Standing in the Corn Field, Talking to the Walls, and Peeling Back the Layers: Using Fieldwork to Discover the Construction of Vernacular Architecture

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Fieldwork lies at the core of the study of vernacular architecture, especially of construction techniques. Ultimately, fieldwork lets us look under the skin of an individual building to find what it can teach us about our history. Hands-on fieldwork remains the best method for teaching students to understand and recognize various types of construction, and to learn how to use physical elements such as framing and nails to diagnose the initial date of construction and later evolution in a building. As the discipline grows and changes, however, our methods of fieldwork need to adapt also. While early fieldwork in the United States focused primarily on the seventeenth, eighteenth, and early nineteenth century resources, recent work shows us that there remains much for us to learn about resources related to our more recent past. Over the past two decades the focus of vernacular architecture studies broadened to include whole landscapes as well as individual buildings. To truly comprehend the relationship of these buildings to the world around them, we must learn to look from a variety of perspectives and with a range of methodologies. The strategies developed for early fieldwork may not be sufficient for the future. The research questions we ask should drive our choice of methodologies and the form of our fieldwork.

Staff and students at the University of Delaware's Center for Historic Architecture and Design (CHAD) began conducting fieldwork in the Delaware Valley in the early 1980s; CHAD's collection of architectural documentation now includes drawings and photographs of hundreds of buildings, ranging from urban commercial buildings to rural churches to farm complexes. Drawing on the Center's experience, this paper will demonstrate how fieldwork remains central to the study of vernacular architecture construction, and its application to the field of historic preservation planning, while continuing to evolve as a system of data collection and analysis. In addition, the paper will explore the use of new technology such as digital photography, computer-assisted drafting, and geographic information systems to better analyze fieldwork data and communicate those findings to the public.

From its earliest inception the study of vernacular architecture in the United States depended on fieldwork as the basis for "object-driven" interpretation and analysis (Herman 1992). Fred Kniffen and Henry Glassie both used reconnaissance field survey to assemble the core data for their early studies of folk architecture (Kniffen 1965; Glassie 1975). Inspired by these studies, a group of young scholars formed the Vernacular Architecture Forum, based in part upon their experiences with the Friends of Friendless Farm Buildings. Meeting in their free time to document historic

buildings, the FFFB developed a series of conventions and practices for taking scaled, annotated field notes and producing measured drawings. Over the next few decades, the founding members of the Vernacular Architecture Forum passed on these practices to multiple generations of students (**Fig. 1**).

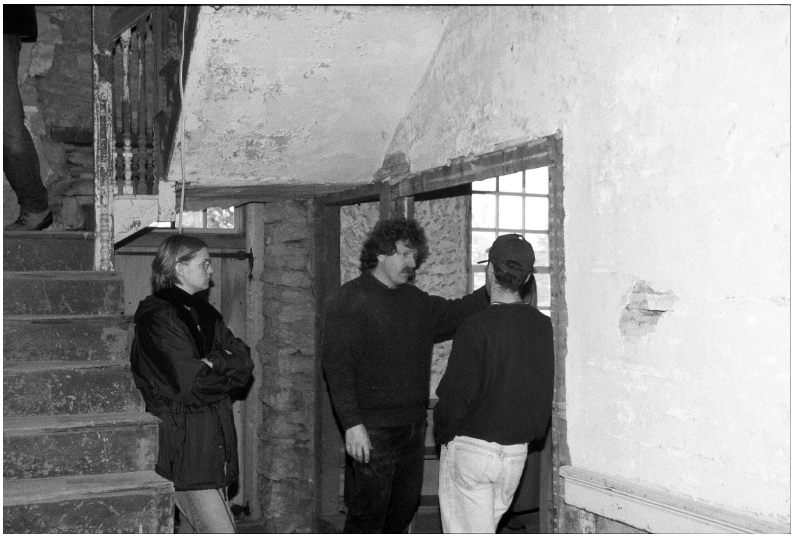


Figure 1. Bernard Herman teaching at the Meier House. CHAD Collection.

One of those founding members, Bernard L. Herman, initially established the Delaware Valley Threatened Buildings Survey (later renamed the Mid-Atlantic Historic Buildings and Landscapes Survey or MAHBLS), through the Center for Historic Architecture and Design to document resources threatened by demolition or neglect. The documentation program started in the early 1980s with a grant to record a group of farm complexes in southern New Castle County, Delaware. Increasing development pressures and the years of the energy crisis took their toll on frame outbuildings, many of which ended up converted to firewood. Over the next few years the built environment of the Delaware Valley vanished rapidly in the face of demolitions due to intensifying development, uniformed renovations, abandonment, and neglect, and many resources disappeared without any recordation. However, the state of disrepair left the construction elements easily visible in many buildings, allowing documentation of elements not generally accessible (**Fig. 2**).

The majority of the building documentation carried out by CHAD today occurs under an umbrella project titled the Mid-Atlantic Historic Buildings and Landscapes Survey, which groups together a team of staff and students working on a variety of individual properties, pooling resources to create field teams. CHAD staff members employ a triage approach to make decisions about the level of documentation required for a particular building or property, and to maximize the amount of information that can be collected in the time available. The first factor considered, obviously, is the

reason for the documentation, which often correlates to the source of the funding. In some cases, a client hires CHAD to record a building for very particular reasons that require specific drawings or photographs. For example, the town of Bethany Beach requested floor plans, elevation drawings, and large format photographs of the Addy Cottage to support decisions made during the process of converting the early twentieth century beach house to a visitor's center. On the other hand, a broadly defined grant allows greater latitude in choosing what type of documentation to complete. CHAD staff can select buildings for documentation based on imminent threat and rarity of the property type. For each building staff determine the most important features of the building and then identify the best way to document those features- floor plans, elevations, framing sections, details, or just photographs (**Fig. 3**).

The second factor considered in the triage process focuses on the amount of time and labor available. Many of the resources recorded face imminent threats, allowing access to the buildings for only one day with a small crew. This requires a quick assessment and decision about what information is most critical to retrieve from the building or site. Several years ago, for example, a CHAD team arrived at the Moore Farm prepared to document a farmhouse and corncrib/granary. Upon arrival, the owners explained that a demolition crew was en route to bulldoze the twentieth century chicken houses in the farmyard. Priorities and assignments quickly shifted to include floor plans and photographs of the chicken houses, accomplished in less than an hour. On other occasions, onsite discovery of unusual construction details, particularly in agricultural outbuildings, resulted in upgrading the level of documentation from basic floor plans to include detailed drawings of framing and joint construction.

Figure 2. Framing visible in Willis-Ashton house. CHAD Collection.

Initially CHAD staff adhered closely to the standards of the Historic American Buildings Survey, producing large format photographs, ink-on-mylar drawings of floor plans, site plans, and elevations, and architectural narratives for individual properties. However, this proved extremely costly, especially in terms of time, and the small staff could not keep pace with the large number of demolitions occurring. In response to this dilemma, CHAD staff experimented with ways to retrieve maximum amounts of raw data about a building in a limited period. The result was the concept of "partial-intensive documentation" which included scaled, annotated field notes, 35mm color slides, large format black and white photographs, and notes for an architectural description of the property (**Fig. 4**). This practice maximized the amount of physical information that could be salvaged from a building prior to demolition, leaving the archival record to be explored later. The Brunson-Jester House was badly damaged by a winter fire, and salvage efforts required rapid documentation of the surviving elements prior to demolition of the damaged sections. CHAD staff conducted fieldwork immediately, and then waited until a grant could be secured to fund the archival research. During the fieldwork, excavation of fire damaged walls revealed heavy timber framing, dating the house to a much earlier period than expected and resulting in a decision to include framing sections in the field notes as well as floor plans (**Fig. 5**).

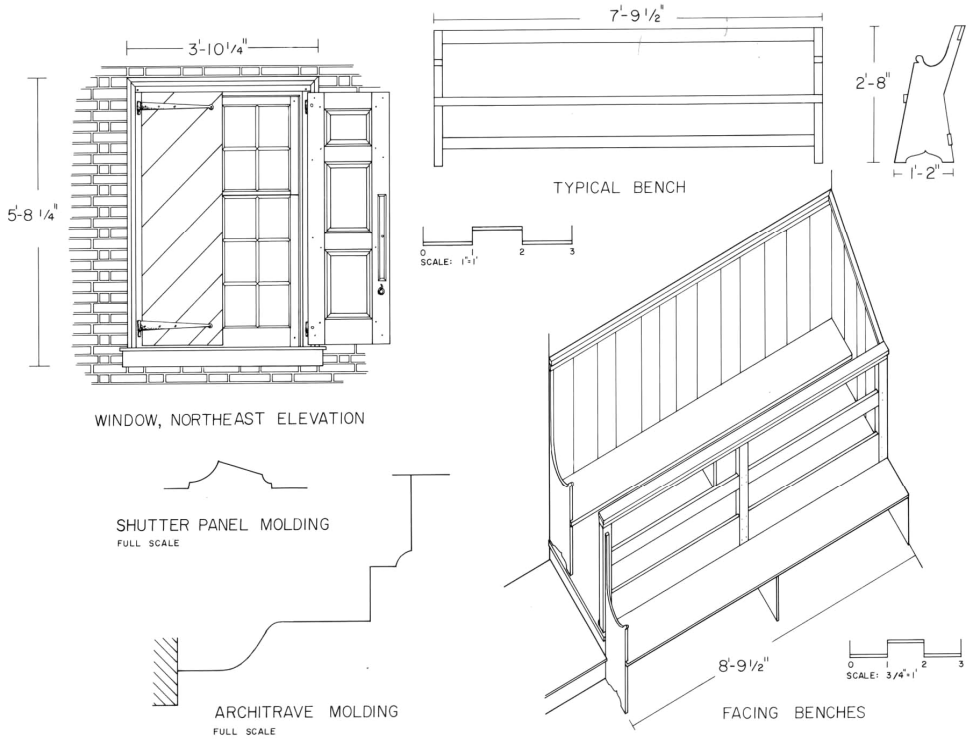


Figure 3. Details of a Delaware Valley Friends Meeting house. CHAD Collection.

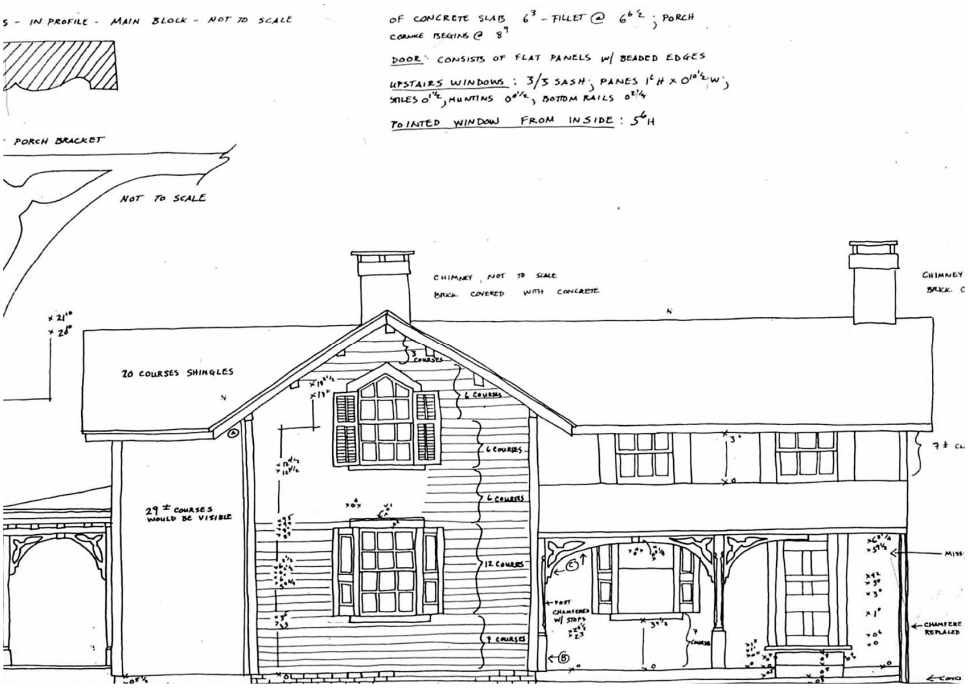


Figure 4. Example of annotated field notes, Greenlawn Tenant House. CHAD Collection.

The "triage" approach and intensive documentation process used by CHAD's Mid-Atlantic Historic Buildings and Landscapes Survey resulted in an extensive study collection of photographs, drawings, architectural fragments, and research files for all sorts of historic resources throughout the Delaware Valley. This collection provides an unusual opportunity to examine a cumulative record of evidence for a particular research question or resource type. The intensive documentation process often occurs on buildings facing demolition, permitting excavation below the skin to study exposed framing (**Fig. 6**). The process as conducted by CHAD also allows accumulation of multiple examples of floor plans and framing sections over time, building a library of architectural information about items not always visible. In the past decade, for example, MAHBLS projects uncovered valuable information about the transition from braced frame to balloon frame construction, greatly expanding upon our understanding of its occurrence in the region. Transitional framing - the link between braced framing and balloon framing - is known to have occurred but is not well documented because it cannot be seen without poking holes in the wall.

Fieldwork evidence reveals that Delaware builders did not move from timber framing to balloon framing along a direct path. For purposes of this discussion, the key elements of timber framing are the following. It employs heavy hewn or sawn timbers joined with mortise-and-tenons and pegs. The vertical timbers include corner posts, principal posts for main bents, and lighter studs for

intermediary support, while the horizontal timbers include sills, plates, joists and/or girts at each floor level. Finally, the frame is reinforced by up or down angle braces. Balloon framing first appeared in Chicago in the 1830s, using multiple slender sawn studs that stretched the full height of the building (Peterson 1992; Lanier and Herman 1997). Instead of heavy plates and girts, balloon framing employed lightweight ledger boards to support ceiling joists. Nails secured timbers in place rather than mortise-and-tenon joints. Up and down braces disappeared. While evidence from the mid-West suggests that balloon framing rapidly took over as the primary construction system, especially for houses, it took much longer for it to become prevalent in the mid-Atlantic region.

Figure 5. CHAD staff documenting the Brunson-Jester House, 2003. CHAD Collection.

Rather, Delaware builders moved very gradually from one system to another, choosing to adapt certain parts of the new framing first while retaining parts of the older system. The Henry House, built circa 1850, used a combination of hewn and sawn timbers (**Fig. 7**). Primary posts stood at the corners and at the midpoint of the front and rear elevations, joined with mortise and tenons. Thinner studs filled the intervening spaces on the two long elevations, stretching all the way from the sill to the top plate and secured with tenons at the top and bottom. A narrow ledger board supported the first floor ceiling joists. Up braces added extra stability to the frame at the upper corners of the long elevations and the first floor level of the gable ends. Framing on the gable ends more closely resembled traditional timber framing with first floor studs tenoned into the sill and intermediate girt. Few, if any, nails were used on the construction of the frame. Thus, in the Henry House we see a blend of construction techniques suggesting that the builder was familiar with balloon framing but not ready to trust it fully.

Figure 6. The deteriorated condition of the Hayes-Campbell Tenant House allowed easy access to the framing. CHAD Collection.

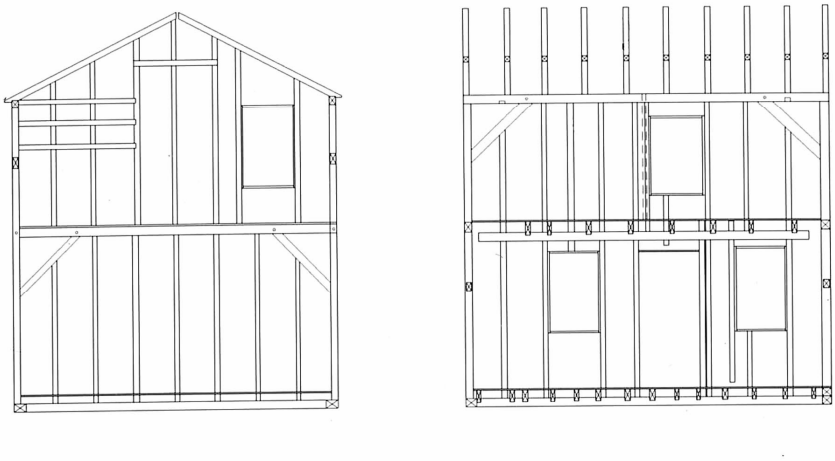


Figure 7. Framing sections of the Henry House. CHAD Collection.

The other eight dwellings with documented transitional framing represent a range of possibilities for treatment of timbers and the balance between balloon elements and traditional timber frame elements. Some employed smaller timbers throughout the frame, but held onto traditional joining techniques. Others combined joining techniques, continuing to use pegged mortise-and-tenon joints

for the principal posts, sills, and plates, but nailing braces into place. In some cases, even the method of preparing the timbers varied, with balloon style studs acquired from a mill and the principal timbers still hewn. Yet only the close examination of multiple cases of transitional framing allowed a fuller and more complete understanding of the wide range of framing options employed by builders in the mid to late nineteenth century. The cases discovered so far range in construction dates from 1850 to 1880, indicating the persistence of traditional framing techniques long after the introduction of balloon framing.

Originally conceived as part of the public service mission of CHAD, the MAHBLS project also serves a continuing role in the education of graduate students studying historic preservation and architectural history at the University of Delaware. These students learn about construction history from a combination of coursework and hands-on experience on fieldwork projects. All of the students are required to take a basic course in their first semester, which teaches them to create the scaled, annotated field notes used in the intensive documentation process. CHAD funds many of its graduate research assistantships through grants and contracts directed toward the documentation of historic buildings and landscapes. The students participate in the fieldwork and research for these projects, eventually compiling portfolios of drawings, photographs, and written narratives.

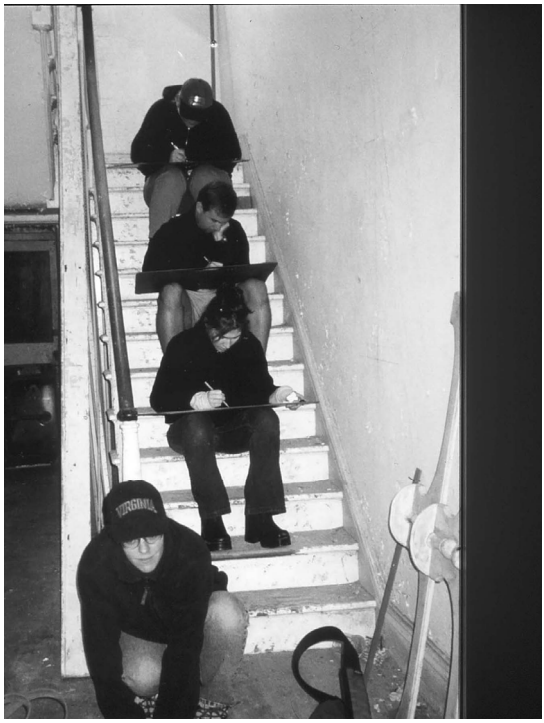


Figure 8. Students learning to draw a floor plan in documentation class. CHAD Collection.

The documentation class involves five full days of fieldwork. During the first two sessions, students learn the basics of approaching a building for the first time and deciding what to document. They also learn how to measure and draw a variety of different types of plans, sections, and elevations (**Fig. 8**). On the last three days of the course, the students work in teams to document several buildings of different types, usually including a dwelling and a barn with exposed framing. This hands-on approach proves invaluable for teaching students how to look at a building carefully and in detail, to understand construction systems and how they function, to recognize building styles, and to uncover the evolution of a building's history. The process of drawing the plans and sections forces them to become aware of a building and its parts in a way that cannot happen through the study of photographs alone.

Taking students out in the field serves two purposes. First, CHAD's archaeological approach to documentation teaches students learn to look carefully at the physical evidence in a building and then to document it on paper as a form of preservation. Second, in the process of documentation students learn how to look at a building and take it apart mentally, to determine its purpose, how it functions, why it stands up, and how its purpose or function has changed over time. Essentially, they learn how to break a building down into all of its various components and then put it back together again (**Fig. 9**). At the same time, they begin to build a library of architectural references related to style, materials, and construction techniques in their heads. This mental library will help them to recognize and date buildings, a critical skill for later professional work.

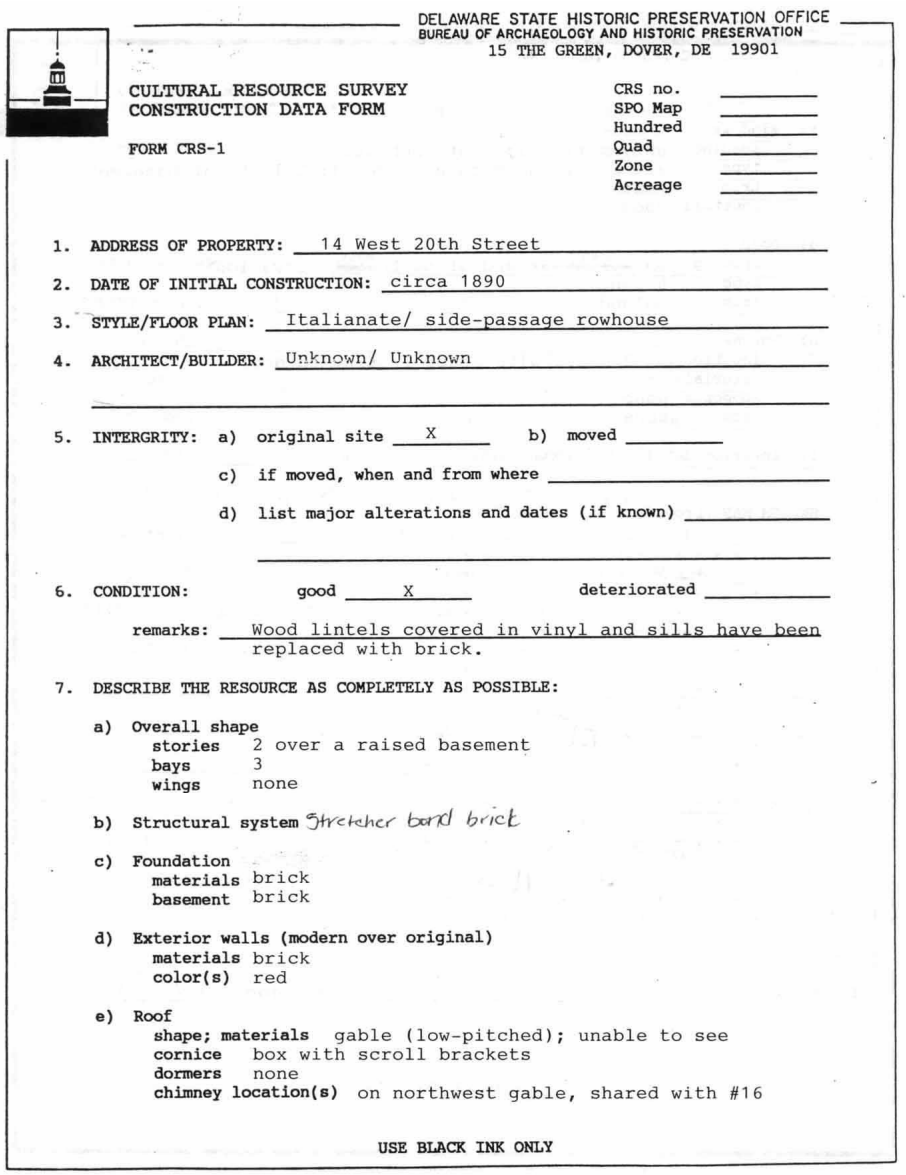
Figure 9. Students measuring an elevation in documentation class. CHAD Collection.

While intensive fieldwork is admittedly the most engaging form of research and generates the most detailed record about a particular building or property, not all research projects require this level of fieldwork. Rather, the nature of the project and the questions asked should determine exactly what type and extent of documentation is required. Reconnaissance level survey, a method employed in various forms since the early twentieth century, represents one of the most common alternatives to intensive level fieldwork. With the passage of the National Historic Preservation Act of 1966 and its mandate to create a national inventory of the country's historic resources, most states initiated a program of cultural resource survey that relied on reconnaissance methods. Surveyors canvassed a particular geographic area one road at a time, identifying any resources determined to be more than fifty years old. For each property, they completed a survey form, focusing primarily on information visible from the exterior of the buildings (**Fig. 10**). The nature and goals of the cultural resource survey process tended to emphasize gathering data on as many buildings as possible, but rarely allowing prolonged examination of individual buildings. However, once the basic survey had been completed, it was possible to initiate thematic surveys that would allow more intensive examination of particular resource groups. A well designed thematic survey can be very informative, often confirming or disproving conventional wisdom about local architecture. It allows the survey team to focus on a particular type of building or the landscapes associated with a specific set of activities.

Between 1998 and 2001, CHAD staff and students conducted a reconnaissance survey and evaluation of approximately 300 Delaware farms (Aglands survey), under consideration for purchase of development rights by the Delaware Agricultural Lands Preservation Foundation, to determine which of those farms contained significant historic agricultural landscapes. While earlier work documented many individual farms in Delaware at varying levels of detail, the Aglands survey project allowed the examination of several hundred farms over a period of three years. This thematic reconnaissance level survey of agricultural landscapes permitted a more comprehensive picture of the farm landscape across the state and a more complete understanding of the evolution of the built environment connected with agriculture in Delaware, especially for the twentieth century, a period poorly documented by early survey work (**Fig. 11**).

The collection of information about the buildings on so many farms at one time made it possible to identify several building types about which the records were largely silent - primarily twentieth century outbuildings related to newer agricultural industries such as commercial dairying and raising broiler chickens. CHAD staff then designed a research methodology to fill part of this gap in our understanding of the agricultural landscape. A review of the photographs and survey forms from the Aglands survey identified almost 80 farms containing dairy barns. Examination of the physical features visible from the photographs led to a preliminary typology for dairy barns based on roof type and approximate date of construction. Key observations made during both the photographic review and the reconnaissance survey centered on the high level of standardization among the barns in terms of outside form and shape and the level of variation in construction materials and first floor plans. This suggested that intensive level fieldwork of large numbers of

dairy barns was not required in order to get a good sense of the features of these buildings. The survey team selected several barns to document with plans and photographs, focusing especially on details of construction materials, first floor plans, and upgrades made in response to changing milk production regulations (**Figs. 12 and 13**).



DELAWARE STATE HISTORIC PRESERVATION OFFICE
BUREAU OF ARCHAEOLOGY AND HISTORIC PRESERVATION
15 THE GREEN, DOVER, DE 19901

CULTURAL RESOURCE SURVEY
CONSTRUCTION DATA FORM

FORM CRS-1

CRS no. _____
SPO Map _____
Hundred _____
Quad _____
Zone _____
Acreage _____

1. ADDRESS OF PROPERTY: 14 West 20th Street
2. DATE OF INITIAL CONSTRUCTION: circa 1890
3. STYLE/FLOOR PLAN: Italianate/ side-passage rowhouse
4. ARCHITECT/BUILDER: Unknown/ Unknown
5. INTERGRITY: a) original site X b) moved _____
   c) if moved, when and from where _____
   d) list major alterations and dates (if known) _____
6. CONDITION: good X deteriorated _____
   remarks: Wood lintels covered in vinyl and sills have been replaced with brick.
7. DESCRIBE THE RESOURCE AS COMPLETELY AS POSSIBLE:
   a) Overall shape
      stories 2 over a raised basement
      bays 3
      wings none
   b) Structural system Stretcher bond brick
   c) Foundation
      materials brick
      basement brick
   d) Exterior walls (modern over original)
      materials brick
      color(s) red
   e) Roof
      shape; materials gable (low-pitched); unable to see
      cornice box with scroll brackets
      dormers none
      chimney location(s) on northwest gable, shared with #16

USE BLACK INK ONLY

Figure 10. Example of one page of the Delaware Cultural Resource Survey Form. CHAD Collection.

Figure 11. Aerial view of a typical twentieth century Sussex County dairy farm. CHAD Collection.

Archival research on the dairying industry provided additional clues to decipher the physical evidence found in the barns. A timetable for the improvements required by local milk processing plants helped to date the installation of new milking systems, and new interior finishes such as concrete manure troughs and cement block walls. This information also allowed fieldworkers to date the point at which a particular barn ceased to shelter milking activities. Thus, for this particular set of resources, it proved unnecessary to examine every case in great detail. Unlike the fragmentary evidence for transitional framing, twentieth century dairy barns are best understood by studying examples to determine the range of options or typology. Once this typology is established it serves as a guide for future reconnaissance survey. This approach works well for other buildings of the twentieth century landscape as well, such as chicken houses or suburban dwellings. Recent masters theses by CHAD graduate students on Delaware dairy barns and chicken houses have greatly expanded our knowledge of the evolution of these building forms in response to sanitary reform and technological change (Shriber 2002; Cosenza, forthcoming).

The wealth of information generated by the Aglands survey allows us to identify threatened or highly significant farm landscapes that warrant intensive level documentation and supports the development of a historic context for agricultural landscapes, outbuildings, and farm complexes. The study also clarified some of the major gaps in our understanding of the evolution of Delaware's agricultural landscape. With the data collected through this survey, we are beginning to put together a new picture of the landscape as one that constantly evolved in response to changes in the agricultural economy. Periods of intense focus on a few market crops gave way to greater diversity as well as specific building types to serve particular functions. Finally, we are becoming more and more aware of the larger landscape in which each of these independent farmers operated, tied together through a network of roads, railroads, waterways, creameries, canneries, and market towns.

A third form of research related to fieldwork focuses on what happens to all the data collected by scholars - how it is stored and analyzed, and how it is shared with the public. This element can be enhanced by reliance on new technologies ranging from computer aided drafting software to digital photography to databases, geographical information systems, and GPS (global positioning satellites) technology. All of these new systems allow the creation of "virtual" fieldwork, encouraging more detailed analysis of fieldwork data. While technology cannot replace the need for hands-on fieldwork, it can help us to search for broader cultural patterns and to communicate what we learn to a larger public audience encouraging them to place a higher value on our shared cultural resources and to work towards their preservation.

Figures 12 and 13. Examples of two different roof types for dairy barns. CHAD Collection.

Any fieldwork that results in documentation of a resource in a permanent form is "preservation on paper." While we cannot always preserve a building physically, through fieldwork we can document its presence before it disappears. A critical aspect to the success of the MAHBLS program lies in the creation of a library to hold the collection of documentation material in a reliable system that allows scholars to access it for research purposes. There are two kinds of libraries created when it comes to architectural documentation. Each of us began developing one in our visual memory bank when we began doing fieldwork and reading about vernacular architecture. Think of it, if you will, as a portable reference system, that we spend our professional lives developing and expanding. The only problem with that reference library is that it remains accessible primarily only to ourselves and to those we share it with verbally - once we are gone, that library disappears too. Teaching the next generation of scholars through fieldwork provides one way to pass that library along to the future.

The second system of library is, or can be, considerably more permanent. This physical file contains photographs, drawings, field notes, archival research, maps, and any other materials collected about a property. Ideally, the reference file is stored as part of a system that allows researchers to access properties by geographic location, building type, or particular physical characteristics. This process creates a permanent record about both the building itself and the process of documenting it - that is, who was involved with the fieldwork or research, when the work was done, why it was done, who owned the property, and the outcome of the situation (demolition or preservation).

As we amass more and more data about individual buildings and landscapes in one place, it becomes possible to ask more complicated questions. Looking for patterns requires mapping, either geographical or chronological, and the use of databases to organize the data. Many of our survey projects now include a GIS component to map all the properties examined. One of our goals is to map all the properties ever documented by CHAD; and then attach photographs, plans, and narrative information to the points on the map. Eventually we will have created a database linked to the sites through both historic sources (such as tax assessments or population censuses) and through survey data for information on location, construction date, building type, material, construction system, etc. The use of such digital technology solutions, for example, will make it possible to study the agricultural landscape from a broad perspective, both chronologically and geographically, drawing on evidence from hundreds of different individual studies.

Communication of the results of our work is critical as well—not only to our colleagues, but to the general public who play an important role in the real world of historic preservation advocacy. Thus, we need to seek ways to make our findings more accessible to the public, in a format that lay people can understand and use. In a recent project for the Maryland Historic Trust, we sought to learn about the distinctive characteristics of African American resources in Maryland. As we conducted our fieldwork and encountered the groups and individuals working to protect and preserve these

important resources, we realized that we needed a way to help these people network with each other. Instead of printing our results as another volume of "gray literature" we developed a web site that contained the photographs, drawings, and narrative materials as well as short accounts of the preservation efforts we encountered, the contact information for each group, and links to potential sources of information or funding. Encouraged by that project, CHAD is now in the process of making our collection of documentation available online, hoping to encourage other researchers to incorporate our data in their own work.

Understanding the significance of a building or landscape comes from two perspectives - the building itself and the world it interacts with. If we look closely, buildings and landscapes can tell us a great deal about the people who built and occupied them. Ultimately, fieldwork lets us look under the skin of a building and examine how that building works as part of a much larger, constantly evolving landscape. The most successful fieldworkers will be those who learn to look from both perspectives and who continually seek to expand the range of their fieldwork methodologies, experimenting with new technologies while passing along their own collected wisdom to new generations of students.

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