 107). In normal historic era sequences these shifts have been gradual (Kelso and Schoss 1983: fig. 20; Kelso, Mrozowski, and Fisher 1987: fig.6–2), even where we know that pasture was the intended product of a conscious cultural process (Kelso 1987b: figs 1–4). In the boardinghouse 21N8W northwest profile the wind-pollinated Compositae decline gradually, but the increase in grass pollen is quite abrupt. The shift in wind-pollinated Compositae is consistent with the gradual leaching of pollen down through the matrix profile that is indicated by pollen concentration and degradation measures. The change in grass is not. A unique circumstance in which old wind-pollinated Compositae pollen from a defunct population gradually leached out of the profile while grass pollen was introduced into the system from a new, rapidly developed population seems to be indicated. This suggests that the grass was planted. It probably did not grow in Nathan Tyler's pre-Lowell pasture. European cereal pollen (cerealia or cereal-type) and corn (*Zea mays*) pollen from livestock manure correlated with grass in four widely spaced cores at Fort Necessity, and there were more kinds of weeds and more pollen of individual weedy taxa than occurs here in Lowell (Kelso 1987b: figs. 1–4).

We may have either Kirk Boott's lawn or his hayfield reflected in the level 1 grass pollen counts (Beaudry 1987a: 75). Hayfields were actively planted as part of crop rotation during the 19th century (Russell 1976: 279, 313). If a hayfield is recorded in the level 1, it was never manured in the best practice but neither was it permitted go to weeds as was often the case (Russell 1976: 366). The 1825 plan (Figure 12–1) of the Boott estate overlain on the plots where the Boott Mills boardinghouses were constructed (Beaudry 1987a: fig. 7–2) suggests that our sampling locus is so close to the former site of the mansion house that the grass pollen that dominates level 1 most probably reflects lawn.

There is a third possible interpretation. Carefully tended oval lawns (Figure 12–10) are depicted in the 1852 mill yard by *Gleason's Pictorial* (Beaudry 1987a: 12, fig. 3–2). The possibility exists that the grass of layer 1 post-dates Kirk Boott and that there was an element of fact in the obvious public relations effort of the Gleason's illustration (Figure 12–11). A problem with the lawn hypothesis is that earthworms should be present in sod. The relatively uniform grass, oak (*Quercus*), total arboreal pollen and "corroded oak" frequencies resemble the worm-homogenized horizons described by Havinga (1973) and Dimbleby (1985: figs. 6, 7), but these do not carry through in the other spectra.

At the Kirk Street Agents' House there was evidence for construction-related soil disturbance in the deepest occupation deposits, level 6 of Square "E" (Kelso, Mrozowski, and Fisher 1987: 108). In the boardinghouse backlot the block of grass frequencies in level 1 were not distorted by such activities, and there are no indications of leaching from level 2 and no well defined zone of high frequencies at the top of level 1, such as often marks a buried surface in profiles (Dimbleby 1985: 45). Sod could have protected level 1 from leaching and disturbance during the boardinghouse construction interval, but it must have been removed or the profile cleanly truncated before deposition of level 2 commenced. The absence of any trace of humus at the top of level 1 suggests that this was the case.

Artifact data suggest that level 2 is associated with the boardinghouse rather than with the Boott estate. Grass declines abruptly and the wind-pollinated Compositae portion of the spectrum increases at the bottom of the level. Goosefoot (Chenopodiaceae), insect-pollinated Compositae, and vine (Vitaceae) frequencies also increase at the base of level 2, but the percentages of virtually all non-arboreal pollen types are relatively stable up to sample 10. Except for sample 7, which was an intrusive lens of glacial sand, pollen concentrations rise through the level, and the quantities of pollen "too degraded to identify" decline in a fairly orderly manner. This was a normal matrix accumulation situation in which ground cover

was relatively stabile from construction in the 1830s up to the last decade of the 19th century.

Weeds were predominant over grass in the backlot. No attempt was made to develop any particular kind of ground cover, but this does not mean that the backlot was unkempt.

Comparative data provide a general estimate of the nature of the ground cover. The deposits are roughly contemporaneous with those of the Kirk Street Agents' House backlot, yet much less trash was deposited in the boardinghouse backlots than behind that higher socio-economic class dwelling (Dutton, this volume). The presence of European cereal and corn pollen in level 2 suggests disposal of some organic waste in the backlot, but there are many fewer grains of these types here than in the Kirk Street backlot, even compared to the period when that structure served as a non-Boott Corporation boardinghouse (Beaudry 1987b: 27). There were only 21 non-arboreal pollen types attributable to weedy taxa in this boardinghouse backlot profile compared to 31 in the Square "E" sequence behind the agent's dwelling, and the majority of those found at the boardinghouse were represented by much smaller pollen percentages. Dandelion-type (Liguliflorae) is a good example. It was present in grassy level 1, absent from the boardinghouse occupation period level 2, and reappeared in weedy, post–habitation level 3. The general impression derived from these spectra is that of a relatively barren plot that was maintained to present an orderly, utilitarian appearance over a lengthy period. This is consistent with the Boott Mills management's pragmatic, instrumental approach to employee housing under the principal of corporate paternalism that Bond (1987, 1989) documents.

Ground cover in the backlot changed in the late 19th century. Artifact deposition, especially debris associated with foreign-born males, increased toward the top of level 2 (*infra*: Chapters 3, 12). Contemporaneous increases in wind-pollinated Compositae frequencies and further declines in the grass pollen percentages are evident in the pollen spectra calculated from non-arboreal sums in samples 10 and 11. Pollen concentrations rise rather abruptly at this point, and the lack of a parallel increase in wind-pollinated Compositae percentages based on the sum of all pollen, AP and NAP, can be attributed to statistical suppression by the increase in the elm (*Ulmus*) pollen contribution in these same samples. The spectra appear to reflect a real further expansion in the local weed population at the expense of grass in the backlot. The backlot evidently became a little disorderly, but the changes recorded here are much smaller than those that might be anticipated from the published descriptions of tenements and lodging houses managed by slum lords such as Saiman Sirk (Bell 1987:a 67; Bond, 1989: 9). The pollen data imply that maintenance standards were not abandoned in Boott Corporation managed properties, they just slipped a little.

Maintenance slippage in the Boott Mills operation may not have been restricted to the boardinghouses. A single grain of cattail (*Typha*) pollen was noted in sample 5 at the bottom of level 2. This pollen grain should date to the 2nd quarter of the 19th century. A cluster of small counts of cattail pollen occurs in samples 9, 10, 11, and 12. These samples date to the late 19th and early 20th centuries. Cattails prefer rooting in shallow water, and the closest source for this is the Eastern Canal, adjacent to the boardinghouses on the north. Water power for the Boott Mills was augmented by steam engines in the 1859 to 1873 period (Beaudry 1987:a 11). The establishment of cattail populations in the canal thereafter suggests negligence which permitted silt to build up in the canal and/or vegetation to become established between the stones.

The depositional environment of the backlot changed again in the 20th century. Percentages of individual herb pollen types based on the non-arboreal sum in samples 12 and 13 differ little from those of 19th-century samples 10 and 11, but pollen concentrations decline abruptly from almost 16,000 to less than 6,000 pollen grains per gram of matrix. Such a pollen disposition suggests that the kinds of herbs in and around the boardinghouse backlot remained roughly the same but that there were a lot fewer of them. Pollen concentrations are normally higher in the four centimeters of a profile nearest the surface, and the high pollen concentrations in samples 10 and 11 (2 cm each) are comparable to Dimbleby's (1985: 45) buried surface. It normally requires deeper burial to protect such a surface (Dimbleby 1985: 60), and the inability of oxygen and aerobic fungi to penetrate these 4 cm suggests special conditions. Soil compaction seems the to be the explanation most consistent with the reduction in backlot ground cover. In contradistinction, the proportions of both pollen grains "too degraded to identify" and "corroded oak" increase abruptly in the upper 4 cm of the profile. A zone of high pollen degradation like that evident in samples 12 and 13 can reflect aeration of the surface matrix through continuous, shallow soil disturbance (Kelso

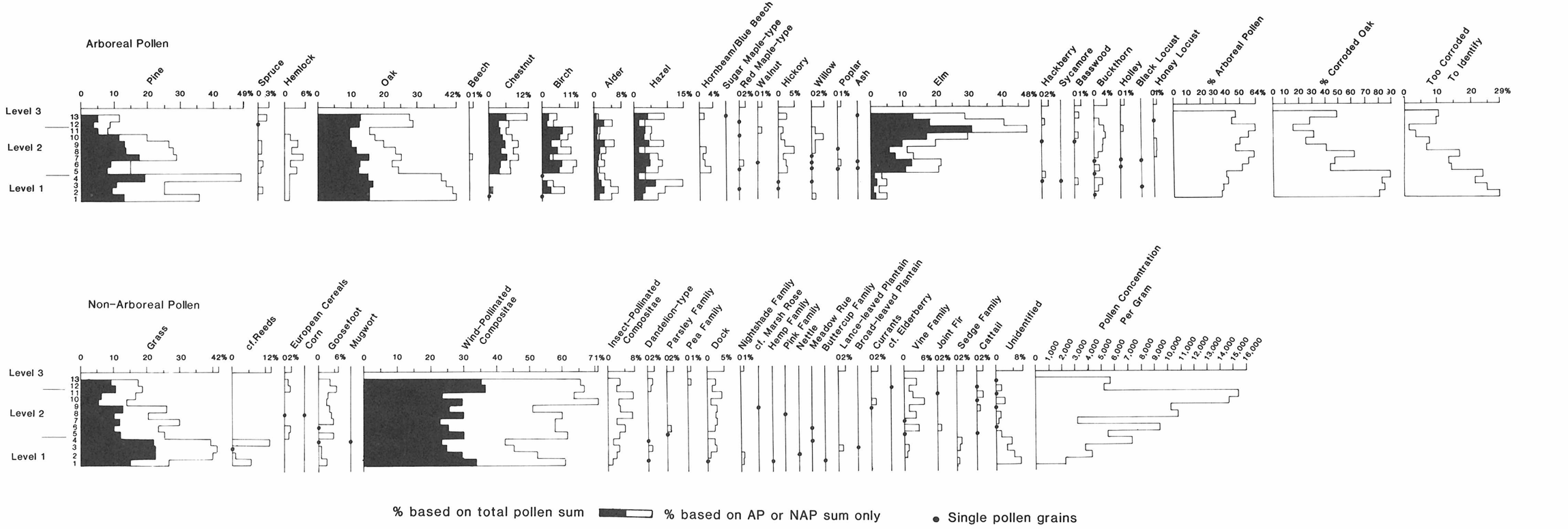


Figure 12–9. Relative pollen frequencies, 21N/8W, northwest profile.

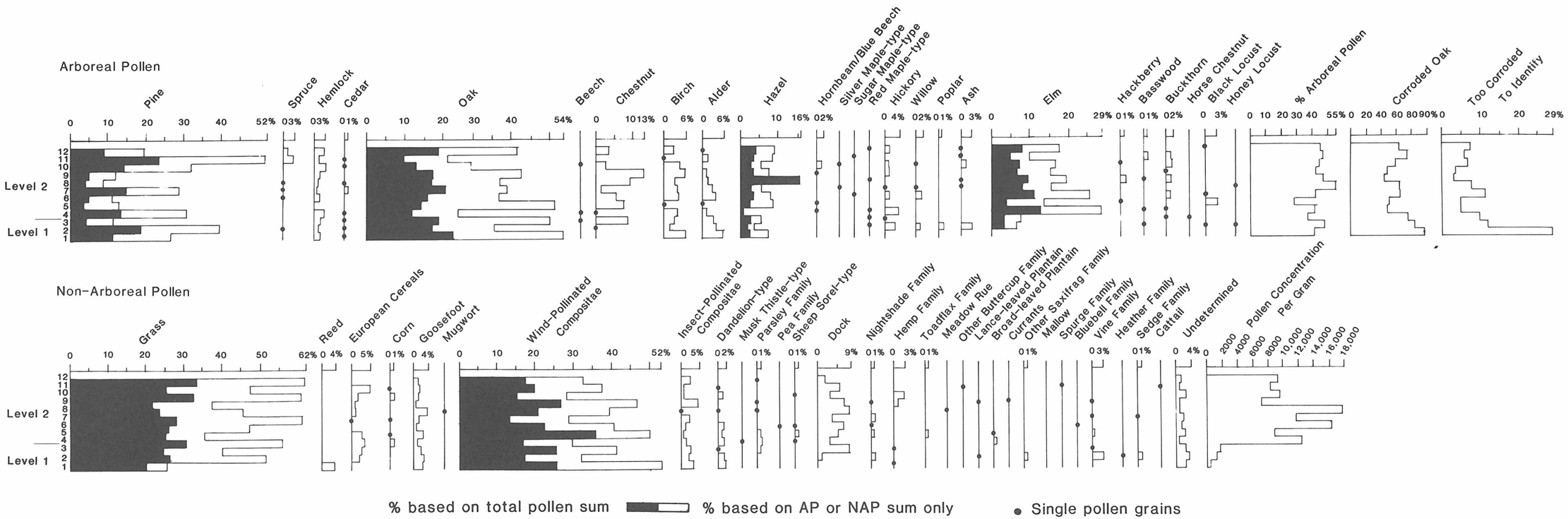


Figure 12–10. Relative pollen frequencies, 21N/8W, northeast profile.

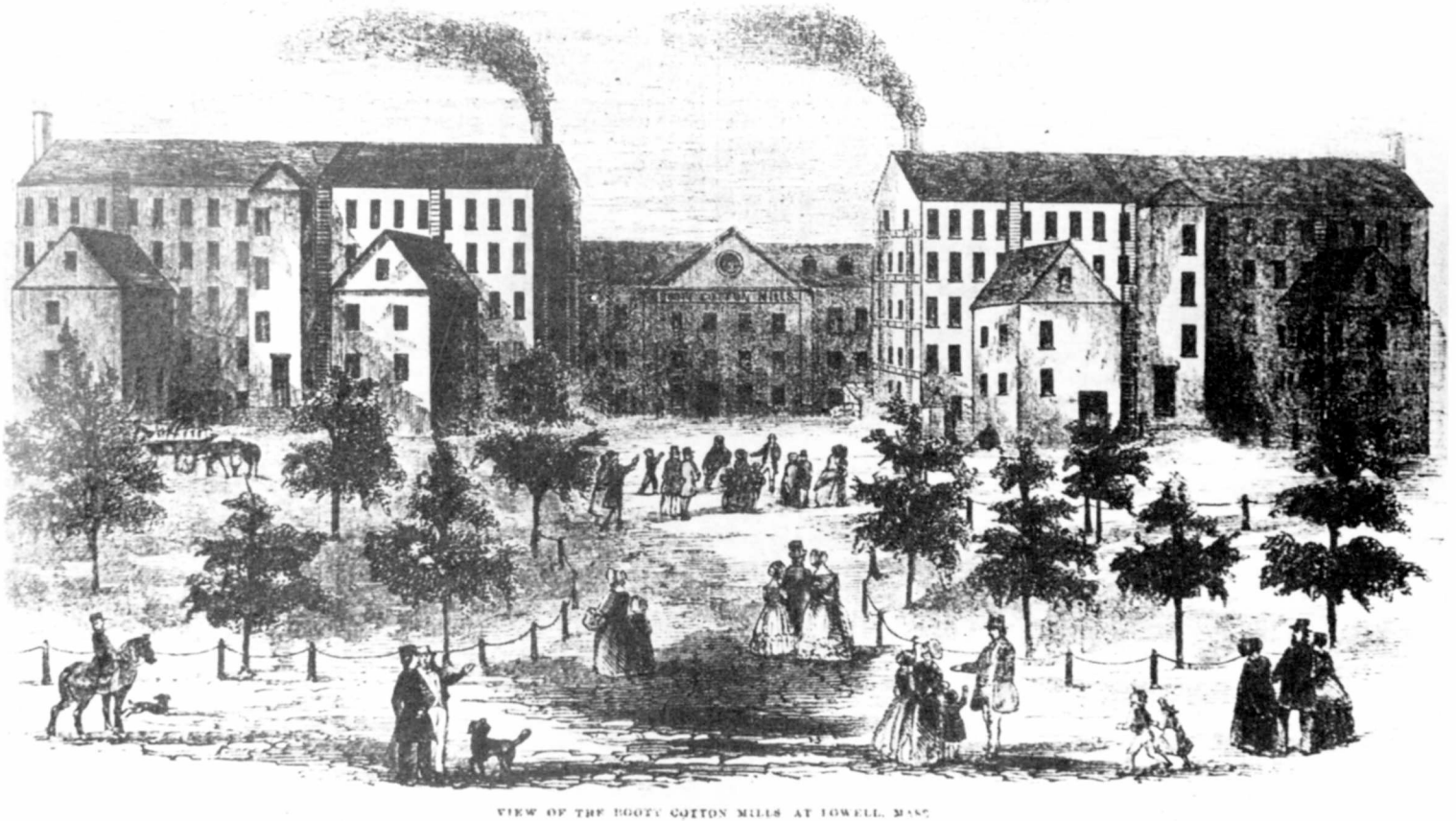


Figure 12–11. A view of the Boott millyard published in *Gleason's Pictorial* in 1852. This romanticized scene presents an idealized image of early 19th-century industry.

1987b: 4, fig. 4). Between 1918 and ca. early 1934 the Boott Mills boardinghouses at 45–48 James (Sirk) Street served as storage accommodations (Clancey 1987: 32). The constellation of spectrum features characteristic of level 3 indicates a barren, slowly (if at all) aggrading, compacted deposit with a frequently, but shallowly, disturbed surface that is consistent with the loading yard of such a facility.

The arboreal pollen of urban sites is more difficult to interpret than the non-arboreal spectra. It starts out at a higher altitude where wind velocities are greater and it is less subject to vegetative filtration. Arboreal pollen in a non-forested region generally reflects regional rather than local vegetation (Janssen 1973: 33). Little patterned variation is evident among urban arboreal pollen spectra, and local ornamental trees have yet to be reported among urban spectra. Except as a foil in assessing the relative density of local ground cover (Kelso n.d.; Kelso and Beaudry n.d.), arboreal pollen in urban matrices has provided few significant land-use data.

The Boott Mills boardinghouse backlots may be an exception. Three pollen types, oak, pine (*Pinus*), and elm, display the high frequency, high amplitude variations characteristic of local pollen spectra (Janssen 1973: 34). The peaks of elm frequencies in samples 5 and 6 and 9–11 coincide with peaks of arboreal pollen in the total sum, suggesting that there were real increases in the contributions of this type during these intervals. If Sample 5 dates to ca. 1836 and sample 12 dates to ca. 1919, each rising and falling phase in the level 2 arboreal pollen ratio could have consumed 40 years. This is adequate for the maturation of an elm tree (Fowells 1965), and it appears that these spectra record the development and demise of two generations of local ornamental trees no more than 300 yards from the sampling locus (Janssen 1973: 33). Oak and pine dominate the arboreal spectra of level 1 but decline abruptly at the level 1/level 2 interface. Both types increase for a period in the middle of level 2 and in level 3 at the top of the profile, with pine most prominent in level 2 and oak increasing most in level 3. This distribution constitutes a rough mirror image of the elm profile and suggests that pine and oak were part of the regional rather than the local pollen spectrum and that their frequencies were responding statistically to real changes in the elm contribution. Whether these elms were intentional ornamental plantings or natural intrusives cannot be determined from the pollen type itself.

Buckthorn (*Rhamnus*) is a low tree now most often noted at the edges of secondary woodland. Its pollen is dispersed more like non-arboreal than arboreal types and reflects local rather than regional vegetation (Kelso and Beaudry n.d.). The expansion of the pollen contribution of this taxon parallel to that of the elms suggests that the shrubby conditions often evident on urban lot borders were developing in the vicinity of the boardinghouses.

It is also worth noting that chestnut (*Castanea*) and hickory (*Carya*) are much better represented in levels 2 and 3 than in level 1. Both trees were prominent in the European contact era forest of New England (Braun 1950), but neither is well represented in the pollen spectra of lake sequences. The counts of these types in the boardinghouse backlot appear to be derived from urban ornamentals rather from the regional pollen rain. The location of the parent trees relative to the boardinghouses cannot be determined, but the uniformity of the spectra, compared to those of elm, suggests a source area broad enough for homogenization of the pollen contributions of individual or discrete groups of emitters. Janssen's (1973: 33) data suggest a 300–yard cut-off for recognizing point sources in unforested areas, and the uniformity of the chestnut and hickory spectra suggest that the counts reflect the tree population of the town as a whole rather than the immediate vicinity of the boardinghouses (Janssen 1973: 33).

The vine family does not fit either the arboreal or non-arboreal pollen category well. As woody perennials, their populations should not respond as rapidly to cultural change as the annual herbs that contribute most of the non-arboreal pollen classification. Vines climb, but the majority do not reach the altitudes from which the arboreal pollen that constitutes the major portion of the regional pollen spectrum is launched. In most sites the question is moot. Vine family pollen is not massively produced nor widely dispersed. It is relatively rare in soil samples of any kind and its occurrences are generally unpatterned.

The Boott Mills boardinghouse vine pollen counts are unusual. Only a few grains were found in level 1, and the type is absent or irregularly represented in the deeper samples of level 2. In sample 8 and above, however, it is present in noticeable amounts in all counts and reaches 6% of sample 10. This pattern suggests the presence of a few plants early in the occupation and development of a significant local vine population during the latter half of the occupation (level 2) and storehouse interval (level 3). Other spectra suggest that the boardinghouse backlot was bare and utilitarian,

while the worklot of the storehouse period was barren and subject to heavy traffic. It seems unlikely that either grapes or ground covering vines growing within the backlot contributed this pollen. At present both the rail along the edge of the Eastern Canal (between the boardinghouses and the mill) and the south wall of the mill itself are covered with Boston ivy (*Parthenocissus tricuspidata*). It is possible that some of these ornamentals, Asiatic members of the vine family, were growing on the boardinghouses or ells as well as on the mills. The level 2 vine pollen counts suggest that mill management may have made efforts to soften the utilitarian, institutional architecture they had erected with such climbing vines at a relatively early date. It is also possible, if not probable, that these vines, the previously discussed buckthorn, and perhaps some of the chestnuts, hickories, and elms, simply reflect development of the normal, tolerated but perhaps not encouraged, northeastern urban flora on the farmland that had been stripped to create the city of Lowell in the early 19th century.

21N/8W, Northeast Profile

Level 3 was not observed at this profile location, and the window glass cap deposited on the backlot during dismantling of the boardinghouse directly overlay level 2 (Figure 12–12). Level 2 appeared rather homogeneous, displaying none of the color variations and texture lenses evident in the northwest profile. The profile location is considered to be a feature of some sort (David H. Dutton, personal communication, 1989), even though no pit edges or other feature indicators were evident in the excavation wall. The pollen data (Figure 12–10) concur with this assessment but suggest that there was some complexity to the development of the feature fill.

The northeast profile pollen concentration and "corroded oak" and "too degraded to recognize" measures suggest three deposition stages in the matrix profile. The earliest stage corresponds to the level 1 (glacial?) sand at the bottom of the profile and is characterized by a very regular sequence in which pollen preservation declines down through the layer while pollen concentrations get larger toward the top. This appears to record the normal leaching/degradation pattern of a natural matrix development process of the sort that was evident in the northwest profile data. The counts of the individual taxa in the northeast profile level 1, however, differ markedly. Dock, European cereal type, chestnut, hickory and elm frequencies were all low in the northwest profile while reed and sedge counts were relatively high. This arrangement is preserved only in the deepest one or two samples of the northeast profile. Even in those samples these types are not consistent across the spectrum, while no patterns are evident among the grass, wind-pollinated Compositae, pine, and oak percentages. In contrast these were significant in interpreting level 1 in the northwest profile. Later, boardinghouse period pollen appears to have penetrated level 1 in this northeast profile without seriously disrupting Boott mansion era concentration and degradation patterns. The quantity need not have been large because level 1 concentrations were low, but it was sufficient to largely mask the pollen spectrum of the earlier period.

Samples 4 through 8 in the bottom half of level 2 constitutes the second depositional interval in the 21N/8W northeast profile (Figure 12–10). It is characterized by pollen concentrations which increase abruptly at the lower interface of the level at sample 4 and continue to rise irregularly until they drop off with equal suddenness above sample 7. Both the "corroded oak" and "too degraded to identify" are stable in the deepest two samples but rise moderately in samples 6 and 7. This distribution of pollen preservation measures suggests an episodic fill, and the pollen concentration pattern suggests the presence of a ground cover or, at least a local pollen input to the top of the fill, which exceeded the average pre-deposition pollen content of the fill. A brief peak of total arboreal pollen in sample 7 among the AP/NAP ratios suggests that some of the input was arboreal, but a single high count may be coincidental.

The third 21N/8W depositional zone incorporates samples 8 through 12 at the top of the profile. It is characterized by pollen concentrations that drop off abruptly and then remain relatively stable in the upper fill. The percentages of "corroded oak" and total pollen "too corroded to identify" rise toward the top of the profile, but the apparent trend in this last category is the product of a single low count and may not be real. A definite change in the matrix depositional regimen is indicated, and samples 9 through 12 probably originated in an episodic fill. The profile at this location has been truncated. The sheet deposit of broken window glass from the 1934 dismantling of the boardinghouse directly overlies level 2. Level 3 is missing. Some of this pollen zone was probably also lost, and we cannot ascertain the later ground cover history at this locus.

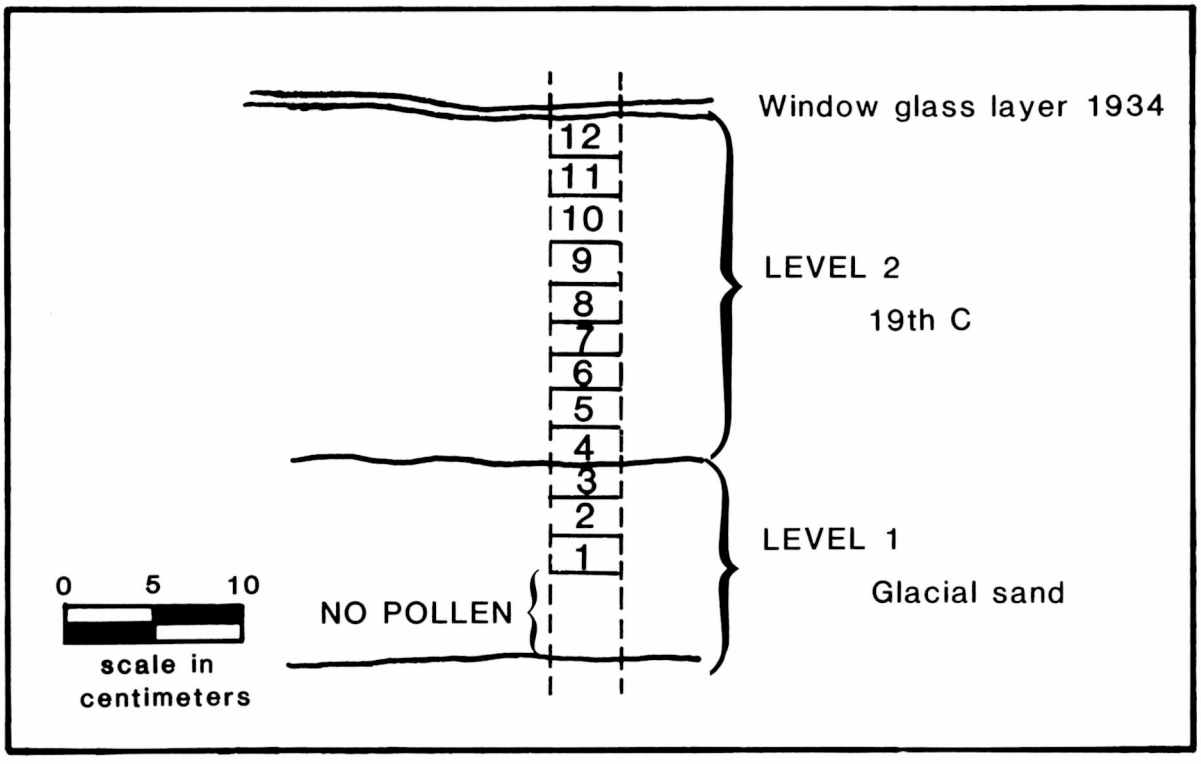


Figure 12–12. Palynologist's field sketch: soil stratigraphy and pollen column location, 21N/8W, northeast profile.

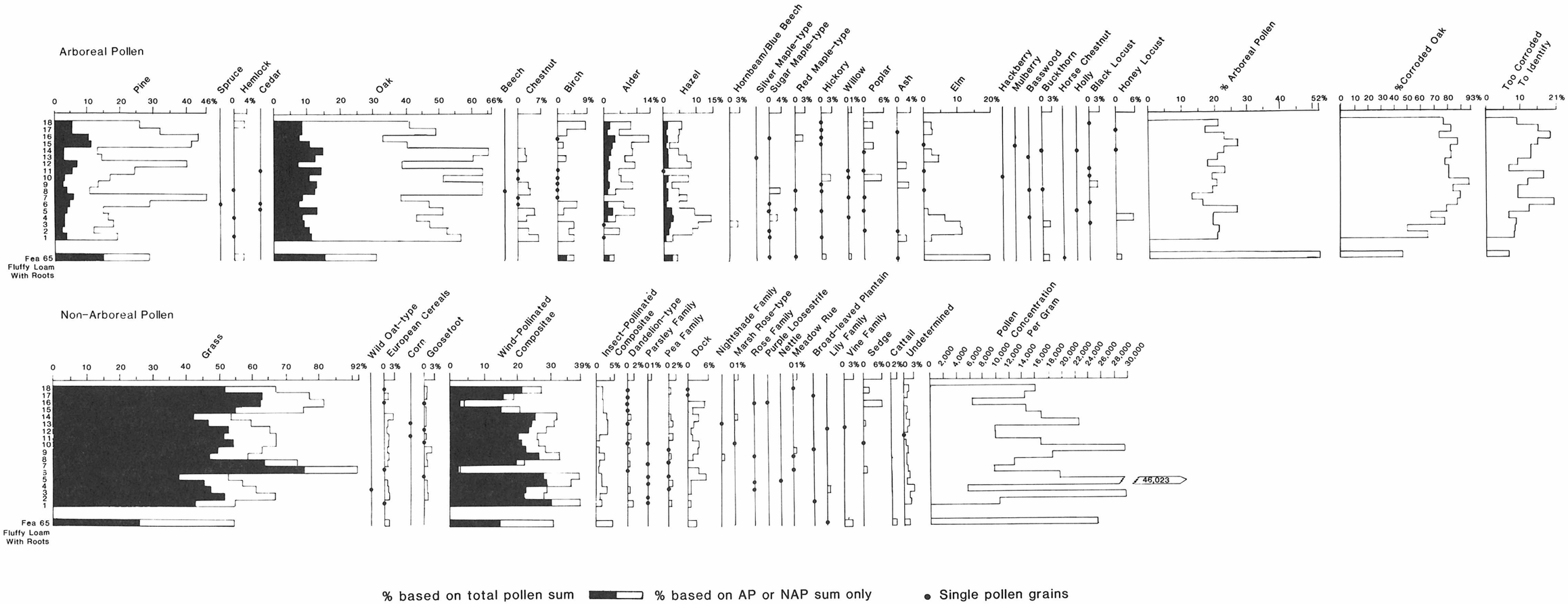


Figure 12–13. Relative pollen frequencies, Feature 27 and Feature 65.

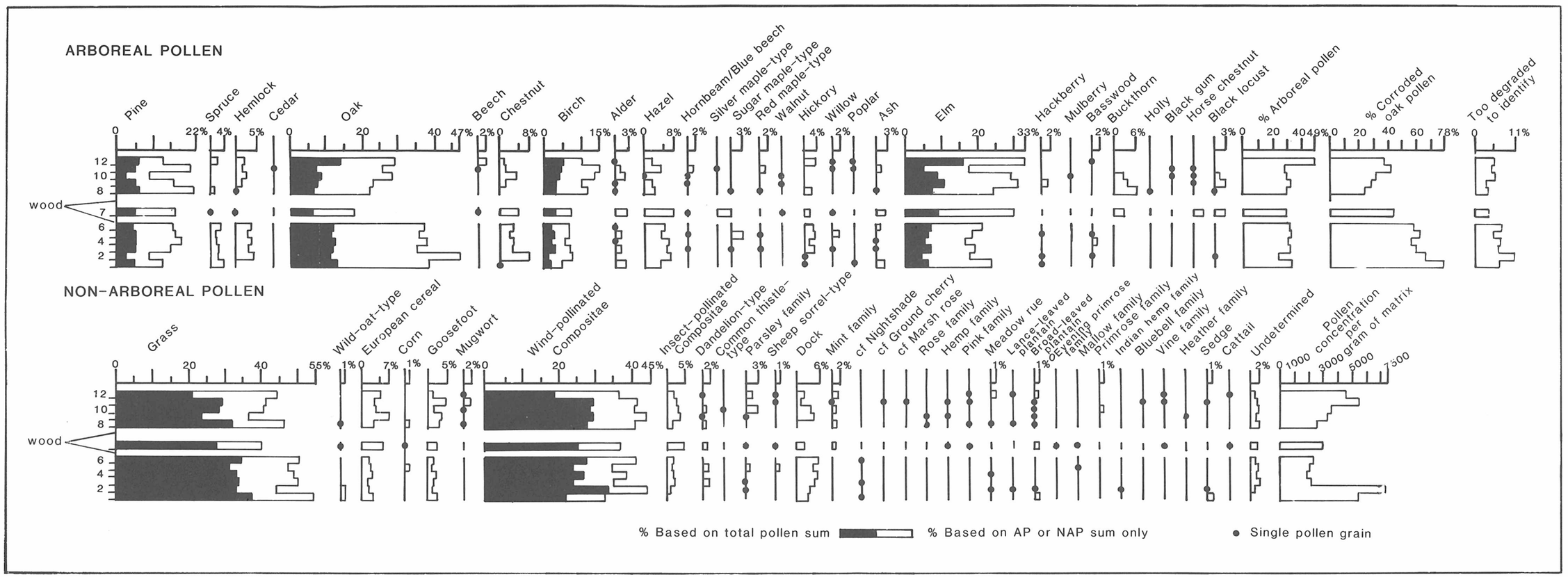


Figure 12–14. Relative pollen frequencies, Feature 61.

Feature 27

Feature 27 was an oval, 60 cm x 160 cm, apparent former pit just north of the 45 James (Sirk) Street cellar stairs in Operation A (Figure 12–3). The fill stratigraphy was amorphous, and the few artifacts recovered provided no functional data. There were no new types, but the arrangement of the pollen spectra does provide some data on the origin of the feature fill (Figure 12–13).

Pollen concentrations, although irregular are much lower at the top of the profile than at the bottom, while the "corroded oak" and "too degraded to recognize" categories indicate that pollen preservation was much better at the bottom of the deposit than at the top. Such data suggest the "penetration of a fill pattern" rather than the "natural profile development pattern" described in the introduction. This interpretation, however, appears improbable because it would require the agents of pollen degradation to penetrate about 26 cm of fill in feature 27 while noticeably influencing only the top 4 cm of the 21W/8N profile and only the upper 6 cm of the 21W/8N northwest profile and feature 61.

The distributions of the individual types suggest something different. Sedge, grass, oak, pine and alder (*Alnus*), were most prominent at the bottom of the natural 21W/8N profile, while wind-pollinated Compositae, chestnut, dock, elm and vine family were low in level 1 compared to levels 2 and 3 of the 21W/8N sequence. These relationships are inverted in feature 27. The depressed pollen concentrations seen in level 3 of 21W/8N ended up on the very bottom of the feature 27 pit. These were followed by the high pollen concentrations of upper level 2, the progressively lower concentrations of deeper matrix recorded in 21W/8N, and the sedge and lowest pollen concentrations of the 21N/8W natural level 1 as a cap for feature 27. The correlations here are not exact, and some of the frequencies involved are admittedly small, but they do appear to reflect reversed stratigraphy. The feature 27 excavation was not filled with the same dirt that was removed to create it. Some other part of the backlot was mined for this purpose. Why this was done is not evident, but the proximity of the feature to the cellar foundation suggested to Beaudry that a troublesome tree might have been removed. In such a case the hole left by the stump would require extra dirt. The presence of what appears to be a set of buttons from a single garment in the feature 27 fill (Ziesing, this volume) suggest that it may also have received some primary refuse, and Mrozowski's macrofossil data (this volume) suggest that the hypothetical offending gorwth may have been an elderberry bush (*Sambucus canadensis*).

Feature 65

This clump of loam still incorporating a root mass had been sunk into a disturbed area at 23N/8W in Operation B (Figure 12–2). Someone either planted a greenhouse product or transferred a potted plant outdoors. No unique pollen types were noted in this sample (Figure 12–13, bottom). Pollen concentrations are relatively high, and there is no exact match between the feature 65 loam counts and any other spectrum. Frequencies of the individual types present are, however, within the general range for the rest of the site, and it is possible that the loam acquired its pollen spectrum locally. If so, the pollen concentrations, oak, pine and elm counts suggest that it dates to the late 19th century and is roughly contemporaneous with 21N/8W northwest profile sample 10.

Feature 61

This privy was located 5 m due east of the south wall of the ell foundation in Operation B (Figure 12–2). We have no construction data for the structure. Documentary sources indicate that it went out of service between 1887 and 1889, but its artifact content suggest that it was not filled until after 1910 (Bond 1989: 7). A 12–sample profile was collected in 4–cm segments from a possible wood plank vault floor at 56 cm depth to the top of level 2. The upper few centimeters, incorporating level 3, had been removed in exposing the privy superstructure foundation and could not be sampled. A concentration of wood remains between samples 7 and 8 left a gap in the sequence, and the profile segment incorporating samples 8 through 12 was backed by planking structural remnants (Figure 12–14).

Four pollen zones are evident in the Feature 61 sequence (Figure 12–15). Samples 1 and 2 at the bottom of the profile constitute the deepest. Pollen concentrations and the "degraded oak" counts of both samples are the largest in the profile. The "too degraded to identify" category and the spruce (*Picia*) oak, chestnut, grass, wild oat-type (*Avena-fatua*-type), and wind-pollinated Compositae counts are highest for the feature, but only in one or the other of the samples. The elm percentage of sample 1 is also relatively large for the deeper fill, while the proportion of arboreal pollen in sample 2 is notably depressed.

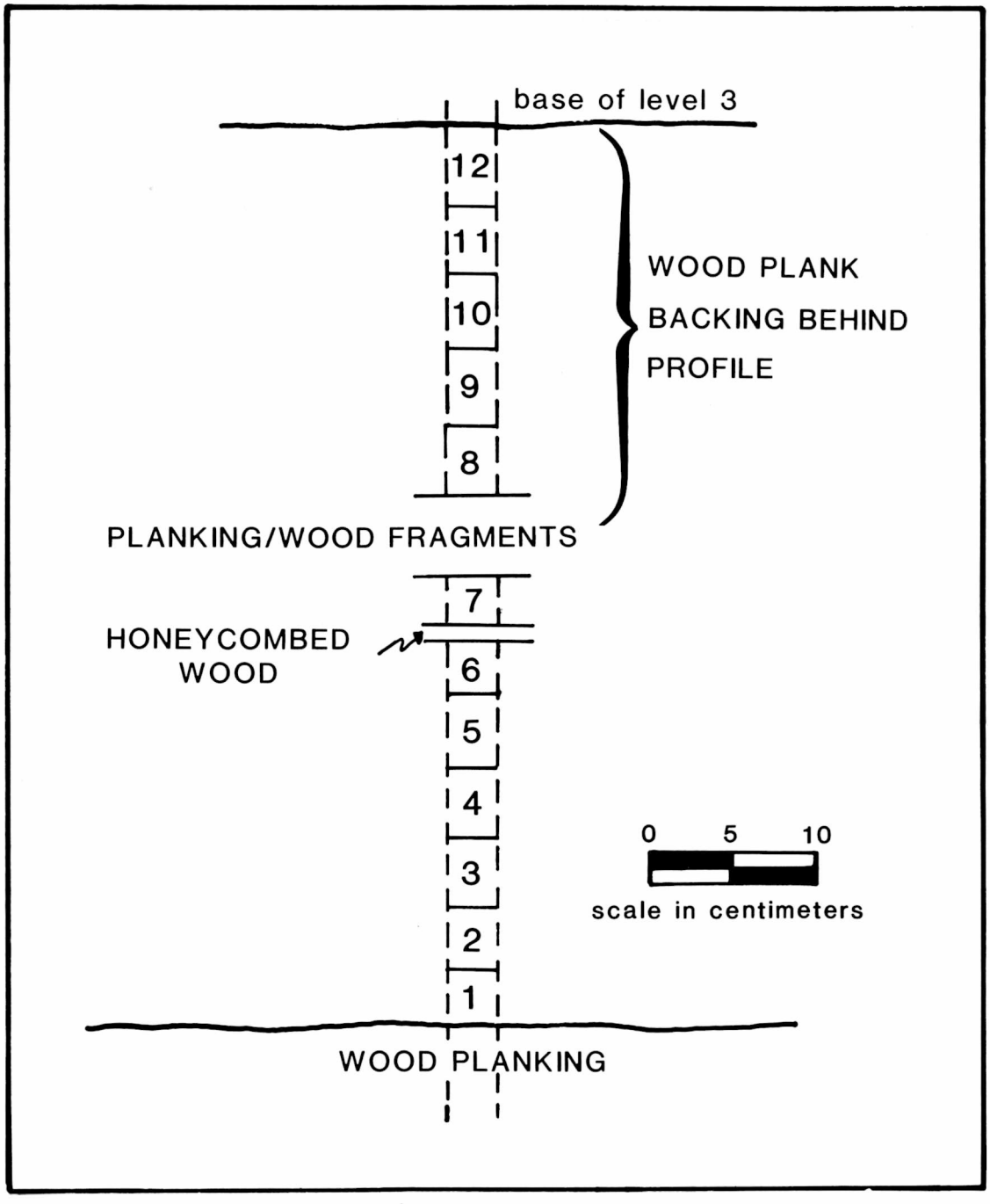


Figure 12–15. Palynologist's field sketch: fill stratigraphy and pollen column location, north wall, Feature 61.

Only the pollen concentrations are conspicuous. These essentially define the zone, and the abrupt decline in pollen concentration in sample 3 suggests a change in the source of the matrix. These samples immediately overlie what appears to have been the plank floor of the vault. There were no high or unusual economic pollen counts of the sort noted in some 18th- and 19th-century privies (Reinhard, Mrozowski, and Orloski 1986; Kelso 1986a), and Reinhard (this volume) found little evidence of the intestinal parasites normally associated with fecal deposits. Feature 61 was apparently emptied before it was filled. Not all historical nightsoil deposits have, however, proven palynologically distinctive (Kelso n.d.), and the zone could still incorporate a remnant of the occupation-period vault contents. The relatively high phosphorus content of the deeper privy samples (Fisher, this volume) as well as the strawberry (*Fragaria*), raspberry (*Rubus*), and blueberry (*Vaccinium*) seeds (Morzowski, this volume) and the single trichurid egg (Reinhard, this volume) recovered from the deeper portion of level 2 in this privy suggest that this may have been the case.

High pollen concentrations can reflect rapidly buried surfaces in natural soil profiles (Dimbleby 1985: 45). The zone 1 matrix may also be a small amount of fill that was exposed to the pollen rain, but protected from oxygen and fungi for a period.

Pollen zone 2 in the Feature 61 profile incorporates samples 3 through 6. It is characterized by blocks of lower pollen concentration, lower measures of pollen corrosion, and by pine, spruce, hemlock, oak, chestnut, birch. hazel, hickory, elm, grass, European cereal, insect-pollinated Compositae, and dock frequencies that are consistently distinctive from preceding and subsequent spectra. The zone 2 matrix was loose and loam-like in appearance. It seemed too light in color to be night-soil. No artifacts were noted in this zone during sampling. The spectra are also relatively uniform when compared to the fills of feature 27 and the northeast profile feature of 21W/8N. The matrix may have been mixed before deposition in the privy, suggesting that it is an episodic fill originating off site.

Pollen zone 3 consists of a single sample (No. 7) sandwiched between a piece of honeycombed wood, the top of zone 2, and a large piece of what appears to be an architectural member at the bottom of level 4 (Figure 12–15). The buckthorn, elm, black locust-type, and mint family frequencies imply some mixing across this interface, but the oak, chestnut, hazel, grass, and insect-pollinated Compositae, dock, "corroded oak," and pollen concentration figures more strongly suggest that the zone 3 spectrum is different from those of both zone 2 and zone 4. This may be a matter of relative exposure. Elm counts expanded at the expense of oak during the late 19th century in the 21W/8N northwest profile. The counts of these two types in Feature 61, and perhaps the decline of grass, is consistent with the documentary record (Bond 1989: 7) of privy discontinuance ca. 1887–1889. Pollen concentrations are not high enough to interpret this as a buried natural surface, but the modest increase in pollen concentration and improvement in pollen preservation in this zone suggests a fill surface that accumulated some new pollen through some exposure but was protected from free oxygen and aerobic fungi. It may be that the vault was filled to ca. level 7 at that time and abandoned with its superstructure intact.

Pollen zone 4 extends from sample 8 through sample 12 at the top of the profile at the base of the 20th-century level 3. The deteriorated remnants of a plank wall were observed immediately behind (north of) the profile location. Oak, chestnut, birch (*Betula*), hazel (*Corylus*), elm, buckthorn (*Rhamnus*), grass, European cereal, goosefoot, insect-pollinated Compositae, mint family (Labitae), and dock frequencies all differ notably from those of pollen zone 2. Either the flora in the backlot changed markedly or the matrix originated at a different location. The latter seems most likely, and the contrast between the incorporated pollen spectra and that of zone 2 seems sufficiently comprehensive to identify this profile segment as a separate episodic deposit. Both pollen concentrations and quantities of degraded pollen are larger at the top of the profile, suggesting the "penetration of a fill" record formation pattern described in the introduction. The top of the remaining profile may have been exposed and unprotected for an interval between the post–1910 filling (Bond 1989: 7) and the post–1918 (see 21N/8W, northwest profile) deposition of the now-missing level 3 matrix. This would date dismantling of the privy superstructure to the second decade of the 20th century.

Summary and Conclusion

Pollen analysis of the James (Sirk) Street boardinghouses backlots was undertaken to test a hypothesis suggested by pollen data recovered during the initial (John Street) Boott Mills boardinghouse pollen investigation. This hypothesis stated that a ragweed (wind-

pollinated Compositae) dominated flora in the backlot gave way to grass during the main portion of the boardinghouse occupation and that the grass was itself replaced by ragweed in the late 19th century as immigarants replaced native millworkers and boardinghouse maintenance slipped.

The technical objectives of the Boott Mills boardinghouse backlot pollen study in testing this hypothesis were: (1) To define the nature and history of ground cover in the backlot; and (2) to define the function and history of a number of archeological features. Two lines of evidence were employed: (1) pollen taxa frequencies; and (2) pollen record formation process data.

Among dense human populations in complex societies, as in the planned 19th-century city of Lowell, the vegetation is under cultural control. The natural and native have been largely eliminated, and man is the dominate factor in the landscape. Vegetation is present where people want it or where they do not care. The former produces plantings and nature reservations, the latter weeds. Both reflect human selection with respect to the particular soil in which the plants are rooted. Pollen taxa frequencies record cultural dynamics because they register the sensitive response of vegetation to cultural activities in such settings. Pollen record formation processes are essentially site formation processes. There are two aspects of these. One of these encompasses natural processes such as post–deposition pollen leaching and degradation. These are Schiffer's (1988: 464) "N–Transforms." The second aspect is the human distortion of normal pollen taxa frequency patterns and of natural pollen leaching and degradation patterns. These are Schiffer's (1988: 464) "C–Transforms."

Palynological C-Transforms and N-Transforms both are critical in the interpretation of archeological features in the boardinghouse backlot. Pollen percentages were very irregular through the 21N/8W northeast feature sequence, but pollen concentrations and degradation measures indicated three profile development episodes. Natural leaching and degradation patterns define the deepest zone in samples 1 through 3. Small quantities of reed and sedge pollen isolated among the confused spectra indicate that this is the somewhat disturbed remnant of the pre-boardinghouse period record. Abrupt changes in pollen concentration and preservation at samples 4 and 9 indicate two subsequent episodic fills and suggest that each of these may have remained exposed for a brief period before being buried. Level 3 is missing at this locus. The dismantling period window glass layer directly overlay level 2, but no pollen evidence of a former surface is evident at the top of the profile. It is probable that the northeast profile of 21N/8W was truncated when the boardinghouse was torn down.

Four pollen zones are recorded among the pollen concentration and preservation data of the feature 61 privy. These appear to indicate matrix blocks of different ages. High pollen concentrations were found in samples 1 and 2 just above what appears to be the plank vault floor. No distinctive counts of recognized economic pollen types were noted, and the high pollen concentrations may mean that the vault stood open as a wind or sheetwash pollen trap without accumulating much sediment for a period. Four centimeters is a very thin layer. If zone 1 reflects the normal vault contents, it is only a remnant. Under any circumstance, the vault appears to have been largely emptied before abandonment. The second feature 61 pollen zone encompasses samples 2 through 6. Its spectra were quite uniform, suggesting that it may have been homogenized by repeated handling before deposition. Zone 2 terminated under a piece of rotten wood. Zone 3 lay between the rotten wood and a number of structural remnants thrown into the privy and was distinguished by high elm and low oak pollen counts. Its slightly higher pollen concentrations and better pollen preservation imply that it is really the top sample of zone 2 and that the privy was filled to this point and left with its superstructure intact.

Zone 4 constitutes a separate fill, and its artifact content suggests that it post–dates 1910. Level 3 and probably some of level 2 was removed before sampling, but the pollen concentration and preservation measures of the zone 4 remnant in zone 2 suggest that the top of the deposit was exposed to the atmosphere. The structural debris between samples 7 and 8 may mark the dismantling of the privy superstructure.

Arboreal pollen ratios of the loam and root mat potted plant remnant buried in the top of feature 65 were distinctive and suggests that the soil originated off-site. Pollen concentration plus elm, oak, and pine frequencies correlate best with upper part of level 2 in the 21N/8W northwest profile. If the spectrum is native to the backlot, it dates ca. 1890.

High pollen concentrations and better preservation at the bottom of feature 27 suggest that this hole was filled quite rapidly. The pollen taxa frequencies imply something more. Plants

that were prominent at the top of the natural backlot sequence in the 21N8W northwest profile are best represented at the bottom of feature 27, and those whose counts are highest at the bottom of that normal profile are most important toward the top of the fill in this pit. Such reversed stratigraphy indicates a void that was filled by mining the backlot. The location of the hole raises the possibility that a tree or vine was damaging the foundation and had to be removed.

Both pollen taxa frequencies and measures of pollen record formation processes are important in defining ground cover history. Pollen concentration and preservation patterns assure us that this is a normal profile development sequence in levels 1 and 2, and, therefore, that changes among the individual spectra probably reflect variation in the local vegetation. Declines in both pollen content and preservation reflect a change in the function of the backlot during deposition of level 3. Local weeds and boggy ground plants were replaced in level 1 with planted grass, which was probably Kirk Boott's lawn. This in turn gave way to a utilitarian boardinghouse backlot which was maintained in a stable, if somewhat barren, condition until the late 19th century. Elm and vine, possibly Boston ivy, pollen frequencies suggest the planting of ornamentals in the vicinity of the boardinghouses, while chestnut, birch, and hickory percentages indicate the maturation of a shade tree flora in Lowell as a whole. Parallel development of shrubby alley way and yard border flora is reflected in the buckthorn counts.

In the late 19th century, letters of complaint from the corporation agents to boardinghouse keepers increased, suggesting a relaxation of standards both in appearance and tenant behavior on the part of the boardinghouse occupants; quantities of trash, largely associated with male immigrants in the workforce, were being deposited in the previously well-kept backlots (see Chapters 6, 7, 8, 9, and 10). During the same interval the weed population, most probably ragweed, increased moderately in the backlot. This slippage in maintenance standards may extend beyond the boardinghouses to the Boott Mills complex as a whole because shallow-water plants appear to have taken root in the nearby Eastern Canal. Depressed pollen concentrations and relatively poor pollen preservation in the early 20th-century level 3 deposits record a compacted plot with a shallowly churned surface stripped even of most weeds by the heavy traffic through the backlot after the boardinghouses were converted to storage facilities during the last years of their existence.

The proprietors of the Boott Mills Corporation were endowed with a strong sense of propriety. They set strict standards of behavior for all of their employees and appearance for all of their property. Managers were constrained from publicly engaging in politics, and laborers could be discharged for loafing on street corners (Bell 1987a: 19; Bond 1989: 5). Considerable money for loaming and of sodding front and side yards was invested in the image of the Kirk Street Agents' House, while the wrath of an ever-vigilant mill management fell frequently on litter-bugs at the boardinghouses (Robbins 1979: n.p.; Bond 1989: 5 and Chapter 3, this volume). In private these criteria were not quite so equally applied.

The relatively uniform barrenness of the boardinghouse backlot suggested by the pollen spectra deposited prior to the last few years of the 19th century supports the documentary and archeological evidence that the Boott Mills management's pragmatic, instrumental approach to employee housing was in force for the major portion of the boardinghouse occupation period. The occupants of the boardinghouses had little control over their own immediate environment, and there was, until quite late, little evidence for the expression of individual impulses, even to be messy, until things got a bit out of hand toward the end of the occupation. The Boott Mills boardinghouse backlots leave a very impersonal record.

In contrast, trash and organic garbage accumulated in the agent's house backlot, while the soil supported weed floras that varied markedly through time, recording modifications in soil stability and fertility as the nature of human activities changed with the individual whims of successive occupants. With a landscaped façade to present to the public, the managers resident on Kirk Street were free to do as they pleased behind their backlot fence. The record they left in the flora is more difficult to interpret, perhaps because it is so personal.

An Analysis of the Phytoliths from the Boott Mills Boardinghouse Excavations

by William F. Fisher

Introduction

Opal phytolith analysis has been shown to be a valuable tool in environmental reconstruction and the interpretation of archeological sites. Recent studies from historical sites, including Fisher and Kelso (1987) and Piperno (1987, 1988), illustrate the utility of this analysis and serve to demonstrate new techniques for understanding the processes of deposition. Phytolith analysis is not a new technique, however, but because few archeologists have recognized the value of phytolith data, phytolith type collections are rare, and techniques for applying phytolith analysis to archeology are still being developed. This study draws on the methods and techniques used at the Kirk Street Agents' House (Fisher 1987b) while integrating new methods and techniques suggested in the Kirk Street Agents' House report (Fisher 1987b: 127).

Opal phytoliths are microscopic bodies that vary in size from 1–1000 mi. Phytoliths are formed in plants when hydrated silicon dioxide, a common constituent of ground water, precipitates out and is deposited along cell walls and intercellular spaces, where it forms a hard, durable opaline fossil cast (Rovner 1983: 226). Opal phytoliths are composed of a non-crystalline form of quartz, known as amorphous opal A, which weathers like rock (Jones and Segnit 1971: 58). Phytoliths are produced in most plants over a variety of soil and drainage conditions. Production of phytoliths is usually heaviest in the epidermal tissue of the stems and leaves, although they are also produced in root, flower, and fruiting cells. Phytoliths make their way into the soil when a plant or plant parts die and decompose. Phytoliths have been shown to be relatively stable components in soil, susceptible to the same depositional and post-depositional translocation processes as pollen but resisting other processes such as percolation (Rovner 1986: 23). Since phytoliths are released into the soil as plants decay, rather than into the air like pollen grains, a large part of the phytolith record represents "in situ deposition" (Piperno 1988: 44). Phytolith movement is therefore usually the result of mass movement of soil by wind, water, or animals.

There are basically two methods used in phytolith analysis; they are based on differential production and individual morphology of phytoliths. Jones and Beavers (1964: 711) noted that grasses contributed more opal to the soil than did trees. By extracting and weighing phytoliths from weighed soil samples it is possible to determine the percentage of phytolith by weight in the soil. The difference in gross production between grasses and trees can then be used in determining whether a soil was formed under grass or arboreal conditions. This method has been shown to be of great utility in the reconstruction of the vegetative histories of forest and grassland areas (Witty and Knox 1964; Wilding and Drees 1968; Verma and Rust 1969; Miles and Singleton 1975; Fisher et al. 1987).

The use of this method on archeological contexts must take into consideration aspects of the depositional process relating to human behavior that studies of natural contexts do not need to consider. Because of the added aspect of human behavior, differences in opal phytolith content in archeological deposits may not be related to vegetative patterns but rather to such human activities as garbage disposal, latrine deposits, mulching, fertilizing, land fill, land reclamation, or charcoal manufacturing, to name just a few. The number of variables that affect phytolith concentration in archeological contexts are so numerous as to render this method nearly useless when applied as a single component of a study. By comparing the data gleaned from historical sources, stratigraphy, associated artifacts, and, importantly, from soil, pollen, and macrobotanical analysis, it is possible to reconstruct more accurately the vegetative histories and human activities that are indicated by the concentration of phytoliths in archeological deposits (Fisher and Kelso 1987: 43).

Since phytoliths are casts of plant cells, they may be morphologically distinct at the family, genus, or species level. By extracting phytoliths from plant specimens taken from identified herbarium collections, it is possible to develop a collection of phytoliths, that, when compared by morphological variation, establishes diagnostic types identifying given plant families, genera, or species. Twiss et al. (1969: 111) identified morphological differences in the phytoliths of three groups of grasses; Geis (1973: 115)

Table 12–2. Grass species occurring in Massachusetts that produce Festucoid (trapezoid) phytoliths.

Species	F	C	Pa	Po	Description of Habitat
Bromus commutatus	x				weed in waste/fields
Bromus mollis	x				weed in waste/cultivated soils
Bromus tectorum	x				waste places/roadsides
Bromus ciliatus	x				moist woods/rocky slopes
Festuca rubra	x				meadows/bogs/marshes
Festuca octaflora	x				open sterile ground
Poa compressa	x				open ground/waste places
Poa pratensis	x				lawn grass/woods/meadows
Dactylis glomerata	x				field/meadow/waste areas
Lolium perenne	x				lawn/pasture/meadow/waste
Schizachne pupurascens	x				rocky woods
Distichlis spicata	x				seashores
Spartina pectinata	x				fresh water marshes
Sporobolus cryptandrus	x				sandy open ground
Agropyron repens	x				meadow/pasture/waste areas
Agropyron subsecundum	x				moist meadows/open fields
Agropyron trachycaulum	x				mountain meadows
Elymus canadensis	x				prairies
Hordeum jubatum	x				meadows/open ground/waste
Triticum aestivum	x				cultivar/fields
Avena sativa	x				cultivated
Hierochloe odorata	x				bogs/meadows/moist places
Phalaris arundinacea	x				marshes/river banks
Agrostis scabra	x				mountain meadows/fields
Calamagrostis canadensis	x				marshes/wet places
Cinna latifolia	x				moist woods
Phleum pratense	x				cultivar/fields/roadsides
Phragmites communis	x	x			banks of lakes/streams
Egragrostis cilianensis	x	x			cultivated ground/fields/waste
Egragrostis pectinaceae	x	x			fields/open ground/waste
Egragrostis spectabilis	x	x			sandy soil
Glyceria borealis	x		x		wet places/shallow water
Danthonia spicata	x		x	x	dry sterile rocky soil
Brachyelytrum erectum	x		x		moist/rocky woods
Oryzopsis asperifolia	x		x		wooded slopes/dry banks
Aristida tuberculosa	x		x		open sandy woods

F – Festucoid; C – Chloridoid; Pa – Panicoid; Po – Polylobate and Cross-shaped

Sources: Brown 1986; Mulholland 1986; Hitchcock 1971.

Table 12–3. Grass species occurring in Massachusetts that produce Chloridoid (saddle) phytoliths.

Species	F	C	Pa	Po	Description of Habitat
Phragmites communis			x	x	banks of lakes/streams
Egragrostis cilianensis			x	x	cultivated ground/fields/waste
Egragrostis pectinaceae			x	x	fields/open ground/waste
Egragrostis spectabilis			x	x	sandy soil
Bouteloua gracilis			x		plains
Bouteloua curtipendula			x		plains/prairies/rocky hill
Cynodon dactylon			x		open grassland/waste
Leptochloa fascicularis			x		brackish marshes

F – Festucoid; C – Chloridoid; Pa – Panicoid; Po – Polylobate and Cross-shaped

Sources: Brown 1986; Mulholland 1986; Hitchcock 1971.

Table 12–4. Grass species occurring in Massachusetts that produce Panicoid (bilobate) phytoliths.

Species	F	C	Pa	Po	Description of Habitat
Danthonia spicata	x		x	x	dry sterile rocky soil
Glyceria borealis	x		x		wet places/shallow water
Brachyelytrum erectum	x		x		moist/rocky woods
Oryzopsis asperifolia	x		x		wooded slopes/dry banks
Aristida tuberculosa	x		x		open sandy woods
Echinochloa crusgalli			x	x	cultivated fields/waste places
Panicum virgatum			x	x	prairies/open ground/woods
Setaria lutescens			x	x	cultivated fields/waste places
Andropogon gerardi			x	x	prairies/open woods
Sorghastrum nutans			x	x	prairies/open woods
Sorghum halepense			x	x	open ground/fields
Zea mays			x	x	cultivar
Zizania aquatica			x		marsh/stream banks
Panicum capillare			x		cultivated fields/waste places
Digitaria sanguinalis			x		fields/gardens/waste places
Tridens flavus			x		old fields/open woods

F – Festucoid; C – Chloridoid; Pa – Panicoid; Po – Polylobate and Cross-shaped

Sources: Brown 1986; Mulholland 1986; Hitchcock 1971.

Table 12–5. Grass species occurring in Massachusetts that produce Polylobate and Cross-shaped phytoliths.

Species	F	C	Pa	Po	Description of Habitat
Andropogon gerardi			x	x	forage grass/dry soils
Andropogon scoparius			x	x	prairies/open woods
Sorghastrum nutans			x	x	forage grass/dry soils
Sorghum halepense			x	x	open ground/waste areas
Panicum virgatum			x	x	open ground/open woods
Cenchrus pauciflorus			x	x	weed in sandy fields
Echinochloa crusgalli			x	x	forage in field/waste
Setaria lutescens			x	x	cultivated soil/waste
Danthonia spicata	x		x	x	dry sterile rocky soil

F – Festucoid; C – Chloridoid; Pa – Panicoid; Po – Polylobate and Cross-shaped

Sources: Brown 1986; Mulholland 1986; Hitchcock 1971.

separated 36 species of trees and shrubs at the family and genus level; and Klein and Geis (1978: 148) described the differences in phytoliths from 15 taxa of the family Pinaceae.

Regional comparative collections are necessary for identification of phytoliths from archeological sites. Pearsall (1982: 868) and Rovner (1983: 257) both suggest that the development of comparative collections of opal phytoliths is of primary concern as they are an integral part of archeological phytolith analysis. There are relatively few regional collections of phytoliths, however; they include Starna and Kane (1983), Piperno (1984, 1988), Brown (1986), Mulholland (1986), and Fisher and Fisher (1988). These collections add significantly to the number of plants from which phytoliths can be identified in soil deposits. The identification of individual phytoliths to family, genus, or species designation has been accomplished successfully at archeological sites (Piperno 1984: 373; Fisher and Kelso 1987: 41; Fisher and Fisher 1988: 5). Phytoliths have also been used to describe changing climate and vegetation (Fisher et al. 1987: 253; Fisher and Kelso 1987: 42; Lewis 1985: 45; 1987: 451).

Morphological differences in phytoliths found in different grass species are an important source of paleobotanical information, as pollen grains from nearly all grass species are indistinguishable from one another. While Faegri and Iverson (1964) and Kelso and Schoss (1983) identify some species of European domesticates and corn pollen by size attributes, native North American grasses tend to be lumped into one large category (see Kelso and Fisher, this volume). Grass phytoliths can be separated into a number of different classes, each containing a number of tribes and genera. For this study grass phytoliths are classified into

four groups: the Festucoid, seen in Table 12–2; the Chloridoid (Table 12–3); the Panicoid (Table 12–4); and the Polylobate (Table 12–5) (Twiss et al. 1969: 111; Brown 1986: 80).

The use of opal phytolith analysis in conjunction with pollen and macrobotanical analysis has been suggested by Pearsall (1982: 862), who noted that "the technique [phytolith analysis] is strongest when applied as one component of a paleoethnobotanical study." Rovner (1983: 258) concurs, suggesting that "the most productive use of phytoliths should be in conjunction with collateral paleobotanical methods." Rovner (1983: 258) also notes that using phytolith, pollen, and macrobotanical studies in concert "allows phytolith data to be matched against both microbotanical and macrobotanical remains." The environmental study of the Kirk Street Agents' House and Boott Mills boardinghouse backlots were not originally designed with comparative analysis of pollen, phytoliths, and macrobotanical remains in mind. The lessons learned from the Kirk Street Agents' House environmental study (Fisher and Kelso 1987: 45), however, enabled us to formulate new methods and techniques for the Boott Mills boardinghouse backlot environmental study that facilitated the use of the comparative data generated by an integrated approach.

Methods

Samples for opal phytolith analysis were taken from the contiguous pollen profiles used for the pollen analysis. Fisher and Kelso (1987: 36) recommend taking a phytolith sample from each pollen sample to facilitate comparison of the data. Table 12–6 indicates the pollen sample number, the archeological level, and the phytolith percentages from the northwest profile of unit 21N/8W. Table 12–7 gives the same information for the northeast profile of the same unit. It should be noted that a number of samples from level 1 in both profiles were examined for phytoliths but appeared to have none, or had too few to count. One problem with the sample method used at the boardinghouse backlot was the limited amount of soil for the pollen and phytolith extractions. It was difficult to reextract if there were problems with the extraction method or a need for additional slides. A new collection strategy for pollen, phytolith, and soil samples is suggested (see Fisher, this chapter, Part III) which should alleviate this problem.

Table 12-6. Phytoliths from 21N/8W NW profile.

Sample #	*Pa*	*C*	*F*	*Po*	*T*	*E*	*M*	*Total*
PS1, l. 1			no phytoliths					
PS2, l. 1			no phytoliths					
PS3, l.1			no phytoliths					
PS4, l. 1			no phytoliths					
PS5, l. 2			no phytoliths					
PS6, l. 2	6	14	24	3	16	27		100
PS7, l. 2	7	21	22	3	13	30	4	100
PS8, l. 2	2	21	21	11	8	34	3	100
PS9, l. 2	5	21	17	4	9	42	2	100
PS10, l. 2	6	19	19	5	9	41	1	100
PS11, l. 2	3	15	18	6	7	46	5	100
PS12, l. 3	7	31	12	2	11	35	2	100
PS13, l. 3			not extracted					

Pa – Panicoid; C – Chloridoid; F – Festucoid; Po – Polylobate; T - Trichome; E- Elongate; M - Misc.

Table 12-7. Phytoliths from 21N/8W NE profile.

Sample #	*Pa*	*C*	*F*	*Po*	*T*	*E*	*M*	*Total*
PS1, l. 1			no phytoliths					
PS2, l. 1			no phytoliths					
PS3, l.1			no phytoliths					
PS4, l. 2	15	27	7	2	9	39	1	100
PS5, l. 2	8	28	9	2	4	47	2	100
PS6, l. 2	9	33	10	4	8	36		100
PS7, l. 2	7	23	12	6	13	33		100
PS8, l. 2	8	39	13	4	11	25		100
PS9, l. 2	16	31	9	2	6	36		100
PS10, l. 2	11	24	12	1	13	39		100
PS11, l. 2	10	20	12	4	14	27	13	100
PS12, l. 3	10	31	6	3	11	30	2	100

Pa – Panicoid; C – Chloridoid; F – Festucoid; Po – Polylobate; T - Trichome; E- Elongate; M - Misc.

A weighed amount of soil between 2–5 grams was analyzed for the percentage of opal phytoliths by weight. The procedure for extraction followed Mulholland (1983: 4), with one exception: a solution of 30% hydrogen peroxide was used to remove organic matter. The final amounts of opal were inspected under a compound microscope to assure uniform purity and were then weighed to determine the soil's phytolith content. The phytoliths from each sample were mounted in cedar oil and analyzed under a compound microscope using phase contrast for morphological characteristics. Identification of the phytoliths were made following Twiss et al. (1969: 111), Geis (1973: 115), Klein and Geis (1978: 148), Mulholland (1986: 51), Brown (1984: 347), Piperno (1988a), and Fisher and Fisher (1988: 11).

Fisher and Kelso (1987: 40) proposed a method of determining phytolith degradation that would provide data on site formation. This method used phytoliths that were too corroded to

identify as evidence for degradation. This technique was not ideal, as many phytoliths are as yet unrecognized and could be included in this sample. A refined method was proposed for the boardinghouse backlot samples. Identifiable phytoliths were examined for evidence of corrosion and degradation, and the percentage of corroded phytoliths in each sample was then compared.

An important aspect of the boardinghouse backlot study and of the phytolith analysis in particular, was the use of the comparative method. Fisher and Kelso (1987: 45) note that the strength of the Kirk Street Agents' House study was the ability to compare and integrate data generated from the historical research, artifact study, pollen analysis, macrobotanical remains, and soil analysis. We have made every effort to try and integrate more lines of data into the boardinghouse backlot study in order to build on this strength. An important addition to the environmental study of the boardinghouse backlot was to have come from the soil chemistry analysis of the pollen/phytolith profiles, but, as noted above, insufficient soil was collected, hence no soil for chemical analysis was "left over" from the contiguous profiles. Soil chemistry analysis was therefore performed chiefly on samples that were not *directly* comparable to the contiguous profiles.

Results

The percentage of opal phytoliths by weight in the samples is an important measure that can yield significant information on the type of ground cover, vegetal inclusions, and other depositional processes. The boardinghouse backlot samples were weighed on a defective scale, however, resulting in an error that was not discovered and corrected until after extraction. This resulted in no reliable data on phytolith percentages for the boardinghouse backlots. The weights involved in phytolith percentages from 2–5 g soil samples are so small that delicate scales must be used, and they must be recalibrated frequently by professionals. The loss of data could have been overcome if larger soil samples for pollen and phytolith extraction had been taken, permitting reextraction.

Identification of individual phytoliths from the Boott Mills boardinghouse backlot deposits provided some very interesting data. Identifications followed procedures used in the Kirk Street Agents' House analysis, with a few additions. New typologies, by Piperno (1988) and Fisher and Fisher (1988) were incorporated, and a new type of grass phytolith class not evidenced or recognized in the Agents' House samples, the polylobate, was found. Tables 12–6 and 12–7 provide phytolith percentages for each phytolith sample.

As with the Kirk Street Agents' House analysis, it was assumed that shifts in the frequency of one of the four main grass phytolith classes are not substantially altered by grasses that produce multiple classes of phytoliths and instead accurately represent changes in the environment (Fisher and Kelso 1987: 41). Tables 12–2, 12–3, 12–4, and 12–5 illustrate four classes of phytoliths produced by grasses and the grasses that produce each type. Each class of grass phytoliths has quite a number of genera, many of differing ecological niches; the Festucoid and Chloridoid classes, however, are represented by grasses indicative of different environmental conditions. Twiss et al. (1969: 110) suggested that in the Midwest, the Festucoid class represented the domestic grasses, while the Chloridoid were representative of the "short grass" prairie and the Panicoid, the "tall grass" prairie.

These midwestern definitions are not applicable to 19th-century Lowell, Massachusetts. It was necessary to create a new typology from the midwestern studies using the grasses that also appears in Massachusetts. Tables 12–2, 12–3, 12–4, and 12–5 show the grasses found in Massachusetts that were studied by Brown (1986) and Mulholland (1986). This typology was suggested by Fisher and Kelso (1987: 41) to indicate that the Festucoid class grasses represent agriculturally important genera, forage grasses, and lawn grasses; while Chloridoid class grasses represent weed-type grasses that colonize waste areas and open ground. There are a number of environmental conditions suggested by the presence of either Festucoid or Chloridoid classes of grass phytoliths. Using the comparative method, it is possible to generate a more complete picture of the environmental mosaic by integrating data from the pollen and macrobotanical analysis with the phytolith data.

The distribution of the grass phytolith classes in the Kirk Street Agents' House deposits were quite varied (Fisher and Kelso 1987: 42). Phytoliths from the boardinghouse backlot indicate more homogeneous deposits. Table 12–6 shows the northwest profile of unit 21N/8W, and it is interesting to note that PS6 in level 2 is dominated by Festucoid-type phytoliths, indicating either a kept yard or a pasture-type environment. The next five samples all indicate a balance between the Festucoid and Chloridoid

types. PS12 in level 3 then switches to Chloridoid dominance indicative of a weedy situation.

It should be noted that the samples that contain Festucoid and Chloridoid classes in equal numbers (PS7—PS11, NW profile) also contain a number of unusual phytoliths grouped in the miscellaneous category. PS7, PS8, PS10, and PS11 all contain a phytolith similar to one identified by Fisher and Fisher (1988: 15) from *Hilaria jamesii*, a western fodder grass. PS7 and PS8 contain a phytolith similar to one identified by Piperno (1988: 244) from *Protium panamense*, a Central American species. PS9 contains a phytolith similar to Piperno's (1988: 233) observation of Heliconia. the boardinghouse backlot phytoliths that resemble phytoliths from other type collections are not necessarily indicative of the species. Since phytolith typologies for the Northeast are incomplete, it is quite possible that these unusual phytoliths are produced by plants common or native to the Northeast. The presence of these miscellaneous phytoliths, and the presence of Festucoid and Chloridoid class phytoliths in equal numbers may indicate an unusual pattern of site formation. Activities such as manuring, mulching, or backyard trash disposal may contribute to these patterns.

The phytoliths from the northeast profile of unit 21N/8W show similar homogeneous strata. The entire profile from PS4 through PS12, however, is dominated by Chloridoid-type phytoliths, which is indicative of a weedy situation. PS11 and PS12 have large inclusions of *Curcurbita* phytoliths; there are 13 in PS11 and 9 in PS12. This certainly seems to indicate that the upper part of level 2 may have been used as a discard area for food remains. The presence of squash phytoliths in the NE profile and their absence in the NW profile as well as the presence of phytolith types similar to Western U.S. grasses and Central American species in the NW profile and their absence in the NW profile point to a similar site formation process. Since phytoliths are deposited "in situ", the presence of such a vaired miscellaneous assemblage indicates that the boardinghouse backlots may have been used for episodic burial or discard of garbage and refuse. The data are also consistent witht the deposition of off-site fill or the movement of soil for landscaping. Such formation processes would cause quite a varied background pattern in the phytolith record as suggested in the backlot data. The NW profile does not contain as high a percentage of Chloridoid and Panicoid type grass phytoliths as the NE profile. The unusually high percentages of Panicoid-type grass phytoliths in the northeast profile may be accounted for by the presence of Chloridoid grasses that also produced Panicoid-type phytoliths.

Corrosion data for the phytoliths of both the NW and NE profiles are found in Table 12–8. Both phytoliths and pollen grains are corroded by a variety of agents. Fisher and Kelso (1987: 36) found that there is a correlation between phytolith and pollen corrosion indices. A normal pollen corrosion profile shows increased corrosion as depth increases. The application of an overburden, however, offers protection for underlying strata and their pollen grains, thus creating an inverted corrosion profile with more corroded grains overlying protected, less corroded grains. Such inverted corrosion profiles are common in areas where fill or refuse has been spread over a developing surface area.

Table 12-8. Percentage of corroded phytoliths from 21N/8W NW and NE profiles.

	21N/8W NW Profile	21N/8W NE Profile
Sample #	*% Corroded*	*% Corroded*
PS1	no sample	no sample
PS2	no sample	no sample
PS3	no sample	no sample
PS4	no sample	34.0
PS5	no sample	43.0
PS6	19.0	34.0
PS7	12.0	31.0
PS8	17.0	35.0
PS9	20.0	31.0
PS10	20.0	20.0
PS11	21.0	27.0
PS12	23.0	26.0
PS13	no sample	

The corrosion data for the backlot NW and NE profiles are representative of an active fill and disturbance sequence. The corroison percentages for the two profiles are slightly different. The NW profile shows a fairly even level of corrosion throughout the entire profile. There is a possible fill episode indicated in PS7–8. The NE profile indicates a possible fill level at PS4–5, with a developed living surface on PS5, and another possible fill episode at PS10–11. It is interesting to note that the NEA profile, which was dominated by Chloridoid-type grass phytoliths representative of weed grasses, has a more varied corrosion profile consistent with a disturbed site caused by alternating episodes of filling and dumping.

Conclusion

Data recovered by the phytolith analysis of the Boott Mills boardinghouse backlot has provided insight into the botanical communities of the backlot and its depositional processes. The two profiles seem to differ in both the composition of the botanical communities and their site formation processes. The NW profile is characterized by a Chloridoid/Festucoid mix of grasses with a fairly consistent percentage of corroded phytoliths. This combination would seem to indicate a stable environment with enduring site formation processes. The NE profile is characterized by grasses producing the Chloridoid-type phytoliths and a rather variable percentage of corroded phytoliths. This combination would seem to indicate a rapidly changing soil surface caused by episodic fills inducing a vegetative cover of disturbed site plants such as the weed/waste area grasses that produce Chloridoid-type phytoliths.

Phytoliths in the miscellaneous category, however, such as squash and the two types that resemble phytoliths from Central American plants tend to support a similar interpretation for both profiles. Because the inclusion of these phytoliths indicates a pattern of refuse deposition and/or fill episodes, and since phytoliths represent "in situ" deposits, these two seemingly different profiles may be the product of large-scale fill episodes with great variation within the fill matrix. The apparent differences in vegetation and corrosion may by caused by shovel loads from opposite ends of a large fill load or a number of small fill episodes covering a large area.

Because of the nature of the phytolith data, it is necessary to compare these results closely with the data gleaned from the pollen, historical, and archeological record. While the phytolith data may not fully explain either the vegetative or depositional records of the backlot, the data are valuable in supporting and substantiating evidence unearthed by other paleobotanical, archeological, and historical methods.

An Analysis of Soils from the Boott Mills Boardinghouse Backlots

by William F. Fisher

Introduction

Soil analysis is an important component of an archeological investigation. Archeologists have shown increasing interest in the development of soil analysis and a growing understanding of its utility in archeological investigations (Cornwall 1958; Cook and Heizer 1965; Butzer 1971, 1982; Limbrey 1975; Shackley 1975; Hassan 1978; Stein 1985). Archeologists are particularly interested in soils because "it is from the soil that people derive their nourishment and it is in, under, and on it that their remains are found" (Limbrey 1975: ii). Limbrey (1975: 233) also notes that "intrinsic information is held in the materials of the soil itself, and in its distribution in the landscape," for soil is not just a repository for artifacts, but rather a fabric woven of cultural artifacts, floral and faunal remains, and organic and inorganic matter.

Soil analysis is a broad description of a number of different techniques and processes of soil classification, chemical and physical analysis, and interpretation. Soils are generally classified using a guide to soil taxonomy such as those produced by Soil Survey Staff (1975) or by Buol, Hole, and McCracken (1973). These are systems for classifying naturally occurring soils and soil systems. Archeological soils are usually heavily modified by man; as Singer and Munns (1987: 3) succinctly note, "people have a profound influence on soils." These human-altered soils, however, are not well addressed in soil taxonomy classifications.

Chemical and physical properties of soils are important aspects of soil analysis. Singer and

Munns (1987: 1) suggest that soils are "dynamic ecological systems and to properly understand a system it is necessary to first understand the components." Soil scientists Jackson (1958), Black (1965), Greenland and Hayes (1981), and Page (1982) have developed quite an array of physical and chemical analyses used in a number of different fields. Some scholars (e.g., Cornwall 1958; Shackley 1975; Limbrey 1975), for example, have noted important physical and chemical analyses that yield significant data about human occupation and the effect of human activity on soil properties. Soil science and archeology are not stagnant fields, and new techniques and analyses are continually added to standard practice in order to obtain the most from the available data.

The purpose of the soil analysis performed for the Lowell Kirk Street Agents' House (Mrozowski 1987b: 116) was to provide information on rapid depositional episodes, depositional processes, and stratigraphic interpretation of these deposits. The Boott Mills boardinghouse soil analysis initially was designed with similar goals. Other analyses were planned after soil sampling was completed; these, it was hoped, would provide additional information about human activities, particularly waste disposal, as well as data complementary to the pollen and phytolith data. A further goal of the Boott Mills boardinghouse soil analysis was to facilitate comparison of soil, pollen, phytolith, and macrobotanical data.

Methods

The sampling strategy at the Boott Mills boardinghouse excavations was similar to the strategy used in the Kirk Street Agents' House excavations (Mrozowski 1987b: 116). Sampling was limited to the collection of soil samples from each stratigraphic layer in each of the two operations and the collection of soil samples from selected features (i.e., from those that contained soil—features such as brick and stone foundation segments, for instance, did not). The bulk soil samples were taken for macrobotanical analysis, and only after the fact were the samples subdivided for soils analysis. A total of 19 soil samples were processed and analyzed by the Soil and Plant Testing Laboratory of the University of Massachusetts, Waltham, Massachusetts. The soils were analyzed for available nutrient levels of phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), ammonium (NH4), and nitrate (NO3), as well as pH, aluminum (Al), lead (Pb), arsenic (As), and cadmium (Cd) levels. Also analyzed were the micronutrient levels of boron (B), molybdenum (Mo), zinc (Zn), copper (Cu), iron (Fe), and manganese (Mn). Total phosphate was estimated using the procedure outlined by Shackley (1975: 68) and Cornwall (1958: 175). The results are presented in Appendix D. Additional tests had been planned for estimating total organic matter and total silica of the pollen and phytolith soil samples (collected separately from selected locations in the backlots by Kelso), but insufficient soil remained after the pollen and phytolith extraction had been completed.

Two critical errors in the sampling procedures limited both the utility of the samples and the sample quality. In our analysis of the Kirk Street Agents' House soils we discovered that for good comparative data we needed matching pollen and phytolith profiles as well as soil and macrobotanical samples taken in conjunction with the pollen and phytolith samples (Fisher and Kelso 1987). Sadly, we realized the need for a change in sampling strategy *after* the samples from the Boott boardinghouse backlots had been taken and the excavation closed. We now know that it is very important to have comparative soil samples from the pollen and phytolith profile, not just isolated soil samples from stratigraphic layers and selected features. That is, all our sampling should have been done in continuous columns as was done for the pollen and phytolith samples so that all samples are directly comparable.

Relationships between plant communities and soil conditions are an important facet of modern botany and involve an understanding of both plants and soil (Pritchett and Fisher 1987: 35). The reconstruction of historical plant communities and soil conditions is only possible with comparative pollen, phytolith, macrobotanical, and soil analysis. In addition, many soil conditions (e.g., pH and organic content) affect pollen, macrobotanical, and phytolith preservation and degradation and therefore the cultural interpretation of these analyses. It is also possible that once comparative sampling is instituted, many new relationships may be discovered among the various elements of the soil mosaic.

Pollen sampling as done by Kelso (this volume) consists of a contiguous column of samples taken every 2 cm. this sample is large enough for phytolith analysis to be performed on the same samples. We have discovered, however, that while one of two pollen cores or profiles per site can provide sufficient data for the palynologist, phytoliths, because they are decay–in–place residue, are better analyzed with

a contiguous profile from each excavation unit. We also have discovered that soil analysis of the pollen and phytolith profiles will enhance our data and provide additional comparative data. In order to accommodate these newly-recognized needs, we are recommending a new sampling strategy for environmental analysis.

We suggest saving a 20 cm x 20 cm baulk in the corner of each 1-m^2 unit under investigation. Removing the baulk in 2-cm levels will yield a volume of 800 ml for each sample, which should be sufficient for pollen, phytolith, and soil analysis. Removing 20% of each unit for environmental analysis may sound rather extreme at first; the evidence provided by the pollen, phytolith, and soil analysis should be equated with the evidence provided by metal, glass, or ceramic analysis. Artifacts found in the column sample may be recovered at no risk to the environmental analyses. It should be noted that the environmental data can usually provide details on micro-changes within excavated stratigraphic layers through use of the finer sampling interval.

An error in recovering and storing the soil samples was discovered after analysis of soils from boardinghouse backlots was complete. Soil samples were taken in the field and placed in air-tight plastic bags. Samples remained in these bags for many months before analysis. This error came about because soils analysis was a late-comer to the boardinghouse research; in the case of the Kirk Street Agents' House, advance planning permitted soil samples to be air-dried after recovery, per instructions from the soils laboratory. Cornwall (1958: 117) warns that "close sealing [of soil samples] should be avoided, especially of moist material . . . polythenne bags are ideal once the sample has been dried." He further notes that "unless the samples can be dealt with immediately, moisture will encourage the growth of algae or moulds" (Cornwall 1958: 117). The growth of algae and molds indicates continued biological action in the sample that alters the levels of organic nutrients. Since each sample is isolated within its own micro-environment and contains an unknown amount of moisture, the biological reactions occur differentially, sample by sample, so that quantitative results are skewed and qualitative comparisons can be meaningless. Simply drying the soil samples in a low-temperature oven and then resealing them would have prevented the loss of valuable soil data.

We know now that this type of error could have been avoided if we had included a professional soil scientist or archeological soil expert on our project team, but this was one of the few cases in which we sent samples out to persons otherwise wholly uninvolved with the project. This is not to say that the Soil and Plant Testing Laboratory was at fault—quite the contrary. They were in fact very helpful in isolating our possible errors and in the interpretation of results; the critical error was in not having a soil scientist create and perform the sampling strategy. Unfortunately, like many other archeologists, we naively assumed we could stockpile soil samples safely in plastic bags indefinitely. Historical archeologists have little or no training in soil science, so those who determine and perform soil sampling strategies are destined to make mistakes that a trained pedologist would avoid. As Griffith and Mark (1979: 118) note, common errors by archeologists include rediscovering basic soil principles rather than forming theories, misapplying soil techniques, and misusing, misinforming, and misinterpreting outside consultants. We hope that future excavations make use of the lessons we learned at Lowell: soil experts should be called in during the early stages of a project and soil sampling should be performed in conjunction with pollen, phytolith, and macrobotanical sampling so that the analyses can complement and supplement one another. Further, the analyses must be done promptly after sample recovery if the samples cannot be prepared for long-term storage.

Results

Because of the sampling problems discussed above, interpretations of data from the soil analysis are more abbreviated than anticipated. Intriguing results were nevertheless evident. Levels of lead (Pb), iron (Fe), copper (Cu), arsenic (As), and cadmium (Cd) are reported in parts per million (ppm) and appear in Tables 12–9 through 12–12, grouped by provenance and feature type. Total phosphorus content is included in the same tables but appears in qualitative form.

Lead levels were very high in the boardinghouse backlot soils. Lead is toxic to humans; levels above 300 ppm total lead may be harmful to children. The Suffolk County, Massachusetts, Cooperative Extension Service considers lead levels between 10–30 ppm to be natural background levels. They warn that lead levels in soil and dust that exceed 500–1,000 ppm appear to increase children's blood lead above background levels. Levels of lead from homes of lead-poisoned children in Boston average 1,800

ppm and range from 200–4,500 ppm. Lead may work its way into the soil as lead paint and lead pipes decay, from nearby roads (car exhaust), and from residue of chemicals used in spraying orchards. Lead levels were low at the boardinghouses in fill and yard deposits (Table 12–9), extraordinarily high in drainage features, especially Features 36 and 37A (Table 12–10), low in possible planting holes (except Feature 27, which was very high; see Table 12–11), and high in some levels of the privies (Table 12–12). Nine out of 19 samples from the boardinghouse backlots had lead levels of over 300 ppm, six of which were over 900 ppm. In comparison, in the Agents' House samples, three of 17 samples had lead levels about 300 ppm, the highest being 431 ppm. This may result from a bias in the samples, as no privies or drainage features were found at the Agents' House.

Table 12–9. Stratigraphic levels from Operations A and B and the ppm of selected elements.

Context	*Pb**	*Fe*	*Cu*	*As*	*Cd*	*Total P†*
Operation A						
4N/6W2	20	266	0.5	0.0	0.0	Low
2N/8W3	20	344	0.7	0.0	0.0	Med
Operation B						
25N/2W1	46	239	1.4	0.0	0.0	Low
23N/8W2	74	10	1.3	0.0	0.1	Med

*Lead is given in estimated total ppm.
†Total phosphorus is given in relative measure.

Table 12–10. Drainage features and the ppm of selected elements.

Context	*Pb**	*Fe*	*Cu*	*As*	*Cd*	*Total P†*
Feature 36	1513	11.4	6.2	0.0	0.1	Low
Feature 37A	1328	68.0	6.6	0.0	0.2	Low
Feature 44						
Level B	507	20.5	3.6	0.0	0.0	Low
Level C	584	34.9	5.8	0.0	0.0	Low
Base	614	7.6	1.2	0.0	0.0	Low

*Lead is given in estimated total ppm.
†Total phosphorus is given in relative measure.

We feel safe in eliminating car exhaust as a major contributor to the boardinghouse backlot lead contamination. While the site has operated for many years as a parking lot, thus possibly exposing it to high levels of exhaust, the blacktop seems to have shielded the site. If car exhaust were a major factor, the upper fill and yard deposits would show higher lead concentrations; there would not be differential accumulation in certain features. The concentration of lead in drainage features indicates that lead pipes and lead paint may be the most likely sources of the lead contamination in the boardinghouse backlots.

Table 12–11. Possible planting holes and the ppm of selected elements

Context	*Pb**	*Fe*	*Cu*	*As*	*Cd*	*Total P†*
Feature 27	938	141	10.1	0.0	0.0	Low
Feature 65						
Level A	246	193	0.4	0.0	0.0	Low
Level B	20	347	0.7	0.0	0.0	Med
Level C	20	277	0.6	0.0	0.0	Med
Level D	20	224	0.8	0.0	0.0	Med

*Lead is given in estimated total ppm.
†Total phosphorus is given in relative measure.

Table 12–12. Privies and the ppm of selected elements.

Context	*Pb**	*Fe*	*Cu*	*As*	*Cd*	*Total P†*
Feature 45						
Chmbrpot	1650	44.5	7.6	0.0	0.4	Low
Level B	955	35.5	3.9	0.0	0.0	Low
Level C	272	5.5	0.7	0.0	0.0	High
Feature 61						
Level 2	1358	4.2	10.1	0.3	0.3	High
Bottom	46	372.0	3.1	0.0	0.0	High

*Lead is given in estimated total ppm.
†Total phosphorus is given in relative measure.

The relationship between iron and lead is very interesting. In possible planting holes, fill, and yard deposits, where lead was low, iron was highest (Tables 12–9, 12–11). Where lead was high—in privies and drainage features—iron was lowest (Tables 12–10, 12–12). It is unclear why this relationship should exist, but it should be noted for further research. Iron has little effect on human health, although iron deficiency in plants causes reduced growth. Iron is a naturally occurring mineral, and its presence in higher quantities in certain contexts may indicate relatively undisturbed or sterile soils.

Concentrations of copper in the backlot soils mirror lead levels; this suggests that they share the same source. It is impossible, however, to tell if the source was lead paint as opposed to lead pipes, as copper is a common component of each. Arsenic is a toxin to both plants and humans; it is included with cadmium, copper,

lead, and zinc as toxic pollutants subject to regulation under the Clean Water Act. Lindsay (1979: 273) notes that the National Academy of Sciences and the National Academy of Engineering consider levels of arsenic greater than 10 ppm to be toxic to plants. Arsenic is present in only a few samples, including one privy deposit (see Table 12–12). Arsenic is a normal component of soils at a very low background level; the levels found in the boardinghouse backlots are within this range. Cadmium is rare in soils; most (ca. 90%) have less than 0.2 ppm. High levels of cadmium are noted in two privy samples, one of which also showed arsenic. The cadmium levels found in the boardinghouse backlot soils, however, are also within normal background ranges.

Total phosphorus reported includes both the organic phosphorus and the inorganic phosphates present in archeological deposits. The redistribution of phosphate in archeological contexts is brought about by movements of animals or their refuse, concentration of human rubbish and excreta, and the burial of corpses (Limbrey 1975: 72). Griffith and Mark (1979: 119) note that while many researchers have shown that phosphorus levels are increased by human activities, few have applied this technique as a tool for understanding either human activities or site development. There are many patterns indicated in the total phosphorus content of the boardinghouse soils. Phosphorus is higher in lower levels in the yard and fill deposits (cf. Table 12–9). This may indicate that the lower levels were living surfaces that saw the inclusion of animal waste or human rubbish, while the upper levels may represent more sterile overburden or fill added during the destruction and reshaping of the boardinghouse backlot. Phosphorus levels are uniformly low in the drainage features (Table 12–10) and mixed in possible planting holes (Table 12–11). The phosphorus is highest in the lowest levels of the privies, indicating the possibility of intact latrine deposits in both Features 45 and 61. It is interesting to note the low phosphorus counts at the level the chamberpot was found and in the soil from the chamberpot. This indicates that the chamberpot was most probably part of a fill episode rather than deposited when the privy was in use as a latrine.

Conclusions

The results of the soils analysis of the Boott Mills boardinghouse backlots provided significant data on features, especially the privies, as well as information on site deposition and development. The high lead levels in boardinghouse backlots soils are relevant to health issues concerning the boarders and their children. Given the high number of children's toys, such as marbles, etc., found in the backlot, it is probable that children played in them, thereby dramatically increasing their intake of lead. The significant differences in lead content between the boardinghouse backlot and the agent's house indicates a difference in building materials and upkeep that reflects social conditions of the time. the presence of high phosphate levels in the lowest levels of the privies indicates some deposits escaped mandated cleaning and removal.

Important lessons learned, or relearned, by the soil analysis, include the need for a soil scientist or pedologist to be included from the earliest planning stages of a project to conduct sampling, analysis, and interpretation, and the importance of soil analysis in the overall environmental analysis of the site. A new sampling method is proposed that would facilitate the comparison of soil, pollen, phytolith, and macrobotanical data. This sampling strategy is important because it allows for development of new relationships and a greater understanding of the variables that comprise the soil mosaic.

Parasitological Analyses of Latrine Soils from the Boott Mills Boardinghouse Site, Lowell, Massachusetts

by Karl J. Reinhard

Introduction

Biological analysis of latrine soils is becoming a common aspect of archeological research (e.g., Mrozowski 1983, 1984). The last few years have seen the innovation of techniques and advances in interpretation with respect to parasitological analysis of latrines (Jones 1985; Herrmann 1986, 1987; Reinhard, Mrozowski, and Orloski 1986; Reinhard et al. 1988). Of specific application to archeological remains, Jones 1985 used trichurid (whipworm) egg counts as a means of differentiating soils derived from fecal deposits from those derived from trash mounds contaminated with feces.

Soil samples from the Boott Mills boardinghouse site were submitted for parasitological analysis. The goals of this analysis were the determination of the nature of the deposits (either fecal, fecal/trash, or trash) and the identification of parasite species, if possible. Determination of the nature of the deposit is based on the criteria established by Jones (1985).

Materials and Methods

Five samples were submitted for analysis. Four came from possible latrine deposits (nos. 53, 57, 69, and 70). The fifth was recovered from the inside of a chamber pot (Feature 45).

The soil samples were processed through several parasitological techniques following Reinhard et al. 1988. Extensive pretesting was designed to evaluate which technique was most effective for parasitological analysis. As a preliminary test, samples were floated for 5 minutes in sodium chloride. The samples were first screened through a 200–mi mesh screen. In this case a portion of each sample was placed in a 2–dram shell vial, and the flotation medium of sodium chloride (specific gravity 1.2) was added. A microscope cover glass was placed on top of the vial in contact with the top of the flotation medium and left for 5 minutes. Then the microscope slide was examined for the presence of parasite eggs.

A second test was done using a zinc chloride flotation medium (specific gravity 1.9). In this test, a screened sample of soil was put in a 50–ml centrifuge tube and centrifuged for 30 min at 1900 rpm in a standard clinical centrifuge. After this process, the supernatant was poured off, and microscopic debris was concentrated from the solution and examined.

As a final test, 50 ml of screened soil were placed in a 70% solution of hydrofluoric acid for 24 hours. The resulting sediments were then concentrated by centrifugation. The sediments were floated in a zinc bromide flotation medium (specific gravity 1.9). The supernatant containing floating microscopic debris was removed and concentrated by centrifugation. Then the debris was washed in water and dehydrated through an alcohol series. The resulting microscopic residue was subsampled for microscopic examination.

A second stage of the analysis was designed for quantification. Thirty milliliters of soil were taken from each sample, and a *Lycopodium* spore tablet containing approximately 11,200 spores was added. By comparing the number of recovered parasite eggs with the known number of spores, the number of parasite eggs per gram of soil can be determined. These subsamples were then weighed, screened, and treated with hydrochloric acid to break up carbonates. After several water washes to remove residual hydrochloric acid, the samples were placed in 70% hydrofluoric acid for 24 hours to dissolve silicates. After this time, the samples were concentrated by centrifugation and then floated in zinc bromide as noted above.

A second process was attempted. In this case, soil samples were measured out and rehydrated in trisodium phosphate. They were then sedimented by gravity in acetic formalin alcohol. The upper layers of sediment were examined for parasite remains. Thus, the quantification techniques included examination both of floated and sedimented debris as suggested by several authors (see Reinhard et al. 1988 for a review of processing procedures).

To further explore the origin of the soils, sample 70 was processed palynologically, and a 200–grain pollen count was made. The other samples were scanned to subjectively evaluate their similarity in pollen spectra to sample 70.

Results

No technique resulted in the recovery of parasite eggs except that involving both hydrofluoric acid treatment and zinc bromide

flotation. This resulted in the recovery of four parasite eggs.

One, recovered from sample 70, is a trichurid egg measuring 24 x 50 mi. This places it in the size range of *Trichuris trichiura* (the human-specific whipworm) or *Trichuris suis* (the swine-specific whipworm). Repeated examination of the soil sample did not reveal any more eggs. The ratio of spores to eggs in this sample was 50:1, which indicates a presence of 5 eggs per gram of soil.

Three eggs were recovered from sample 53. The *Lycopodium* spore–to–egg ratio was 88:3, which indicates a presence of 15 eggs per gram of soil. One egg is an oxyurid egg measuring 71 x 43 mi. The size range and morphology the the eggs are consistent with that of *Oxyuris equi*, the pinworm of the horse. The other two eggs are consistent morphologically with the genus *Capillaria*. They measure 28 x 55 mi and 18 x 35 mi, which suggests that two species are represented by the eggs. *Capillaria* has many species in mammals and birds, and it is impossible to identify species on the basis of eggs. The small size of one of the eggs is indicative of an avian or rodent origin. Neither egg resembles the two capillarid species sometimes found in humans, *C. hepatica* and *C. philippinensis*. Since horses are not parasitized by a capillarid species, the eggs in sample 53 are derived from at least two, and possibly three, animals. As noted above the oxyurid eggs implies an equine origin.

The other samples contained no eggs at all.

In the process of extracting parasite eggs, no seeds were observed. Seeds are usually very common in latrine deposits. The microscopic preparation of all soils show that the majority of organics present in the soil are charcoal fragments.

Discussion

Jones (1985) determined that egg counts exceeding 20,000 eggs per gram of soil [epg] may be considered fecal in origin. Those containing 2000–19,999 are probably fecal. Egg counts of 500–1,999 are probably from mixed fecal/trash deposits. Egg counts of between 200 and 500 are probably not indicative of latrine deposits, but rather "part of the urban background fauna" (Jones 1985: 112–113). Egg counts less that 200 epg are not significant.

If Jones' study of British soils can be applied to the Lowell site, then one concludes from the study that the soil samples submitted for study were not from a latrine deposit. This is supported negatively by the sparsity of seeds in the soil samples and positively by the presence of abundant charcoal. The charcoal is more commonly associated with trash deposits or hearth sweepings.

A large amount of pollen is present in sample 70. The vast majority of the pollen recovered is wind pollinated. Of the types recovered, only *Trifolium*-type, Malvaceae, High-Spine Asteracaea, and Fabaceae are insect pollinated. This accounts for only 5% of the recovered pollen, an insect pollinated percentage that is normal for natural pollen rain. Unidentifiable and unknown grains make up 10% of the spectrum. The remaining 85% of the pollen spectrum is of wind-pollinated types. This indicates that the deposits are not derived from a fecal origin.

An interesting aspect of this sample is the large amount of arboreal pollen. Pollen from trees makes up 41.5% of the total pollen spectrum. This indicates the presence of forested areas in the vicinity of the site. With regard to the non-arboreal pollen, those types indicative of ground disturbances (e.g., Cheno Am and *Artemisia*) are rare. This suggests a stable environment in the area of the site.

Subjectively, the pollen spectra of the other samples appear similar to those of sample 70, with the exception of sample 53. Sample 53 appears to have a greater representation of non-arboreal taxa. None, however, appear to have a high percentage of insect-pollinated taxa or economic taxa indicative of fecal deposits. It must be emphasized, however, that this is a subjective estimate and that a full pollen count may reveal differences that are not obvious to superficial examination (see Kelso and Fisher, this chapter, Part I).

Conclusion

The soil samples do not contain significant numbers of parasite eggs, as would be expected in fecal soils. Applying Jones' criteria for the identification of soils of fecal origin, one concludes that the boardinghouse site soils are not from fecal deposits. The pollen evidence supports this conclusion in the low amount of insect-pollinated and economic taxa. These findings, plus the presence of large amounts of charcoal, suggest that that the Lowell Boott Mills boardinghouse site soils are from non-fecal trash deposits.

Macrofossil Analysis

by Stephen A. Mrozowski

Introduction

Although previous analysis of plant macrofossils from the Boott Mills boardinghouses and the Kirk Street Agents' House emphasized changing plant communities and the overall evolution of the urban landscape, little emphasis was placed on the examination of foodways. The former were stressed because the evidence spoke most directly to those issues, with only limited information pertaining to the study of foodways being garnered from either site. The reverse is true of the results drawn from the most recent analysis of samples collected from the rear yards of Boott boardinghouse units 45 and 48. Although the macrofossil sample is small, in part because of poor preservation, it contains evidence relating to foodways, boardinghouse yard plant communities, and the activities of non-human members of the urban biotic community, rodents in particular. Another characteristic of the results from the boardinghouse yards that differs from those obtained for the Agents' House site relates to their context. Unlike the Agents' House, where all samples were collected from stratigraphic levels, the majority of the seeds recovered from the boardinghouse yards are from discrete features such as privies, planting holes, and pits associated with architectural remains. The association of specific botanical remains with specific features in some instances has merited, in some instances, conjecture concerning possible systemic association. Although speculations of this kind are offered cautiously, until the relationship between living plant communities and their death assemblages is better understood, they can not be discounted.

Results

The results of the botanical analysis from units 45 and 48 will be discussed separately. More samples were processed from number 48 because a greater number of samples were collected from this backlot. This imbalance is offset to a degree by the results of earlier work conducted in the yard of unit number 45 (Mrozowski 1987c). A total of 24 samples were processed at the University of Massachusetts at Boston. A froth flotation machine was used in the processing. All samples were 500 ml. in volume; 50 poppy seeds were added to each sample in order to have some gauge of recovery rate. In this instance recovery rate was comparable to that calculated for samples from the Kirk Street Agents' House, between 20–70%. In a number of cases the seeds appear to be modern. Only samples from sealed features appear to be associated with the boardinghouse occupation.

In addition to the botanical remains recovered through floatation several specimans were collected during excavation. In every instance the specimens were either large fruit pits or nut fragments. Some of these are certainly modern and therefore will not be discussed. There were, however, a small number which were recovered from sealed contexts and appear to date to the latter stages of the boardinghouse occupation. Only the occupation related specimens appear in Table 12-13.

Operation A: Unit #48

Of the 24 soil samples processed from the yards of the boardinghouses, 18 were collected from Operation A. Macrofossils were discovered in only 6 of these samples—in soils from features 25, 27, 33, 40, and 49. No botanical remains were recovered from feature 45 (the boardinghouse privy) during floatation although some were found during excavation. Botanical remains were recovered during excavation in Features 24, 37, 43 and 44.

Feature 24

This small pit in the rear of the boardinghouse backlot may have been a post hole. The only botanical remains recovered from this unit were collected during excavation. The lone specimen was a peach pit. It was among several that were recovered from the yard of the boardinghouse.

Feature 25

This feature consisted of fill in a portion of the cellar of the boardinghouse itself. Samples collected from this feature contained remains of

Table 12–13. Boott Mills Boardinghouse plant macrofossil analysis results.

Sample #	*Provenience*	*Fam./Gen.Species*	#
NF	Feat. 24	*Prunus persica*	1
32	Feat. 25	Nut fragments*†	13
24	Feat. 25	*Vitis labrusca*	3
21	Feat. 27	*Sambucus canadensis*	2
		Chenopodium album	1
		Rubus sps.	1
NF	Feat. 37/ Level B	*Prunus persica*	1
40	Feat. 40	*Vitis* sps.	4
		Polygonaceae sps.	1
		Capsicum/Solanum	1
		Rubus sps.	1
		Rumex acetosella	1
NF	Feat. 43	Fruit pit frags. (*Prunus* sp.?)	8
NF	Feat. 44/ Level B	Nut frags.*	15
NF	Feat. 45 Level B	Nut frags.*	10
		Juglans nigra	1
56	Feat. 49	*Polygonaceaea* sps.	1
		Mullago sps.	1
		Gramineae sps.	1
NF	Feat. 61/ Level 1	*Prunus persica*	1
70	Level 2	*Rubus* sps.	5
		Fragaria virginiana	19
		Vaccinium sps.	6
		Polygonaceae sps.	2
		Leguminoseae sps.	1
NF	21N/8W Level 2	*Prunus persica*	1
NF	23N/2W Level 1	*Prunus persica*	1

Mullag	Carpetweed
Chenopodium album	Lambsquarter
Polygonaceae	Smartweed family
Rubus	Blackberry/Raspberry
Vitis labrusca	Fox grape
Vitis sps.	Grape
Gramineae	Grass
Rumex acetosella	Sheep sorrel
Leguminoseae	Pea family
Vaccinium sps.	Blueberry
Fragaria virginiana	Strawberry
Sambucus canadensis	Elderberry
Capsicum	Pepper
Solanum	Nightshade
Prunus	Plum family
Prunus persica	Peach
Juglans nigra	Black Walnut

NF = Not floated.
*Oak.
†Shows evidence of rodent gnawing.

Fox Grape (*Vitis labrusca*) and rodent-gnawed nut fragments. This feature also contained a major proportion of the rodent-gnawed faunal material from the site as a whole. The presence of the bulkhead entry to the cellar coupled with rodent-gnawed floral and faunal materials suggests: 1) that the cellars were used as food storage areas and 2) that stored food was also being eaten by rodents.

Feature 27

During the excavations, feature 27 was tentatively identified as a planting hole. This was a logical interpretation given the general configuration of the feature, its location along the back wall of the boardinghouse, and the unusual discovery of a nearly intact red earthenware flowerpot within the feature. Soils from both the feature matrix and from the flowerpot were examined for macrobotanical remains; none were recovered from the latter, however. Two separate samples from the feature matrix did contain botanical remains. Among the seeds recovered were two of elderberry (*Sambucus canadensis*), suggesting that the planting hole once held an elderberry bush. Elderberry is a shrub which stands 4–10 ft in height and normally favors moist soils (Britton and Brown 1898: 228). Elderberry is, however, a highly adaptive plant which studies demonstrate can thrive in urban environments where soils are often low in nutrients, poorly drained, and high in metals such as lead (Mrozowski 1987d: 67–72). Ethnoarcheological research in Boston, Massachusetts, revealed that in the case of at least one household, an elderberry bush thrived for more than 35 years before succumbing because of a lack of sunlight caused by the growth of an apple tree (Mrozowski 1987d: 153–155). Recently completed analysis of samples collected from the planting bed in which the elderberry bush formerly stood found that seeds of the plant were still present in the soils although the tree died some 15 years ago.

The planting bed soils of this modern household are relatively rich in nutrients because of long-term composting. These conditions may have contributed to the preservation of the elderberry seeds, although some seeds, chenopodiaceae, for example are known to survive in the ground for close to a century and possibly longer (Kaplan and Mania 1977: 40–53). Since the boardinghouse deposits in question appear to date to the latter stages of the 19th century, can the possibility be entertained that the botanical remains are evidence that an elderberry bush formerly stood in Feature 27? This is difficult to say with any clarity because pollen analysis (see Kelso this volume) points to a feature matrix characterized

by reverse stratigraphy, not surprising given the general nature of urban deposits. The presence of other late 19th-century artifacts, buttons in particular (see Ziesing this volume) indicates that we are clearly dealing with redeposited fill, comprised of soils that do appear to have come from the yard. Therefore while it is possible that the presence of elderberry seeds signals the former use of Feature 27 as a planting hole for an elderberry bush, it is equally possible that such a bush could have stood anywhere in the yard.

Feature 37

This small brick-lined feature appears to have been a drain box. A well preserved peach pit was recovered from this feature during excavation.

Feature 40

This small pit feature in the yard produced 4 grape seeds and number of seeds from ruderals. There are questions concerning the weed seeds, however. Some appear to be modern in origin and may have been deposited at the time the boardinghouses were demolished. The *Vitis* seeds appear to have been deposited at an early stage in the life of the yard based on their condition.

Feature 43

This feature contained 8 badly decomposed fragments of what appears to be a cherry pit. The identification, although tentative, is based upon the texture of the outer shell and size.

Feature 44

This trench feature contained a number of nut fragments which appear to be either elm or oak seeds.

Feature 45

One of the more interesting discoveries from a methodological point of view were the nut fragments recovered from the boardinghouse privy during its excavation. What is interesting is that several samples were processed by floatation and nothing was recovered. Parasitological analysis of samples from this feature produced evidence for horse pinworm suggesting the feature fill contains material from off the site.

Feature 49

This shallow trench and soil stain contained a small sample of seeds including smartweed, grass, and carpetweed, all of which were in an excellent state of preservation indicating they are most likely modern intrusions. Of course such an observation is made in full awareness of the recent nature of all the boardinghouse materials. In this case the difference, however, rests with the state of preservation. No other sample produced seeds that looked as modern as those recovered from this feature.

Operation B: Unit #45

Only three contexts were sampled from Operation B. These were Feature 61, unit 45's privy, Feature 65, and Feature 67. No macrofossil remains were recovered from the latter two features. Feature 61, however, did contain small but important plant remains from its second level. Level 1 of the feature fill appears to be the residue from the filling and capping of the privy at the time it went out of use. The nature of the sediments making up level 2 of the feature remain unclear even after analysis. Two samples from this level were processed to determine the presence of parasite ova (see Reinhard this volume). Sample #69 produced nothing while sample #70 produced a single trichurid egg. Based on Jones' (1985) suggestion that egg counts of approximately 20,000 per gram of soil should be expected from samples of fecal origin, Reinhard has correctly concluded that the soils from sample #70 should not be consider as such. The presence of both pollen (see Reinhard this volume) and plant macrofossils (see Table 12–13) from the same sample, however, suggests a small percentage of the soils may be fecal in origin. While little significance can be attached to these results with respect to health conditions at the boardinghouses, the presence of a trichurid egg does lend some small amount of support for the overall picture of conditions suggested by other data.

Discussion

As has been the case throughout our research in Lowell, the plant macrofossil samples from the rear yards of the boardinghouses have proven to be small and rather poorly preserved. Only in instances when conditions were conducive to good preservation have results been promising. The overall results from the Unit #48, the tenement, indicate a landscape

characterized by ruderals; not an unexpected discovery. The presence of an elderberry bush in the yard is possible, although the evidence is limited. It is supported, however, by the pollen analysis (Kelso this volume). There is good correlation between pollen and macrofossil results with respect to the potential presence of Vitis, grapes in the yard. The appearance of pollen from what could be Vitis coupled with the presence of grape seeds in feature contexts raises the possibility that grapes were being grown in the yard of the tenement. Another interesting discovery was that food storage in the tenement cellar appears to have encouraged rodent activity.

The results from Unit #45 are also of limited interpretive value although perhaps more so than those from Unit #48. The sample from feature 61 contains the seeds of several plants that were probably consumed by residents of the boardinghouse. The presence of seeds of strawberry, blueberry, and blackberry in Feature 61 and grape, peach and elderberry remains from other contexts from both units are reminiscent of previous results which indicated that in spite of their lack of mention in documentary records fresh fruits were a part of the boardinghouse diet. An obvious possibility is that they were used as pie filling, or they could have been eaten plain, or used in preserves. Perhaps their lack of notoriety is the result of use on a seasonal basis.

The other discovery of interest is the leguminoseae seed recovered from the same sample as the fruit seeds noted above. The seed appears to be a green pea similar to those used today in pea soup. Its presence is far from startling, since hearty soups were regular entries of boardinghouse menus.

Information relating to the plant communities present in the yard of Unit #45 can only be gleaned from previous results, which indicate the presence of nightshade and other ruderals (Mrozowski 1987c: 150). In this sense the rear yard appears to be similar to that of Unit #48; this is based solely on the macrobotanical analysis, however, and, as other results indicate, differences did exist.

Drawing comparisons between the boardinghouse and tenement is difficult because of the disparity in sample size. Taken together, however, several conclusions can be drawn. The most notable is the presence of fresh fruits noted above. It is interesting to speculate on the possiblity that grapes and elderberry may have been grown in the yard of the tenement. Such a strategy certainly would have been in keeping with the economizing behavior that has been indicated by so many of the data collected. It also suggests that, like the rear yard of the Agents' House, the boardinghouse lots continued to be utilized for utilitarian purposes; a pattern more consistent with preindustrial, urban household practices.

Conclusions

Each analytical approach to these backlots makes a unique contribution to our knowledge of lifeways in the Boott Mills boardinghouses. Macrofossils and phytoliths testify to the wide variety of fruits in the millworker's diet, but chemical analysis indicates that they stood in peril of lead poisoning. Parasite data register the presence of domestic animal feces on the site, while pollen site formation measures record filling pattens and idiosyncratic acts in backlot features. Macrofossils and parasites independently confirm the osteological evidence for the presence of rodents in the vicinity.

Our concerted effort has been, however, to integrate these scientific/technical studies in a genuine cross-disciplinary investigation rather than generating another example of the clusters of unconnected multi-disciplinary reports that appear as appendices under the "cross-disciplinary" rubric at the rear of archeological monographs. This involved frequent communication, sharing both of data and ideas and a willingness to modify or expand individual studies to test postulates suggested by other data sources. The inviting interpretations that died at birth because of this communication are too numerous to mention. That in itself was beneficial. Positive results were also achieved. This is most evident in the land-use data provided by the 21N/8W northwest profile and contemporaneous deposits.

Our projected palynological ragweed to grass to ragweed record of land use was confirmed by the pollen spectra of this profile, but must be interpreted differently than originally hypothesized. The deepest wind-pollinated Compositae pollen peak reflects pre-Boott agricultural weeds, but the grass pollen was apparently derived from the lawn of Kirk Boott's mansion rather than from the postulated pleasant, grassy boardinghouse backlot. The backlot surface during the early and mid-19th century (the mill girl and family eras) appears to have supported a relatively limited groundcover of a few weeds with some grass. The weed populations expanded further at the expense of grass during the late 19th and early 20th-century immigrant male-dominated occupation interval as trash accumulated in what symbolically oriented archeologists (Hodder 1986) might perceive as a reflection of worker attitudes toward both the corporation and its housekeeping policies. Pollen concentration data indicate that weeds continued to dominate the flora of the early 20th-century storehouse period but that the number of plants actually growing on and around the probably work-packed backlot decreased markedly.

The phytolith data are differently distributed through the profile because biological silica is not so readily moved by groundwater as pollen (Rovner 1986: 23), but the groundcover sequence indicated by this class of fossils is very similar to that suggested by pollen. A majority of phytoliths attributable to economically important or lawn grasses (Festucoid) in the deepest productive sample is replaced by an equal mix of these lawn types and weed grasses (Chloridoid) in the early and middle boardinghouse occupation deposits, and the sequence is capped by samples dominated by phytoliths attributable to weedy taxa.

A distribution of macrofossils reflecting such landscape maintenance is also evident. Weed seeds were virtually absent from the general yard sediments of the main occupation period but dominated the immediate pre-dismantling deposits of the drains and other water control features examined during the initial boardinghouse investigation (Mrozowski and Kelso 1987: 149–150). The higher phosphate concentrations in the occupation period soils compared to the storehouse-era deposits suggest at least some organic garbage disposal in the backlot, and most of the seeds recovered from the backlot proper were food waste products. These had, however, been placed in features, implying acknowledgement of the corporation's concern for appearances (cf. Bond, Chapter 3, this volume).

Multiple data sources were also applied to the question of corporation compliance with the April 1890 Lowell Board of Health order to remove all privies. Documentary sources suggest that the privies may have gone out of service even before the order was issued, while the material culture record implies that they were not filled until post–1910 (Bond, Ziesing, this volume). Macrofossil, parasite, soil chemistry, and pollen data from feature 61 all indicate that this privy, at least, was emptied but not thoroughly cleaned before it was filled. Site formation data in the privy pollen profile indicate two filling episodes. The deeper portion of the privy fill, where no artifacts were recovered, was inserted as a filling event separate from the post–1910 deposit recorded by archeology alone. The remnant vault contents from the period of active use may not have been

covered immediately but did not remain exposed for 20 years. Pollen data indicate that the filling episode dated post–1910 probably records the dismantling of the privy superstructure.

The Boott Mills boardinghouse project demonstrates that a cross-disciplinary approach to a given archeological problem serves to bolster the confidence both of the analysts and of the readers in the ultimate interpretation of the data. Correlations among the results of archival research, excavators' observations, material culture analysis, and scientific/technical studies of the site matrix are remarkable. They permit an anthropological interpretation of living conditions in the boardinghouses that integrates local, culturally created environment, corporate policy, and occupant practice and attitudes.

Chapter 13

DISCUSSION AND CONCLUSIONS

by Stephen A. Mrozowski and Mary C. Beaudry

Throughout the course of our work in Lowell, the interdisciplinary nature of the research has generated data pertaining to a constellation of historical and archeological issues. In this the third and final report planned for the project we have sought to balance interpretive concerns with concern for substance. Therefore much effort has been expended catering to detail, especially in the analysis of material culture and environmental data. To a certain degree the results of this work can stand alone, with little need for further elaboration. The interpretive potential of these data is enormous, but endeavoring to connect the various lines of evidence to construct some monolithic statement would be both cumbersome and ill-advised. First of all, we have come to appreciate the complexity of the subject we seek to understand and the peril we face in reducing our attempts at explanation and interpretation of it to any limited set of variables. In the present monograph, we do not expect to exhaust the interpretive avenues these data have opened for us. Much thought and consideration remain on the horizon, however. Our goals remain interpretive and anthropological with the proviso that generalizations are best grounded in the detailed description of particular cases (cf. Hodder 1987a: 2; see Courbin 1988 for an extended discussion of the need for more attention to data).

Here we offer commentary and observations on our work in light of how it pertains to a variety of issues in the study of 19th-century industrial cities, working people, and material culture from an archeological point of view.

In spite of the forethought put into the boardinghouse system, the results of our study provide testimony to the endeavors of the Boott's workers to retain some control over their lives. It is this evidence of boundaries crossed, rules broken, and authority challenged that brings Lowell's past back to life in human terms. The actors in this drama are visible; some we even know by name (see Praetzellis and Praetzellis 1989a, 1989b for examples of what they term 'archaeological biography'), and we know the conditions in which they lived. It is through an examination of the conditions that obtained in the boardinghouses and boardinghouse yards that we can begin to construct a clearer image of how life was lived within the boardinghouse system. Before moving into a discussion of what we have learned about conditions in the backlots and how these changed over time, we offer some observations on the role a site structural/site formation process approach has to play in historical archeology.

Conditions in the Boardinghouses and Their Yards

Site Formation Processes and the Nature of the Archeological Record

For an archeologist, any cultural interpretation, however elegant, is meaningless unless it is based on data collected from controlled archeological contexts. This is why the study of archeological formation processes has become such a central issue in archeology (see, e.g., Schiffer 1988) and why looking at individual cases in great detail is so important. The contextual analysis of the yard deposits from the boardinghouses also demonstrates with some clarity how rapidly-occurring events can be influential in structuring the archeological record. Kelso's work in particular provides an elegant illustration of how palynology can serve as a sensitive tool for constructing the natural and cultural transforms discussed by Schiffer (1972, 1988). Through the examination and study of plant pollen, Kelso and Fisher have been able to chronicle the changes in flora of the boardinghouse yards and of Lowell in general. The evidence from both phytolith and macrofossil analysis complements the pollen data well enough to foster a truly interdisciplinary synthesis concerning the nature of the plant communities in the boardinghouse backlots.

On complex urban sites contextual analysis is often a prerequisite for any more ambitious social examination. At both the boardinghouses and the agent's house it has proved to be the key to understanding the close ties between archeological formation processes and human behavior. This is especially true when time is added to the equation through the analysis of material culture. It provides the temporal dimension so vital for linking individual

depositional events with human action. In the urban context, where rapid events often shape the archeological record, the cross-disciplinary approach is critical. We have become increasingly conscious of just how critical environmental analyses geared toward the understanding of formation processes are to our goals of delineating and understanding cultural and historical processes, be it inadvertent cultural acts leading to environmental change or degradation, the developmental cycle of households, or the material expression of widely-held social values or even of small-scale, self-conscious, individual expression of group affiliation it terms of ethnicity, subculture, or class.

Theorists grappling with the notion of evolutionary process have employed the concept of punctuated equilibrium to account for the fact that evolutionary stability is frequently interrupted by events that can set a species on a new genetic course. In other words, species undergo periods of stability, remaining relatively unchanged over long periods of time, then suddenly experience a mutational spurt—a micro- or macro-mutation. Micro-mutations interrupt stasis but do not produce new species; macro-mutations result in full-scale evolutionary change (Lewin 1980: 884; Poirier 1987: 33). The archeological record of human action—the systemic context, as it were—records similar sorts of events, not necessarily evolutionary in character, but having to do with cultural and social stability and with change over time. We noted in our conclusions to the Kirk Street Agents' House study (Beaudry and Mrozowski 1987b; see also Fisher and Kelso 1987) that a detailed contextual approach with attention to taphonomic processes (especially of pollen and phytolith corrosion indices) makes it possible to link both major and minor perturbations in the household cycle with the formation of the archeological record.

We do not hesitate to proselytize on this subject. Doing archeology involves understanding the archeological record, not mining it for artifacts. Historical archeologists at times have difficulty addressing through their analyses of disparate artifact categories the broad social and anthropological issues in which they profess interest (cf. Brown 1987); this is perhaps because they are all too often in far too much of a hurry to get the dirt off of their material in order to study it. The site matrix comprises soil plus artifacts, and it is often the soil that contains most of the data—or from which the preponderance of the data can be extracted.

Kelso and Fisher especially (see Chapter 12) have found they needed to develop new methods and procedures in order to accomplish their aims. Use of pollen and phytolith data beyond environmental reconstruction to examine formation processes in detail requires different extraction techniques and larger grain counts than is usual. Kelso and Fisher point out that pollen from historical deposits may be less well preserved than that from ancient soils but is there nonetheless (Kelso and Fisher, Chapter 12; see also Kelso and Beaudry n.d.). An extraction procedure that does not acetylize the sample and counts of a minimum of 400 grains per sample are necessary for good palynological results from historical sites. Further, comparative samples, preferably taken from contiguous column profiles at 2-cm intervals, provide the best means of integrating data derived from soil chemistry, palynology, phytolith, and floated macrofossil remains.

One of the most important purposes of this form of analysis is to unravel the complexities of the archeological record itself. As was the case at the Kirk Street Agents' House, the archeological record at the boardinghouses has been strongly influenced by short-term events. Feature 61 (the privy behind unit #45), for example, was filled rapidly during the latter stages of the 19th century. Much of the contextual record speaks to the events that came into play as the boardinghouse system began to enter its twilight. The results indicate that although refuse was disposed of in the yards, the company's wishes that the lots be kept clean were generally adhered to for much of the 19th century. Ruderals, evidenced by both pollen and macrofossils, appear to have been restricted to the borders of the yards or perhaps sprang up in small cracks between wooden planks thrown down to provide walkways through what were at times muddy backlots (at other times, they would have been dry and dusty—and an ersatz paving of any sort would have also helped to keep the dust down). The presence of weeds clearly increased during the waning years of the 19th century. Whether this was the result of a growing ambivalence on the part of the corporation or merely the end of its involvement remains unclear. What the data do seem to indicate is a period of decay towards the end of the 19th century.

Weeds were not the only plants that grew in the backlots, however, as planting holes, ivy and grape pollen, and grape seeds attest. It is not surprising to learn that ivy was planted against the back walls of some of the boardinghouses; we have photographic evidence of this (Figure

Figure 13-1. Stereopticon view, ca. 1889, showing unidentified workers standing outside Boott housing in Amory Street. The Boott Mills complex is to the right; to the left, the end of a boardinghosue block can be seen. The narrow wooden structure with a pitched roof is a woodshed; note the opening or gate into the fenced backlot and ivy growing up the rear wall of the boardinghouse. (Courtesy of the University of Lowell Special Collections and the Lowell Historical Society.)

13–1). It did come as something of a surprise to consider that some boardinghouse residents might have had grape arbors. But this, too, is not out of place; it would be far more surprising to find no evidence whatever of gardening in the backlots (cf. Sam Bass Warner's *To Dwell is to Garden,* 1987).

Conditions in the Yards

Conditions in the boardinghouse yards can be inferred from refuse disposal patterns, palynological evidence and the results of both macrofossil and soil analysis. In terms of disposal patterns, much of the faunal material, for example, was recovered from sealed contexts, such as pits, or was associated with enclosed spaces such as cellars or crawlspaces beneath ells. Deposition of sheet refuse did not occur until the late 19th century; evidence for this comes from ceramics, glass bottle fragments, and clay pipe stem fragments. Of 35 ceramic sherds with maker's marks, 20 were identifiable. Of these, two were manufactured between 1843 and 1867; all the rest dated to after 1870. Over 700 machine-made bottle fragments were recovered from two Boott privies that were excavated, revealing both a late date (ca. 1910) for filling privies ordered out in 1890 as well as clandestine disposal of alcoholic beverage containers. Of the marked clay pipes from Scotland, 25% (18) are marked "Glasgow," and 75% are marked "Scotland," indicating a late date for much of the material. By the end of the 19th century, despite city-wide trash collection, the boardinghouse yards were still used for refuse disposal.

During the early period of the Boott's history the yards were well maintained, as evidenced by relatively stable grass pollen frequencies. The decline in grass pollen frequencies coincides with an increase in ragweed pollen as well as with the appearance of sheet refuse. This ground-cover pattern is considerably different than that reconstructed for the rear yard of the Kirk Street Agents' House (see Beaudry and Mrozowski 1987b). The rear yard of the agent's house appears to have served utilitarian purposes—it was heavily trafficked and rich in trashy deposits—while the front and side yards had an ornamental function as an extension of the building's façade. In the rear yard, varying contributions of goosefoot (Chenopodiaceae), ragweed (Compositae), and Aster-type (insect-pollinated Compositae) pollen correlate with stratigraphic evidence of changing human activities. A pattern of declining ragweed-type weeds and increasing grass percentages reflects progressive soil stabilization in what had been an active backlot. This pattern is the reverse of that observed at the boardinghouses, where initial stabilization was followed by a yard increasingly dominated by weeds (Mrozowski and Kelso 1987; Kelso 1987a, 1989; Kelso and Fisher, this volume). While the conditions in the boardinghouse yards began changing during the third quarter of the 19th century, when corporations appear to have focused primary attention on the most public aspects of their housing, full-blown deterioration set in after the Boott sold its housing to a Boston slumlord in the 1890s. It is this decline that the archeological record records with unmistakable clarity (Mrozowski et al. 1989).

Not every unsanitary or unhealthy aspect of the boardinghouses stemmed from corporate neglect, however. Remarkably high lead counts in the soils of the boardinghouse backlots are probably a by-product of the corporation's annual painting and whitewashing activities. Soil contamination would have posed a health hazard to boardinghouse residents nearly as serious as that posed by the contaminated water they drank (Mrozowski et al. 1989). Lead poisoning can, among other things, cause psychological disorders—especially among children (see, e.g., Needleman et al. 1979: 689–696; Yaffe et al. 1983: 237–245; see also White 1973). It has been assumed for some time that lead poisoning results from eating vegetables grown in lead-contaminated soils; there is now evidence, however, that links it more directly to the soils themselves. Very often lead enters the body when people, gardeners, for instance, who work in lead-contaminated soils fail to wash their hands properly before eating (Schmitt et al. 1979: 1474–1478; Yaffe et al. 1983: 237–245). Lead can also enter through the eyes, however, which means wind-blown soils would also present a hazard (Mrozowski 1987b; Mrozowski et al. 1989).

Soils analysis conducted at the Agents' House site revealed that the backlot soils were relatively low in lead content (Mrozowski 1987b) In all 17 samples tested, figures for lead content ranged from a low of 20 ppm to a high of 431 ppm. Soil samples recovered from modern gardens in Boston, Massachusetts, by comparison, ranged from a low of 20 ppm to several with counts of 1250 to 2419 ppm—all of which are quite high (Mrozowski 1987b: 251–266). Fisher's analysis of soils from the boardinghouse backlots found lead counts comparable to some of those seen in Boston. These figures are striking considering that the boardinghouse deposits have been sealed and therefore unaffected by automobile exhaust emissions while the agent's house yard

has been open to the air. What this seems to indicate is that the annual whitewashing campaigns touted so highly by the corporations as evidence of proper upkeep of their housing had the insidious and unexpected side effect of contaminating the backlot soils. Hence even the good intentions of corporations striving to maintain appearances through yearly coats of paint could have contributed unknown and unsuspected threats to an environment already rife with hazards.

As large a role as the corporation played in the lives of its workers, there were other forces that were equally influential. The emergence of middle-class cultural values during the 19th century, evident in the archeological and documentary record of the Kirk Street Agents' House, is also visible in the material culture of the boardinghouse residents. Through an analysis of the material world of the mill workers it is possible to gain detailed insight into the processes that contribute to the development of cultural values and how material culture serves as an active medium of cultural expression.

Material Expressions of Culture

If there is a common theme that connects the various interpretations drawn from the analysis of the material record it is how the material world is employed in cultural expression. The relationship of behavior to the material world is far from passive. Cook's fine analysis of smoking equipment and leisure behavior demonstrates how even mass-produced items such as humble clay pipes can be actively manipulated as a strategy for cultural expression. The same is true of Ziesing's findings concerning personal items. She notes that most of the items of jewelry recovered from the boardinghouses were inexpensive imitations of costlier items. Although less imbued with conscious connotations of class than short-stemmed pipes, cheap costume jewelry in imitation of "the real thing" served the aspirations of those who worked in the factories. Perhaps it is ironic that so many who spent hour upon hour laboring in the mills producing fortunes for others would leave such a humble legacy of buttons, glass 'gems' and liquor bottles. For while the archeological and documentary record provide testimony to the power of corporate paternalism and the boardinghouse system, those same data evoke expression, if not of resistance, of personal aspirations and self-expression. Despite the fact that limited economic means placed genuine impediments in the way of the material wants of Lowell's mill workers, evidence of adaptive behavior—as Cook notes in Chapter 11, of the creation of subculture—is visible. It is visible in the use of medicines more desirable for their alcohol content than their efficacy in curing illness. It is also expressed in the use of white clay pipes as expressions of class affiliation and even of class pride.

In the end what the results tell us is that culture is fluid, more a dialogue than a static set of rules. The boardinghouse system was constructed on a set of cultural values. Its founders sought to secure its permanence by giving their vision expression in brick and mortar. The overall success of their attempts at social control is undeniable, but the material record also reveals how workers found avenues for expression.

The management policy of the corporations involved paternalism, but it was a paternalism without rights. It was in leisure behavior and off-work time, as well as personal dress and comportment, that individual workers expressed themselves and signalled the affiliations of ethnicity, subculture, and class.

Quite intriguing to consider in this regard is the use of tea wares and comparatively elaborate table settings by tenement residents. This contrasts with the patterning of the boardinghouse ceramic assemblage and can be linked to household composition—corporate versus nuclear household—as well as to cultural values. Recent work of other historical archeologists provides us with the means for understanding the nature of these differences and the reasons for them. Wall (1987) was able to demonstrate through the analysis of a series of ceramic assemblages from 18th- and 19th-century New York City that such tablewares closely reflect a new set of values that emerged as urbanization and industrialization took place (see also Mrozowski 1988, who ties the widespread values of the 19th century to developments in 18th-century American cities). Ceramic assemblages from late in the second quarter of the 19th century tend to reflect a set of ideals that developed more or less as a response to changing social conditions brought about by industrialization and the emergence of the middle class. Chief among these values was the notion of separation of the home and the workplace, with woman's sphere being at home and proper work for women being running a household (but not necessarily physically engaging in housework).

This notion of striving for refinement and middle class status through adoption of middle class standards for polite entertaining and social display (cf. Jean-Louis Flandrin, *Distinction*

through Taste, 1989), especially through tea drinking, is of interest in that it adds a dimension to ceramic analysis beyond economic considerations. It is obvious that ceramics were often symbols as much as they were everyday objects; historical archeologists are increasingly willing to interpret their ceramic assemblages in light of the multiple functions they served in order to place their use in its proper cultural context: Burley 1989 and Yentsch n.d.a are especially fine examples of such analyses. Such studies bring women into focus, revealing how, especially in 19th-century homes, women influenced the nature of the household. An example from Fort Independence in Boston, Massachusetts, makes this clear. Clements (1989) found that critical differences occurred between the ceramic and glassware not so much in the assemblages of officers versus enlisted men but between married and bachelor officers. Deposits from households of married officers had by far the greater proportion of serving/entertaining vessels (e.g., tureens, platters, tea wares, etc.). Both assemblages had drinking vessels—stemware and tumblers—but deposits from the bachelors' quarters had significantly more vessels related to alcohol consumption than to tea and coffee drinking or even to food consumption (probably because bachelor officers ate in the mess hall). The presence of women hence had an unmistakable effect on the archeological record; the stabilizing influence of women was not lost on the U.S. Army, which encouraged its officers to marry. This afforded them respectability as well as stability, something the military valued highly in its early years when it was faced with public opposition to a standing army and fear—especially in major urban centers—of the possible ill effects of bringing large numbers of unattached, transient males into the community.

It seems likely that the differences between ceramic assemblages at the Boott boardinghouse and tenement can similarly be attributed to the differences in household makeup. While women were present and perhaps outnumbered males in both households, married women whose families rented Boott tenements could aspire to stable family life and could put into practice the values linked to the domestic ideology of the 19th century. Such notions of domesticity found material expression in manifold ways, many of which are preserved or represented in the archeological record, while others can be interred from the documentary evidence.

Boardinghouses and Domestic Ideology

As Landon points out in Chapter 4, the new domestic ideology, even though it may initially have been an outgrowth in response to just such conditions as those in the mill towns, had an influence on boardinghouse keeping. Landon (Chapter 4) and Landon and Beaudry (1988) explored the ways in which domestic ideology validated and legitimated boardinghouse keeping as a profession for women. We have also noted elsewhere (Beaudry and Mrozowski 1988) that ready adoption of certain elements of new technology may have been fostered under the boardinghouse system, suggesting that shifts in domestic technology played a large part in changes that took place in the backlots of both the boardinghouses and at the Kirk Street Agents' House—especially after ells were added to these structures. The concept of domestic technology, drawn from Strasser's use of the term in her study of American housework, *Never Done: A History of American Housework* (1982), is especially useful because it permits a distinction among three related concepts: *domesticity* or *domestic ideology* as a widely-held set of values regarding women's roles and the separation of home and workplace; *domestic economy* as a set of principles for proper housekeeping; and *domestic technology* as the material expression of the aforementioned principles and beliefs.

It is possible that the addition of ells to the rear of the boardinghouse units was part of modernization and innovation that characterized the new domestic technology. Hubka (1984: 125) points out that the working ells of rural farm houses

> were the pride of modern, efficient farmers who made their ells a focal point for agricultural and domestic improvement. The ell was a place of applied technology and contained the latest labor-saving devices....

Such devices included the cookstove as well as the set kettle or boiler. The ell shown in Figure 7–11, a Bay State Mills boardinghouse in Lawrence, Massachusetts, contains several of such appliances, these chiefly designed for doing laundry.

Food and Health

Food and the behaviors associated with its procurement, consumption, and presentation offer the archeologist with a wide range of analytical and interpretive avenues. At the boardinghouses, evidence of foodways practices has come primarily from three sources of data:

faunal, plant macrofossil, and ceramic analysis. Each of the three sets of data furnish information on different dimensions of the foodways system at the boardinghouses. The faunal analysis, for example, alerts us to the important role meat had in the diets of the mill workers. Meats like beef, pork and mutton were the preferred choices, in contrast to fish or fowl, which are poorly represented in the faunal assemblage. The macrofossil analysis indicates that fresh fruits were available in the boardinghouses. at least on a seasonal basis. Perhaps their seasonal availability is one reason why no mention of such fruits is made in the Lowell dietaries published in the late 19th century. It may also be that fruits were viewed as secondary in importance to meats and other foodstuffs recorded in the dietaries.

A further outcome of the faunal analysis reveals boardinghouse keepers' attempts to economize in food purchase. This practice accounts not only for the character of the faunal assemblage and the types of meat cuts it represents, but also for the nature of much of the rest of the material culture recovered from the boardinghouse backlots. Ceramics, personal items such as jewelry and hair combs, clay pipes, patent medicines, and beverages all were purchased with an eye to economy—in some cases the economy was engendered by 'the system' under which boardinghouse keepers could profit by cutting corners, on the other hand, for workers frugality was a necessity. They bought what they could afford, and personal choice was restricted by the price range of goods.

The ceramic analysis resulted in some highly interesting findings. Dutton's exhaustive analysis using a variety of techniques seems to conclude that only minor differences separate the assemblages of the boardinghouse and the tenement. The point of departure, a greater concern for higher quality tea and coffee wares among the tenement's inhabitants, signals just how subtle material expressions of distinctions can be. Even in an instance such as this, where the separation is more a product of demographic makeup or household composition than it is of class, the material record has proved to be a sensitive indicator of social differences. The presence of tea wares is probably in large measure attributable to the fact that families resided in the tenements (cf. Figures 13–2, 13–3), while the boardinghouse was home for single folk. At the same time entertainment-related ceramics like those recovered from the tenement are indicative of emerging middle-class values whose influence is evident in other categories of material culture as well. Neverthe less we can also see friction in the area of class-based values; the spread of middle-class mores among workers at times met with decided resistance.

Class-Based Notions of Fitness and Well Being

Social historian Gareth Stedman Jones (1977), in discussing studies of working-class popular recreation and leisure, notes that much of the information about such behavior comes from the writings of reformers and other "purveyors of minority causes, distasteful not only to workers but to the bulk of the middle class" (Jones 1977: 165), leaving "our knowledge of these ideologies and the material situations which they articulated...in...an extremely primitive state" (Jones 1977: 163). Research into non-work time and the different ways workers have used it must first of all take into consideration the primacy of work: "the social relations within which it is carried on, in the determination of class position and in the articulation of class attitudes" (Jones 1977: 170). Jones points out that worker attitudes toward leisure pursuits were often inconsistent, and that while working class leisure activities often were characterized as 'traditional,' traditions were far from static. Workers could and did 'invent' new traditions; it may be that the content of popular recreations was not as significant as their existence in the first place—that the form was fluid because workers were willing to transform their leisure so long as they did not have to give it up.

Sociologists have found that notions of fitness and well being tend to be class based and linked to moral concerns (Glassner 1988). In our own society, the body has become a status symbol; eating properly and exercising to maintain a slim form takes time and money. Middle and upper class interviewees condemn people who eat at fast food restaurants, repeatedly stating the belief that if only poor people were informed about what is good for them, they would change their behavior; they also use highly charged moralistic terms to describe eating behaviors (e.g., "I was bad," "I was sinful."). [Restaurants play along with this, giving desserts names like "Chocolate Sin," etc.] In many ways those who keep fit see themselves as moral reformers, making the world a better place by cutting down on their cholesterol consumption.

Yet working class people, who are constantly preached to on this and other topics, resist what sociologist Robert Crawford has called the "Horatio Alger myth of fitness"—the version of well being that takes time and money *and* purposeful effort—to acquire. Workers tend to

Figure 13-2. An unidentified Polish family pose on the stoop of their Boott tenement, ca. 1912. (Reproduced from Kenngott 1912.)

Figure 13-3. The residents of an unidentified boardinghouse block turn out for a group photograph, ca. 1910 (?). Note flower pots outside second third-story window from the right. (Courtesy of the Society for the Preservation of New England Antiquities.)

define well being as the freedom to do what they want: to be able-bodied and fit enough to stay awake after the shift, whether to have a beer with the fellows or to do nothing at all. Working class leisure activity is thus often unstructured and often counterproductive in terms of actual physical fitness but nevertheless leads to a sense of personal well being. Perceptions of health and well being contribute strongly to notions of self-esteem; people who believe themselves to be in good physical condition experience a sense of well being that may bear little relation to their actual level of physical fitness.

If 19th-century worker leisure behavior and the material culture associated with it are seen as class based, it is likely that during that century, as in the present, attitudes about health and well being—and their material expressions--similarly reflected class distinctions. Nineteenth-century writers were often offended by what seemed to them to be idle loitering on the part of working class people—sitting on their front steps in shirtsleeves, smoking clay pipes and/or drinking in public, etc. (cf. Cook 1989). What is more, reformers linked such public behaviors to issues of morality and preached against them. Knowing this and knowing that the moralistic aspect of concepts of fitness is still with us, we may be able to circumvent the tendency to represent the contradictions generated by class-based perceptions health and well being in terms of a present-day "rational and moral" public aesthetic of fitness.

Nutrition and Food Preferences

An example can be drawn from the study of foodways at the Lowell boardinghouses. Landon's documentary research and zooarcheological analysis revealed that workers living in corporation housing had a diet dominated by fatty meats and foods high in starch and carbohydrates (Landon 1987, 1989). With the benefit of hindsight and 20th-century knowledge of food chemistry (not to mention 20th-century attitudes toward nutrition), we could make a case for Lowell's workers having a poor and monotonous diet. That is, if we considered only the empirical facts we have assembled, we might think ourselves justified in characterizing boardinghouse foodways as inadequate in nutrients and lacking in variety.

Nowhere in the written sources, however, is there any indication that this diet was considered inadequate or boring by those who consumed it (Landon 1987). Rather, it was viewed as "substantial and wholesome...neatly served, and in sufficient abundance" (Miles 1846: 72). The key seems to have been quantity: workers were more worried about getting enough food than they were with variety or with actual nutritional content. *Variety* was not used in the modern sense of different cuisines or cooking styles; rather, variety referred to having a wide selection of items at any given meal—potatoes, turnips, peas, etc., all of which may have been boiled, as well as meat dishes, breadstuffs, and baked goods or sweets. That boiled foods often predominated in boardinghouse cooking is suggested by an advice column published in the July 7, 1889, *Worcester Sunday Telegram* (p. 2) by "YOUR FRIEND AND WELL WISHER"

> Before engaging board make a cautious inspection of the premises, and be sure to sniff the odors which prevail in the front hall and are to a certain extent an index of the character of the house. There is a certain "boiled" smell which is frequently encountered in such places, and against which I warn you. In that house the food will all taste alike and remind you in a condensed form of the smell to which I have alluded.

Domestic reformer Catherine Beecher devoted an entire chapter of her treatise *The American Woman's Home* (Beecher and Stowe 1869[1]) to the subject of healthful food, another to good cooking. If we interpret Beecher's targeted areas of reform as providing inadvertent clues to usual behavior and attitudes (in a manner similar to the way court records, with their unavoidable focus on aberrant behavior, reveal the limits of the socially acceptable), we begin to see that food in the boardinghouses probably was not unlike what Yankee mills girls had eaten at home on the farm. Beecher (Beecher and Stowe 1869: 127–128) equated overeating with intemperance.

> It is a much safer rule, to have only one kind of healthy food, for each meal, than the too abundant variety which is often met at the tables of almost all classes in this country.

It seems that the hearty appetites of farmers and laboring people were shared by most 19th-century diners. It further seems unlikely that mill workers were much affected by attempts at dietary reform; thirty or so years later, turn-of-the-century reformers found immigrant mill households as well as boardinghouses had a diet little changed from that described for early 19th-century workers (cf. Atwater 1886; Byington 1910). It is also true that satisfaction with food in the boardinghouses stemmed in large measure

[1]Harriet Beecher Stowe is listed as co-author but apparently did not contribute to the volume.

from the fact that the food was indeed perceived to be nutritious and healthful.

Dietary shifts over the 19th century stemmed more from technological innovations and from the side effects of environmental degradation than from attitudinal change. An 1833 account by a visitor to Lowell noted with approbation that boarders were obliged to eat salmon only once a week (Josephson 1949: 68); at that time, salmon were plentiful in the Merrimack River, and their abundance meant they were cheap and readily available (Coburn 1920: 63). By 1870, however, fish on boardinghouse menus were limited to inexpensive ocean catches such as cod and haddock (Atwater 1886; Singer 1985: 112). Not only had the Merrimack been dammed to provide water power for the mills—making it impossible for the salmon to return upriver to spawn—the river was polluted by the wastes of rapidly expanding industry and urban population.

Boardinghouse keepers, on the other hand, adopted certain elements of domestic reform (or at least domestic science) with alacrity. Technological innovations in food preparation (e.g., cooking stoves and ranges) and in food storage—canning, for instance—were readily accepted (Landon 1987a, 1989; Landon and Beaudry 1988). They helped the keeper economize and avoid waste. Whether they contributed to the health of boardinghouse inmates is another matter.

The Boardinghouse as Home

Despite improvements in domestic technology, however, the impression of conditions in the boardinghouses is one of overall technological backwardness. Innovations were seldom introduced by the corporations, and labor-saving devices when present were purchased or rented by the keeper. For the most part, sense of hominess was created by incorporating into the boardinghouse setting a few carefully chosen icons of middle-class domesticity (Cohen 1986: 269–270). Primary among these was the parlor piano, the presence of which was repeatedly noted with approbation by residents and visitors alike.[2] Lucy Larcom, in her memoir, "Among Lowell Mill-Girls: A Reminiscence," (1881: 212; reprinted in Bryant and Rae 1950: 196–215), seemed to find it odd that Charles Dickens made special note of the presence of pianos in some of the boardinghouses. An anonymous author noted in an 1886 *Boston Sunday Globe* article, "Mill Life: A Tour among the Spinners and Weavers. How They Work and How They Live...." that he visited a Lowell boardinghouse and was received in the parlor, "which was a handsomely-furnished apartment." An illustration accompanying the article depicts a full-blown Victorian parlor, complete with carpet, bordered wallpaper, curtains, framed prints on the walls, upholstered chairs, table with knick-knacks, and, featured prominently, a piano (see also Center for History Now, 1985). Parlors afforded space in which boarders could engage in vital social rituals, such as receiving callers, or, as Harriet Robinson put it in her memoir of mill life, hold "parlor meetings" like the one she recalled in support of Mrs. Bloomer's notions of dress reform (Robinson 1898: 193, reprinted in Bryant and Rae 1950: 184–185).

The contemporary emphasis placed upon living spaces and on specific items of material culture that were symbols of domestic ideology helps us to understand how workers were able to mediate the contradictions between ideals of home and the reality of their new living situation. It highlights the fact that an array of shared symbols was accessible and subject to manipulation by corporations and the keepers. In effect, the monotonous box-like boardinghouse units through the presence of certain potent icons could be transformed, if not into the reality of home or even an imitation of it, into a space whose elements signified the ideals of domestic ideology. The icons were metaphors, parts drawn from a whole, permitting the mental transference from true home to symbolic home.[3]

In a 1973 study Richard Horwitz explored the cultural symbolism of boardinghouses among workers through an analysis of primary texts about boardinghouse life and about Lowell in general. He sought to delineate symbolic dimensions the housing had for workers by studying terms and their referents as well as the modifiers applied to terms used for boardinghouses. His effort to construct a folk taxonomy for the Lowell built environment

[2] For a review of the significance of the parlor in nineteenth-century America, see McMurry (1985: 261-280); on the significance of parlor organs and pianos, see Ames (1980).

[3] Thus the relationship is metonymical. Metonymy is a form of description that uses a "word for a certain object or idea to denote another object or idea, the latter in some manner associated with the former, e.g., identifying the whole by use of a label for one of its parts." (Brown 1979: 257). In this case, artifacts, like words, signify ideas or concepts and facilitate the metaphorical shift.

resulted in fact in a cognitive map of the semantic domain workers employed in communicating about their surroundings.[4] Horwitz noted that although workers did not use the term *home* with any regularity to denote the boardinghouses, they nevertheless did so more often than he seemed to expect. Our own study suggests why this is so, and Horwitz's results serve further to clarify the process of mediation through metaphor between ideal home and corporate housing.

Horwitz's study focuses on architecture, on the built environment. We argue that Horwitz was mistaken in trying to connect worker response to their living spaces with perceptions of the external built environment. The built environment of Lowell was part of the corporate machine, serving the aims of the capitalists, not those of the workers (see Harvey 1976). It is unlikely that the built environment of Lowell played a part in workers' concepts of home (except in a contrastive dimension). As studies like those of Cohen (cited above) have shown, workers tended to redefine internal spaces through material objects and did not define themselves or their notions of home on the basis of external architecture. That is, they took control over what they could—this seldom included much or any of the built environment of industrial cities (see also Mrozowski and Beaudry n.d.).

It is clear that the built environment of Lowell, especially the boardinghouses and their yards, were spaces that were both highly controlled and controlling. If one views access as a defining quality of space (see Hillier and Hanson 1988), it is easy to see that access was severely limited—the boardinghouses each had a single front door and usually a single door leading into the backlot. Access to the backlot and its service facilities, including the privy, was through either the kitchen or ell, or in some cases, through the keeper's quarters. The backlots were completely enclosed with fencing, and there was likely no more than a single door leading from the woodshed to the back alley, possibly kept locked. In other words, access was so controlled that a stranger could not legitimately penetrate this space, and those who lived in it had very few options in terms of how they used it or moved around in it. The backlots further were embued both with the functionality of utilitarian space and with the liminal quality of a danger zone because of the potentially polluting material—human and other waste—to be found there. As Bond's discussion of company correspondence reveals, the Boott's concern with what went on in these spaces often focused on 'matter out of place' (Douglas 1973).

The sense of newness and difference experienced by female mill operatives in the early decades of Lowell was not enough for some, as early protest tracts reveal. 'Juliana' wrote in 1845 that "All is hurry, bustle and confusion in the street, in the mill, and in the overflowing boardinghouse (FLRA 1845: 3). She exclaimed that the women were "Crowded into a small room which contains three beds and six females.... They are confined so long in close, unhealthy rooms that it is a great wonder that they possess any life or animation, more than the machines which they have watched so unceasingly!"

Another writer, 'Amelia,' wrote bitterly of the corporations' control over workers' lives beyond the mill

> her footsteps must be dogged to see that they do not stray beyond the corporation limits, and she must, whether she will or no, be subjected to the manifold inconveniences of a large crowded boarding-house, where too, the price paid for her accommodation is so utterly insignificant, that it will not ensure to her the common comforts of life ; she is obliged to sleep in small comfortless, half ventilated apartment containing some half a dozen occupants each . . . (FLRA 1845: 6).

It is not altogether surprising that some young women found it offensive to be forced "to board with the mixed multitude congregated in a large boarding house" (FLRA 1845: Extract from Factory Tracts Number 2, np), for their farming background notwithstanding, they were educated and literate and held middle class ideals. Hence a woman signing herself simply as 'An Operative' saw fit to object to the rule compelling all who worked for the companies to board in company-run houses on the basis that it conflicted with "our rights as rational beings" (FLRA 1845: ibid.). She claimed to find it intolerable to be shut up at night "six in a room, 14 by 16 feet with all the trunks, and boxes necessary to their convenience" both because it denied freedom of choice and because it was unhealthy (ibid.). This despite the fact that

> Those who keep the boarding houses do all in their power in most cases to make the stay of the girls pleasant, and much credit is due to them. But the

[4] The classification cannot be considered a true folk taxonomy because the use of historical texts as eliciting contexts does not insure recovery of the entire range of names used to distinguish items within a class; see Beaudry (1980: 23-24). But because the terms one finds in such texts are likely to be those in common use and hence the most expressive, it is usually true that they were the most culturally significant in the contemporary context; cf. Raven, Berlin, and Breedlove (1971: 1210-14).

> means are inadequate to meet the wants of the operatives, and too many are made to occupy the same sleeping and sitting apartment.

The crowded conditions made it impossible to obtain privacy for study or other intellectually improving pastimes; it also made it impossible to maintain standards of personal cleanliness and "frequent bathing so necessary to health" (ibid.). This disgruntled operative noted that there was not ample accommodation for each girl to bathe once a day, a situation, she claimed, that led every operative living in such circumstances to "violate the physical laws of God" (ibid.).

These young women, with their concern for personal space and privacy, for cleanliness and adequate ventilation, were expressing views shared with the middle and upper classes, especially among reform-minded individuals. They had absorbed much of the ideology of domestic science and found its application in the boardinghouses wanting. In their protests, these female operatives stressed the importance of being permitted to control their own non-work time. The conditions they decried were to worsen over time; by the latter part of the 19th century, many boardinghouses took in entire families as well as unrelated individuals. Single persons continued to be housed dormitory style, while a family of whatever size occupied a single large room. Evidence suggests that while reformers found this situation shocking, the families involved did not necessarily consider their circumstances unusual or intolerable.

Horwitz's textual analysis reveals that workers did not perceive the built environment of Lowell as integral to their mental constructs of the boardinghouse as home. Their concerns were centered around interior spaces and the ways in which such spaces matched their ideals of a place to call home. This was constituted by a mental process that set features of true home in opposition to features of corporate housing. The dialectical process reveals the most important elements of the concept of home: permanence, comfort, cleanliness, order, presence of kin, etc. Horwitz includes ventilation, freedom from crowding, and rural setting as additional components of the definition he constructs. As mentioned above, rural setting was no doubt an element used to contrast Lowell with the rural farm setting from which most workers came (hence the opposition *country/city* operates on the same level as the contrast between *crowded/isolated*, etc.—it serves to highlight those elements of the ideal of home that survive in the context of boardinghouse life and those that do not). Further, Horwitz's scheme and the small size of his sample do not permit him to evaluate or rank elements in a reliable way; he imputes rather than delineates stress on one element over another.

It is telling that, apart from the obvious shortcomings of the boardinghouse setting that made it impossible for it to function as or be perceived of as true home, it met enough of the criteria to induce among workers a degree of satisfaction with their temporary home.

This was accomplished in large measure through the adoption of fictive kin or surrogate family in the boardinghouse setting and, most important, through common acceptance of the symbolic import of material objects that embodied the ideals of domestic ideology. Hence the seeming contradiction between home as haven and the center of family life and corporate existence in a boardinghouse could be mediated. What is more, the boardinghouse keeper, whose work making a living—sometimes a profit—as a professional housekeeper, was protected from contamination through association with the profit-oriented male sphere by her symbolic role as surrogate mother and care-giver. The mediation of both contradictions is testimony to the power of domestic ideology and its penetration into 19th-century culture. Overcoming the contradiction made it possible for elements of domestic ideology that intersected most closely with the aims of capitalists and with the policy of corporate paternalism to find form and expression in the boardinghouse system at Lowell.

'the systematic must bow to the empirical'

We have set ourselves in this report an enormous and possibly impossible task, that of blending an interpretive approach, normally applied to "symbolic" aspects of culture, with the archeologist's necessary focus on things material and particular. Geertz (1980: 135) points out that part of our intellectual legacy from the 19th century is a notion that "'symbolic' opposes to 'real' as fanciful to sober, figurative to literal, obscure to plain, aesthetic to practical, mystical to mundane, and decorative to substantial." In this work we have attempted to attend both to the materiality of the data—their substantive and functional roles—as well as to the ideological roles. Our concern for the 'situatedness' of the data prompts us to focus on context—archeological, historical, institutional, and behavioral context—but we have attempted to avoid the tendency to treat meaning and context as static, suspended in time. The archeological record encodes time and encodes change over time; hence we can derive from it

evidence of historical process and cultural change.

To do so with any degree of confidence requires data; as Braudel (1988: 28) puts it, "it is not enough to have a correct (or at least reasonable) theoretical perspective. It must be put to the test with the facts...." In order to be able to test our interpretations against the facts, we have had to eschew paradigms that are 'unified' and programmatic, believing that before our aims can be met, "the systematic must bow to the empirical" (Kriedte , Nedick, and Schlumbohn 1977, quoted in Braudel 1988: 28).

Our research points to one clear fact: people living in 19th- and early 20th-century Lowell operated under a different cultural system than our own (but see Leone 1989). Rather than tacitly assume that their history is our history—any more than their lives and thoughts were the same as ours, we have taken the position that we should not force a presentist model onto the past. The archeology in fact shows that capitalism and what has been termed 'the culture of capitalism' has changed since the 19th century. What is more, it changed over the course the 19th century.

Culture is not monolithic, nor is capitalism. An approach that treats either as such tends both to ignore historical process and to relegate the very people whose history they seek to 'reenfranchise' to the status of victims. Our work in Lowell has shown that though the boardinghouse system was ever-present and all-encompassing, the people who lived and worked under it were active participants in shaping their own lives, thereby creating and reinventing traditions while contributing to the changing pattern of American culture.

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North Atlantic Regional Office, National Park Service

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