
Agricultural Resources of Pennsylvania, c. 1700-1960

**Agriculture in the Settlement Period,
c. 1800 - c. 1840**

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Conceptualization: Historical Farming Systems and Historic Agricultural Regions

Pennsylvania presents interesting intellectual challenges for the agricultural historian and archaeologist. The watchword for Pennsylvania's agricultural history is "diversity." The widespread transition to a relatively specialized monocrop or single-product system did not really take hold until after the Second World War in Pennsylvania. Beginning in the settlement era and stretching well into the 20th century, diversity of products was a hallmark of nearly every farming region as a whole, and of individual farms too. As late as 1930, the state Agricultural Experiment Station Bulletin proclaimed "the largest number of farms in Pennsylvania are the farms with some diversity of crops and livestock production."¹ According to the 1930 Federal census, nearly 53 percent of the state's farms were either "General," "Self-Sufficing," or "Abnormal" (mainly part-time) farms. "Specialized" farms were defined as those where at least 40 percent of farm income derived from a single source. These included types labeled variously as "dairy," "cash grain," "fruit," "poultry," and "truck farms."

Over time, regionalism declined in significance within Pennsylvania, yet farming across the state remained surprisingly diverse. Along with other eastern states, Pennsylvania agriculture shared in the general shift more towards specialization, commercialism, state oversight, industrialization, decline in farming population, and the like. This trend is recognized in the context narrative. However, it is

important always to keep in mind that existing literature on Pennsylvania agriculture exaggerates the degree of change before 1950. In 1946, Penn State agricultural economist Paul Wrigley identified “Types of Farming” areas in Pennsylvania. Only the Northeast and Northwest were given descriptors that implied specialization; these were dairying areas. The rest were given names like “General Farming and Local Market section.” Equally significant was the fact that statewide, the top source of farming income – dairying -- only accounted for a third of farm income. To be sure, there were pockets where individual farms specialized to a greater degree (in terms of the percentage of income derived from a single product), but these were the exception rather than the rule; overall even in the mid-20th century, Pennsylvania agriculture was remarkably diversified both in the aggregate and on individual farms.²

Even many farms defined as “specialized” by the agricultural extension system were still highly diversified in their products and processes. This was because so many farm families still engaged in a plethora of small scale activities, from managing an orchard, to raising feed and bedding for farm animals, to making maple sugar or home cured hams. Many of the resulting products would not necessarily show up on farm ledger books because they were bartered, consumed by the family, or used by animals, or sold in informal markets. In other words, they fell outside strictly monetary calculations of “farm income.” Yet they were important aspects of a farm family’s life and took up a good deal of family members’ time. Indeed, we can’t understand the historic agricultural landscape without acknowledging these activities, because they so often took place in the smokehouses, poultry houses, potato cellars, summer kitchens, springhouses, and workshops that appear so frequently in the rural Pennsylvania landscape. These spaces might not be well accounted for (if at all) in a conceptualization that emphasizes commodity production, but they become more readily comprehensible when we take into account the broader diversity of farm productions. Another important benefit of this perspective is that it preserves—indeed reclaims—contributions that a preoccupation with specialized market commodities tends to obscure, for example those of women and children.

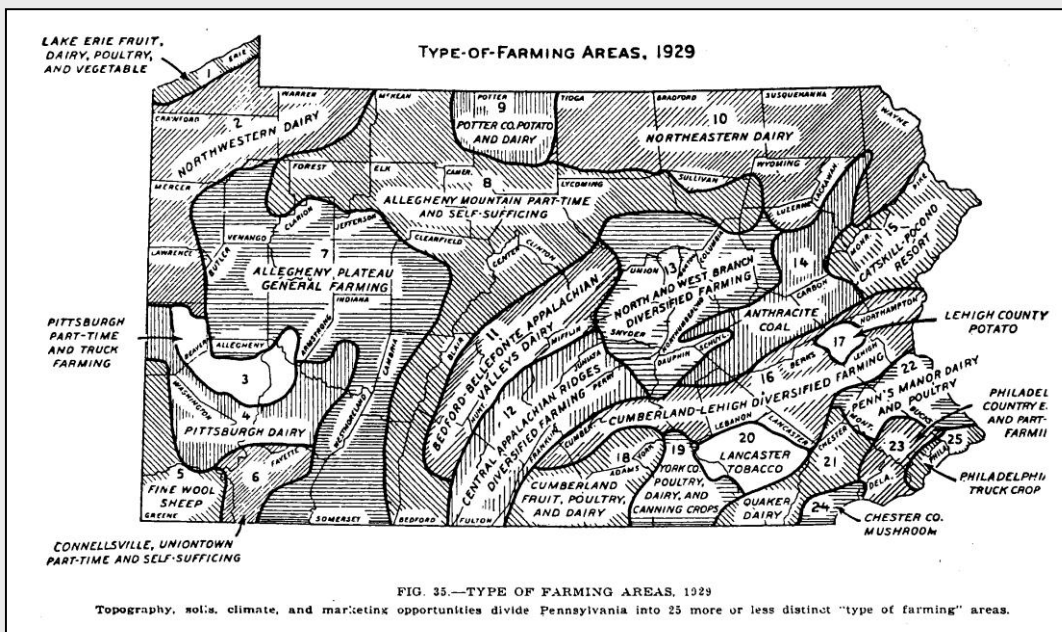
Acknowledging the historic diversity of Pennsylvania farm productions helps to clarify much, but it also raises a fundamental challenge for conceptualizing an approach that will faithfully convey Pennsylvania’s agricultural history, and make

it possible to understand the landscape that was created as people farmed in the past. How can we make sense of this sometimes bewildering variety? Added to diversity of products we must consider a diversity of cultural repertoires; a diversity of labor systems; diversity of land tenure arrangements; varied levels of farm mechanization; 93 major soil series; ten different topographic regions; and growing seasons ranging from about 117 to over 200 days. The concept of a “farming system” was found to be particularly helpful as a framework for understanding how agriculture in Pennsylvania evolved. A “farming system” approach gathers physical, social, economic, and cultural factors together under the assumption that all these factors interact to create the agricultural landscape of a given historical era. Physical factors like topography, waterways, soils, and climate set basic conditions for agriculture. Markets and transportation shape production too. Other components, equally important but sometimes less tangible, form part of a “farming system.” For example, cultural values (including those grounded in ethnicity) influence the choices farm families make and the processes they follow. So do ideas, especially ideas about the land. Social relationships, especially those revolving around gender, land tenure, labor systems, and household structure, are crucial dimensions of a farming system. Political environments, too, affect agriculture.

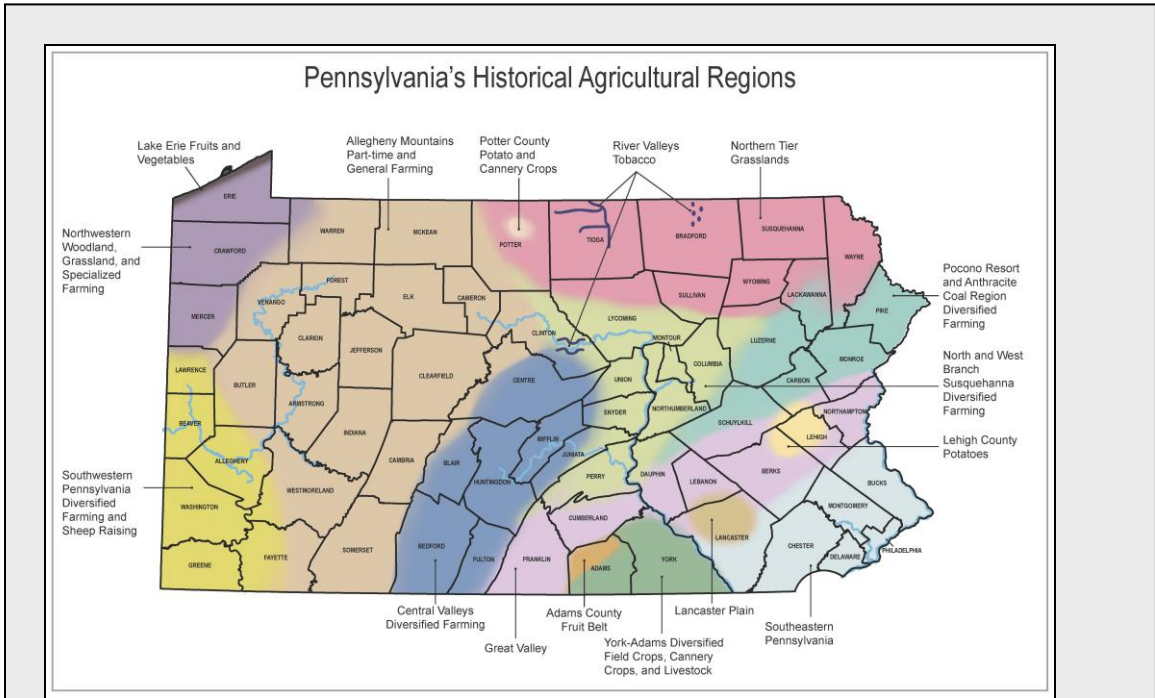
The idea of a “farming system” opens the way to a more comprehensive and accurate interpretation of the historic rural Pennsylvania landscape. For example, because the notion of a “farming system” includes land tenure and mechanization levels, we can identify a distinctive region in the heart of the state where sharecropping and high mechanization levels supported a cash-grain and livestock feeding system. This allows us to interpret the tenant houses, “mansion” houses, multiple barn granaries, large machine sheds, and crop rotation patterns that typify this region. Or, by including cultural forces as part of a system, we can differentiate a three-bay “English” barn from a three-bay German “ground” barn. By attending to labor systems, we can appropriately interpret the Adams and Erie fruit-belt areas that relied on migrant workers. And so on. So whether we seek to interpret German Pennsylvania, the “Yorker” northern tier, home dairying areas where women dominated, or tobacco farming in Lancaster County, the “farming system” approach is key to understanding all aspects of the rural Pennsylvania farm landscape—not only the house and barn.

Identification of Historic Agricultural Regions

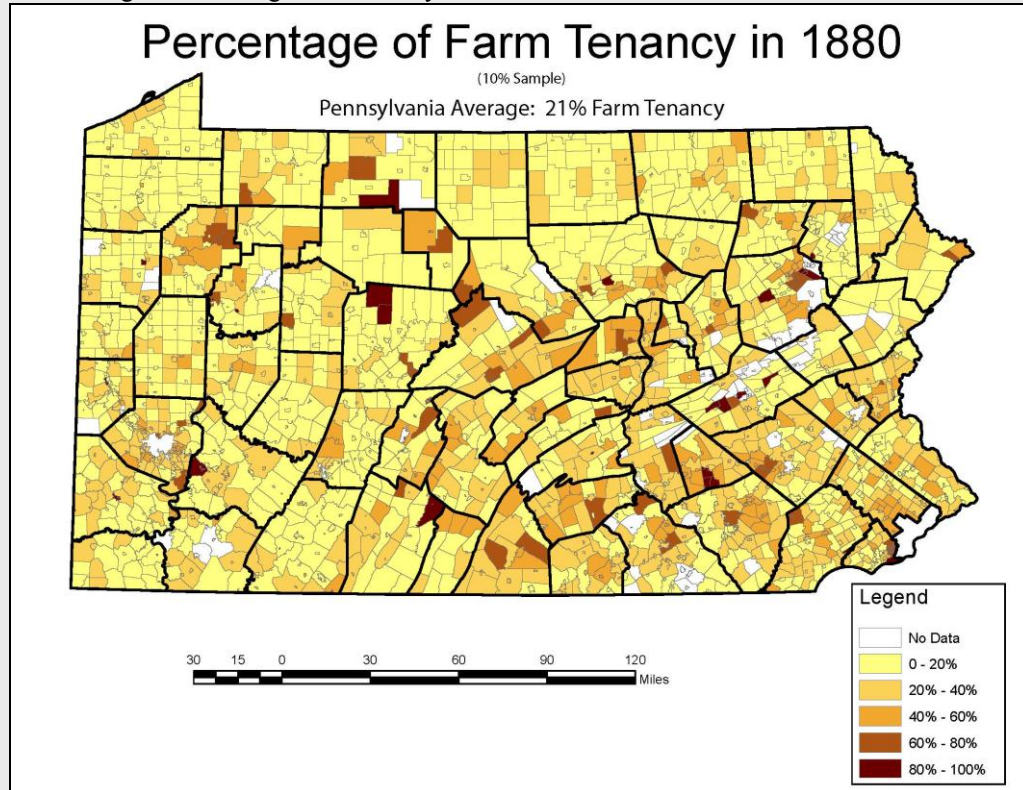
Mapping done by agricultural economists in the early 20th century identified “Types of Farming” areas based on soil types, topography, markets, climate, and production. These helped to establish clear regional boundaries to the extent that topography, climate, and soil types set basic conditions for agriculture, and they also aided in identifying 20th century production patterns. However, the agricultural economists were mainly interested in production and markets; they did not take into account other important factors which shaped the landscape, especially ethnicity, labor patterns, and land tenure. For this cultural and social data, cultural geographers’ work has proven valuable, because it maps information on settlement patterns, building types, ethnic groups, and even speech patterns. And finally, new maps of farm tenancy were generated for this report. Examples of these maps are reproduced below. Together, these resources were used to outline regions that allow us to avoid a “one size fits all” approach on the one hand, and the over-detailed focus on a single farm on the other.



From Penn State College Agricultural Experiment Station Bulletin 305: “Types of Farming in Pennsylvania,” April 1934.



Historic Agricultural Regions of Pennsylvania.



Share Tenants as a percentage of all farmers, 1880.

1 Emil Rauchenstein and F. P. Weaver, "Types of Farming in Pennsylvania." Pennsylvania Agricultural Experiment Station Bulletin # 305, April 1934, 39.

2 Paul I. Wrigley, "Types of Farming in Pennsylvania." Pennsylvania Agricultural Experiment Station Bulletin # 479, May 1946.

Location

The term “settlement” is a very general one. For the purposes of this context, “settlement” goes beyond the initial period when Europeans displaced indigenous peoples through military, political, and biological forces. Where Pennsylvania’s agricultural history is concerned, the settlement period stretched from initial occupancy through the early processes of farm-making and ended gradually as the economy began to mature and distinctive agricultural regions began to emerge. This narrative concerns itself with the settlement period in Pennsylvania’s interior during the period from about 1800 to 1840. Farms in Southeastern Pennsylvania, the Great Valley, and the Lancaster Plain were well established during the colonial period, and those narratives each treat the colonial period at some length. In the interior during the late 18th and early 19th centuries, agriculture and rural life shared some important characteristics in common. This is because everyone was engaged in the same basic processes of occupying the land and clearing it. The processes resulted in such products as logs, potash, maple sugar, cash grains, and whiskey, sent to market on rudimentary transport routes. Population densities were low. Buildings were basic; the 1798 Direct Tax shows that most rural people lived in small log houses and often lacked barns or other farm outbuildings. Thus even though soils, topography, climate, markets, and population characteristics varied considerably, they did not yet wield the influence that they would later exert. Hints of later differentiation were present, to be sure; but overall, the agriculture and landscape had a degree of consistency deriving from its rudimentary nature. Therefore western, northern, and central Pennsylvania are treated as a single unit for this period.

Climate, Soils, and Topography

Pennsylvania climate, soils, and topography vary considerably. The longest growing seasons occur at opposite ends, in the extreme northwest and southeast. Precipitation averages around 41.2 inches per year.¹

Early agriculture in the settlement period

Formal “purchase” from the native Americans occurred in 1682-4, followed by additional acquisitions in 1732 (in what are now Berks and Lehigh Counties); 1736 (the Great Valley region); 1737 (Northampton and Pike counties); 1749 (Schuylkill, northern

Dauphin region); 1754 (south central); 1768 (a swath stretching from the northeast to the southwest; and in 1784 in the northwestern quarter of the state (the “Last Purchase”), which included counties from Tioga westward. One last sliver, in present day Erie County, was added in 1792. However, those dates do not indicate settlement. The French and Indian Wars and then the War for Independence, followed by uncertainty in the early years of the Republic, retarded settlement. After independence, the commonwealth acquired land that formerly had belonged to the Penn family. The state passed a flawed land law in 1792, and thereafter land transfer was a messy business for years. Land speculators like the Holland Land Company, North American Land Company, and Pennsylvania Population Company took advantage of loopholes to temporarily engross huge tracts, especially in northern Pennsylvania.² As a result of these chaotic land policies, squatters predominated in many areas, and only with time were titles sorted out. In most of the state, then, the process of occupying the land and making farms was thus a drawn-out one lasting at least a generation.

A few Dutch and Swedes drifted into the Delaware Valley before 1682, but English control was assured after 1674. By 1730, Europeans had moved into the present day counties of Bucks, Chester, Lancaster, Delaware, and Philadelphia; but population densities were very low even there, less than 19 persons per square mile. The line of settlement moved out to encompass present day Northampton, Lehigh, York, Cumberland, Adams, and Franklin Counties by 1760, and densities also increased. By 1790 Euro-American settlement was moving into the North and West Branch of the Susquehanna, in some of the central limestone valleys, and in the southwest. Yet the line of settlement (moving from the southeast) had not yet reached the present Tioga, Potter, Lycoming, Sullivan, and Luzerne Counties.³ The *Concise Historical Atlas of Pennsylvania* shows the southern half and center of the state as “settled” by 1820, but population density was still under twenty persons per square mile in all but the southeast, south central, and southwest counties. These maps suggest that it was not until after 1850 that the entire state was fully settled.

Settlers in southeastern Pennsylvania came mainly from the British Isles and from German-speaking Europe. Their progeny migrated westward along the Great Valley corridor and northward through the Susquehanna River valley and its tributaries. Settlers came in to the Northern Tier counties after border disputes between Pennsylvania and Connecticut were resolved. These settlers were “Yankee/Yorkers,” either coming from New England directly, or by way of upstate New York. Meanwhile, people came into the southwest from Virginia, Maryland, and eastern Pennsylvania. By 1790, the most

populated counties outside of Philadelphia had between 25,000 and 37,000 inhabitants apiece.⁴

As the new nation developed, these populations were only beginning to furnish domestic markets for agricultural productions. It is commonly thought that, lacking local markets, farm families were forced into self-sufficiency. This stereotype is erroneous.⁵ Almost no farm was self-sufficient (i.e. raised or processed everything it needed on the farm). Rather, farming families followed a diverse set of strategies to obtain their necessities and amenities. They circulated and exchanged goods, services, labor, and products locally, making up with exchange what they lacked on individual farms. And, they sent goods to distant markets, engaging in wider exchange networks that brought them, with other areas of the American back-country, into close contact with global marketplaces. Indeed they were participants in the “consumer revolution” of the period.⁶ Economic historian Diane Lindstrom estimates that at least a quarter of Philadelphia’s intake from its “hinterland” in 1810 was destined for overseas markets; coastal trade and the city itself accounted for the remainder. During the years of the Napoleonic Wars, demand from Europe burgeoned, and American farm families responded quickly.⁷

Families showed remarkable energy in managing to market so many goods despite challenges. Functional roads were few in the late 18th century, except for turnpike finished in 1794 and connecting Lancaster to Philadelphia. An otherwise rudimentary network of roads connected Philadelphia to Reading, York, Carlisle, Harrisburg, Chambersburg, and points north. Other roads skirted the Susquehanna River and penetrated the interior. In the southwest, roads connected Pittsburgh to Greensburg, Uniontown, Bedford, and Washington. By about 1830, turnpike roads extended between Sunbury and Philadelphia; and between Bellefonte and Lancaster, thence to Philadelphia. Turnpikes also connected the northwest to Pittsburgh and the central counties. Minor north-south and east-west roads crossed most Northern Tier counties by the 1830s, and the central counties were traversed by roads such as the one along the route of present State Route 45. Few of these roads sufficed for year-round long-distance shipping, though, and transport was still highly seasonal; at high water times in the spring, hundreds of arks set out from upriver towns such as Catawissa, bound down the Susquehanna or the Allegheny for points along the river where they could be transferred to more improved roads and then moved out to the coast.⁸ Thus into the 1830s, for most of the state agricultural productions that were destined for outside markets had to be suited to traveling far—as far as Atlantic ports, usually Baltimore, but sometimes Philadelphia or New York—under poor conditions.

Products

Small populations, recently arrived and somewhat isolated, were able only to conduct farming on a relatively small scale. True, the average farm size was over 100 acres in many instances, but the actual amount of *improved* acreage was far less, since clearing was still underway even at mid-century. (In Columbia County, for instance, the average farm had more unimproved acres than improved even in 1850.) As a rule, the small numbers of hogs and cattle ran free, and were captured at butchering time. Small crops and free-ranging livestock translated into modest building requirements.

Census data are not available from this period, but travel accounts, gazetteers, tax records, and other sources describe agricultural output for settlement-era Pennsylvania in remarkably consistent terms. High-value, relatively compact and less perishable items fit the bill: potash, wheat, maple sugar, whiskey, cider, clover seed, flax seed, salted meat (especially pork), and the like. Everywhere, trees had to be felled and lumber or potash produced; grains (other than valuable wheat) converted to the more valuable, more easily moved form of whiskey; animals driven out live; and so on. Geographer Thomas Gordon reported in 1832 that “the staples of the county (Bradford) are grain, flour, whiskey, fruit, salted provisions, livestock, and lumber, and when they can be transported to market at a saving price, iron and coal may be added to the number.”⁹ His description of Columbia County was similar: “The exports of the county are estimated at 120,000 bushels of wheat, 4,000 bushels of clover seed, 3,000 barrels whiskey, 300 tons of pork, and a small amount of lumber, some live stock, and some iron castings.”¹⁰ Also, “large quantities of flour and whiskey” were sent to Pittsburgh and then to New Orleans. Greene County also shipped grain to New Orleans.¹¹

Virtually every commentator mentioned whiskey.¹² According to historian Stevenson Fletcher, “a considerable proportion of the corn and rye produced in Pennsylvania [in the 18th century] was marketed as whiskey.” In the interior, whiskey functioned as currency, and there were small-scale distilleries everywhere. The 1794 Whiskey Rebellion was a spirited reaction to an ill-advised excise tax.¹³

Gathering was an important part of woodland economic strategies in the late 18th and early 19th centuries. The famous commentator Hector St Jean de Crevecoeur, in his travels, reported that many people in northern Pennsylvania gathered ginseng – a highly

sought after medicinal root for the China market.¹⁴ In the southwest, Somerset County also had the natural conditions where ginseng would grow, and people there gathered it too.

Animals were driven out on the hoof. This practice eliminated the need for costly winter feeding and shelter, and also reflected the lack of fast, refrigerated transportation. One local history from Harford, Susquehanna County, noted that in the early 19th century “droves of cattle, sheep, and sometimes turkeys were common sights.”¹⁵ Geographer Rebecca Eaton wrote in 1835 that Greene County sent “immense droves” of horses, cattle, sheep, and swine to the east and to Maryland. Small villages, like Boalsburg in Centre County, supplied pasturage for droves and tavern accommodations for the drovers. Erie County residents in the early nineteenth century grew timothy and clover hay and raised stock for shipment eastward on the hoof. Crawford County farmers allowed razorback hogs to graze in the forests, then drove them out to Pittsburgh and Philadelphia in the fall and winter.

Products marketed to distant places made up part of a broader strategy which stressed a diverse mix of products suitable for multiple uses. Most products that could be shipped out could also be consumed at home. Supplementing these in the array were other items that usually couldn’t travel for long distances: corn (because of its bulk relative to value), fresh meats (beef, pork), poultry products, garden vegetables, and fresh orchard products. Animals fed on corn, oats, and hay. By-products such as straw also served important purposes on the farm. Gathered nuts and berries supplemented the family diet. A sampling of items appearing in individual farm family records gives a sense of the diversity. In Union County’s Buffalo Township, one farm couple in 1815-30 mentioned butter, bacon, eggs, oats, buckwheat, flax, and clover seed; wool, cheese, vinegar, soap fat, meat; cider, apples, rye, corn, wheat, beef, pork; and cordwood. Centre County landlord Andrew Gregg’s accounts from 1814 to the 1820s mention meat, potatoes, buckwheat, wool, maple sugar, and oats.¹⁶ In Bedford County, wheat was the top “money crop,” but according to the local history, the settler’s “agriculture was of necessity very diversified,” and they raised corn, oats and timothy hay for animals, rye for brewing, corn, buckwheat, and maple syrup for household consumption, as well as flax and wool for fiber. Many also raised flax and had sheep to provide them with the resources to make clothing.¹⁷

Labor and Land Tenure

Almost everything circulated in local exchange networks of which labor was an integral element. The word “exchange” is used deliberately here (rather than “market”), because little if any cash circulated in early rural America. Rather, farming families traded around goods, labor, and services in their neighborhoods. Just about every household except the very wealthiest lacked something essential; for example, even as late as 1850, only 56% of Susquehanna County farms listed in the manuscript census claimed horses. Neighborhood exchange networks compensated for gaps; for example, people with draft animals would share them around in exchange for goods or labor. Everybody kept careful accounts, valuing these exchanges with currency figures, even if actual cash did not change hands. After a period of time (sometimes years), accounts were “settled” and the whole process began anew.

The goals, aspirations, and tactics of rural families are nicely captured by the word “competency.” The term allows us to avoid focusing on the sterile distinction between “subsistence” and “commercial” activities – since *all* farms produced for market, household consumption, and local exchange. As there was no hard and fast division between “market” and “subsistence” products, neither was there a sharp distinction between “farm” work and “house” work. The phrase “competency” was an elastic concept; one person’s “competency” might be another’s poverty. Webster’s Dictionary in the early 19th century defined it as “property or means of subsistence sufficient to furnish the necessaries and conveniences of life, without superfluity.” Generally, the term connoted a comfortable, propertied (e.g. landowning) independence. This “independence” was collective, not individual; it referred to male-headed households and obscured internal power disparities based on age and gender, and as we have seen, it did not necessarily imply self-sufficiency. Despite its inequities, the idea of “competency” attached value to every household member’s contribution, because autonomy was achieved through the varied strategies of self-provisioning, market sale, and local exchange that have just been described. Because the concept was so elastic, it could expand along with opportunities: succeeding generations, for example, would pursue their “competency” through an altered balance between market sales and self-provisioning. Definitions of “comfort,” of course, also changed over time, so one generation’s luxury became their children’s necessity. Still, even in all its protean forms, “competency” well describes the ethos of rural Pennsylvania deep into the nineteenth century.

A “competency” was achieved through collective labor. Family and neighborhood labor dominated during this period. Men, women, and children all contributed work toward the family sustenance; there was a gender division of labor, but it was flexible. Men usually worked at lumbering, clearing land, building fence, and raising field crops, while women and children tended livestock, made dairy products, and preserved food. But diarist Philip Fithian travelled in Lycoming County in the late eighteenth century and reported seeing even elite daughters milking and reaping, and George Dunkleberger, in his *Story of Snyder County*, claimed that “many of the women were as skilled with the sickle as were the men.”¹⁸ A history of Lycoming County remarked that during the early days “It was a common occurrence for a woman to walk fifteen miles or more, a great homemade basket filled with butter, eggs, and farm produce balanced on her head.”¹⁹ Everyone participated in maple sugaring and often in haying and harvesting too. “Bees” for sugaring, house raising, husking, and other jobs made work a social event.

An August 25, 1830 letter by Sally Monro of Sylvania, Bradford County, to her brother back in Bristol, Rhode Island, paints a portrait of a well-off, well-settled farm family:

I will tell you a little about our domestic affairs. We have rept 1475 sheaves of wheat, ten acres of rye that is pretty good. We have about four acres of corn which they say is the stoutest in the town. The summer has been very warm and our hay has come in very stout.

We have plenty of potatoes and all kinds of garden vegetables. They say we have more apples than any other farm in town. The orchard stand on high ground and the frost did not hurt it. I have plenty of sweet apples to bake and sour apples for pies which are already ripe.

We have 22 peach trees in the garden and some peaches.²⁰ We have six cows and I have made cheese all summer weighing from 10-20 pounds. Cheese is 6-7 cents we sheared 82 sheep. Wool is 37 ½ cents a pound.²¹

We have three pair of cattle (oxen), the same horses we brought from Rhode Island and one colt about three months old. We have 14 geese, nine turkeys and between 30-40 hens and chick and six ... hogs.

Tell Aunt Patty that I heat the oven nearly every day since I came here.²²

Monro may have been embellishing her new life for the benefit of her audience back in New England; it seems a stretch that peach trees would thrive in her locale. But even if we assume a little hyperbole, her description amply demonstrates that inter-connected family labor predominated in this period. Moreover, she showed a lively interest in market prices, reinforcing the point that “market” work was not always associated with men.

During this sorting-out period, land tenure practices were very uneven. Throughout the state there were places where a few large landowners held parcels amounting to thousands of acres, and tried to rent land out to tenants rather than sell it in fee simple.²³ The chaotic state of land law also impeded the transition to fee-simple family ownership.²⁴ In the central limestone valleys, early agreements tended to be between large landowners (such as Phillip Benner, General James Potter, Samuel Miles, etc.) and numerous, unrelated tenants, and they stressed clearing and farm-making.²⁵ A seven-year agreement made in 1822 between Centre County landlord Phillip Benner and William Brower specified merely that the tenant would clear land and erect buildings, rather than pay any kind of rent. Andrew Gregg's accounts (also from Centre County) show that his tenants paid rent in the form of part of their crops, usually in wheat or maple sugar. Terms of rental often were for several years, and Gregg's records show that tenants were not always able to pay on time each year. Tenants were often responsible for supplying tools, fencing in land, etc. Over time, however, the trend was toward smaller holdings (100-300 acres) and dispersed landownership.

Buildings and Landscapes

The economic and social conditions that were shared during the settlement process, regardless of the precise time period, gave rise to a corresponding degree of landscape consistency. The building stock was limited. Houses typically were small and built of log. They might occasionally betray ethnic influences or architectural pretenses, but more often they were single-story, one- or two- room “cabins” that by necessity projected a generic appearance. Farms had few outbuildings. Springhouses, stables, corn cribs, and perhaps a smoke house or detached kitchen would account for other structures that could be found on the farm – but again, few farms would have all of these. Similarly, landscape features were basic: stump fields, small patchworks of crop fields, large expanses of woodland, dirt tracks that passed for roads, and what fencing existed would be the simple “worm” type.

Houses

Typical housing from this period would have consisted overwhelmingly of small, single-pen or two-room log houses. A 1796 tax assessment for West Buffalo and White Deer Townships in Union County lists “houses” and “cabins” of log – either just “log,” “round log,” “scutched log,” “chipped log,” “squared log,” or “hewed log.” Sixty percent of the dwellings listed were cabins and the rest houses.²⁶ The distinction between a “house” and a “cabin” was unclear and probably subjective; a “house” tended to be larger in square footage and to have more than one story. If any of these survive, it is probably the larger buildings. Smaller units may survive as ancillary buildings, or perhaps incorporated into the fabric of later, larger buildings. The 1798 Direct Tax listings for the entire area confirm that log was overwhelmingly the building material of choice, and that most houses were very small, ranging from perhaps 20 by 26 feet all the way down to a cramped 16 feet square. It is difficult to imagine how these buildings could express much architectural differentiation. In the Northern Tier especially, dwellings tended to be quite small, and house values were extremely low in 1798.²⁷

There was a scattering of more substantial, atypical dwellings, erected by local elites. Indeed, the surviving buildings from the period are skewed to represent the upper end of the rural economic spectrum. In Snyder County (at the time Union) the late 18th century Jacob Meyer house shows some typically Pennsylvania German characteristics: story and a half, stone construction, banked, cellar entrance, asymmetrical façade.²⁸ In Centre County, houses erected c. 1830 by Andrew Gregg and James Irvin were two-story, five-bay, center-hall stone Georgian style buildings. These buildings were exceptional and made a statement by virtue of their size, materials, and relative architectural sophistication. In Columbia County, field survey work documented several two-story, three-bay, side-passage Federal era brick houses. In Bradford County, one or two isolated New England center chimney log houses survives. In Connellsville, Fayette county, the Davidson Farm had a three-bay, center-entrance stone house built in the late eighteenth century.²⁹ These dwellings were exceptional in their day and survive only because they were so grand. They probably expressed wealth acquired other than through farming. Gregg and Irvin, for example, came from ironmaster families. Others who are listed in the 1798 Direct Tax as having large stone or brick houses tended to also own large amounts of land and industrial facilities such as gristmills, sawmills, and distilleries.



Standfield house, Potter Township, Centre County, early 19th century. Photo-only site, no site number.



Brick three-bay house, Greenwood Township, Columbia County, c. 1830. Site 037-GR-003.



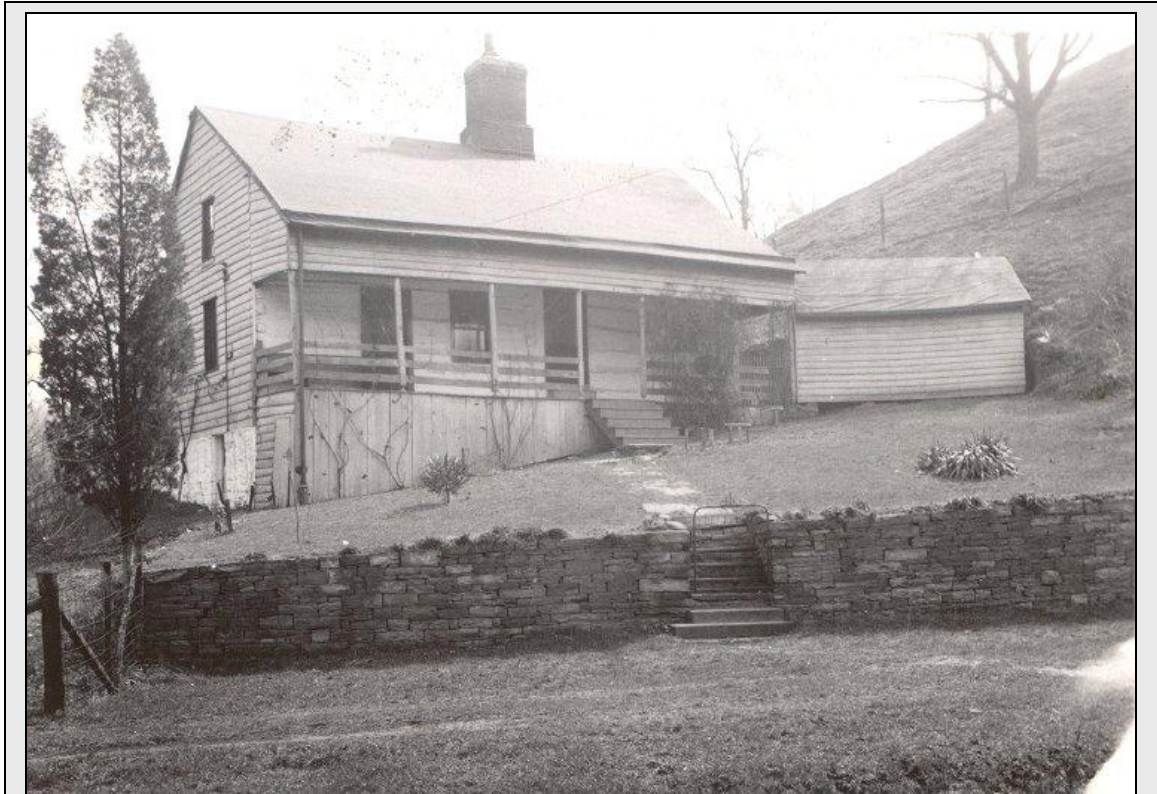
Center chimney New England-style log house, Terrytown, Bradford County, c. 1806. HABS, photographed by Stanley Jones in 1936.



Center-chimney house, Waterford Township, Erie County, early 19th century. Site 049-WAT-003.



Log house near Sewickley, Allegheny County, date unknown. Photographed 1932-5. Charles M. Stotz Photographs, 1901-1975, MSP 21, Library and Archives, John Heinz History Center.



Log house near Elizabeth, Allegheny County, date unknown. . Photographed 1932-5. Charles M. Stotz Photographs, 1901-1975, MSP 21, Library and Archives, John Heinz History Center.

Barns

Documentation suggests that barns were small and that many farms lacked barns altogether. Very few settlement-era barns survive; early barns were probably small, one-story log structures.³⁰ The 1798 Direct Tax suggests that by the turn of the nineteenth century most people who occupied 100 or more acres (and thus were probably farming) had a log barn. Typically the listed barns measured about 18 by 20 feet, though in longer-established areas (for example near Muncy), barns could reach 60 feet in length. The smaller, typical log barn would probably have been all on one level and have a mow or crib; a central threshing floor; and a stable portion. Interestingly, in the Direct Tax for what became Bradford County (for example Wyalusing, Ulster, and Tioga Townships), the most frequently listed barn dimension is thirty by forty feet, evidence that the New Englanders who settled here brought the frame, gabled, un-banked three-bay “English” small barn, also sometimes called the “thirty by forty” because of its most common dimensions. A photo of a similar barn in northwestern Pennsylvania shows a three-bay

organization with large eaves sides central door.³¹ These barns had their entrance in the long side and three sections consisting of hay bay, threshing floor, and stables. This multipurpose barn housed the absolute necessities of settlement-era farming: draft animals and a few cattle to overwinter; perhaps a few sheep, a few tons of hay to feed them; a place to thresh grain and store equipment.

We can make a couple of inferences about all of these barns, based on the sketchy information from the Direct Tax and other sources. One is that at least in the case of the “thirty by forty,” New England cultural patterns were being replicated on the landscape of the Northern Tier already. The other is that even if the “thirty by forty” had a different footprint from the 16 by 18 foot log barn more commonly seen in central Pennsylvania, the functional organization of both types was probably quite similar. The very few documented ground-level log barns (in eastern Pennsylvania) were organized essentially like the thirty by forty: a door in the long side leading to a central threshing floor, flanked on one side by livestock quarters and on the other by a mow or crib for storing hay and grain. So, while culturally the forms may have differed, they both reflected very similar agricultural systems: winter shelter for a few select animals, limited grain storage and hay production, labor intensive methods.



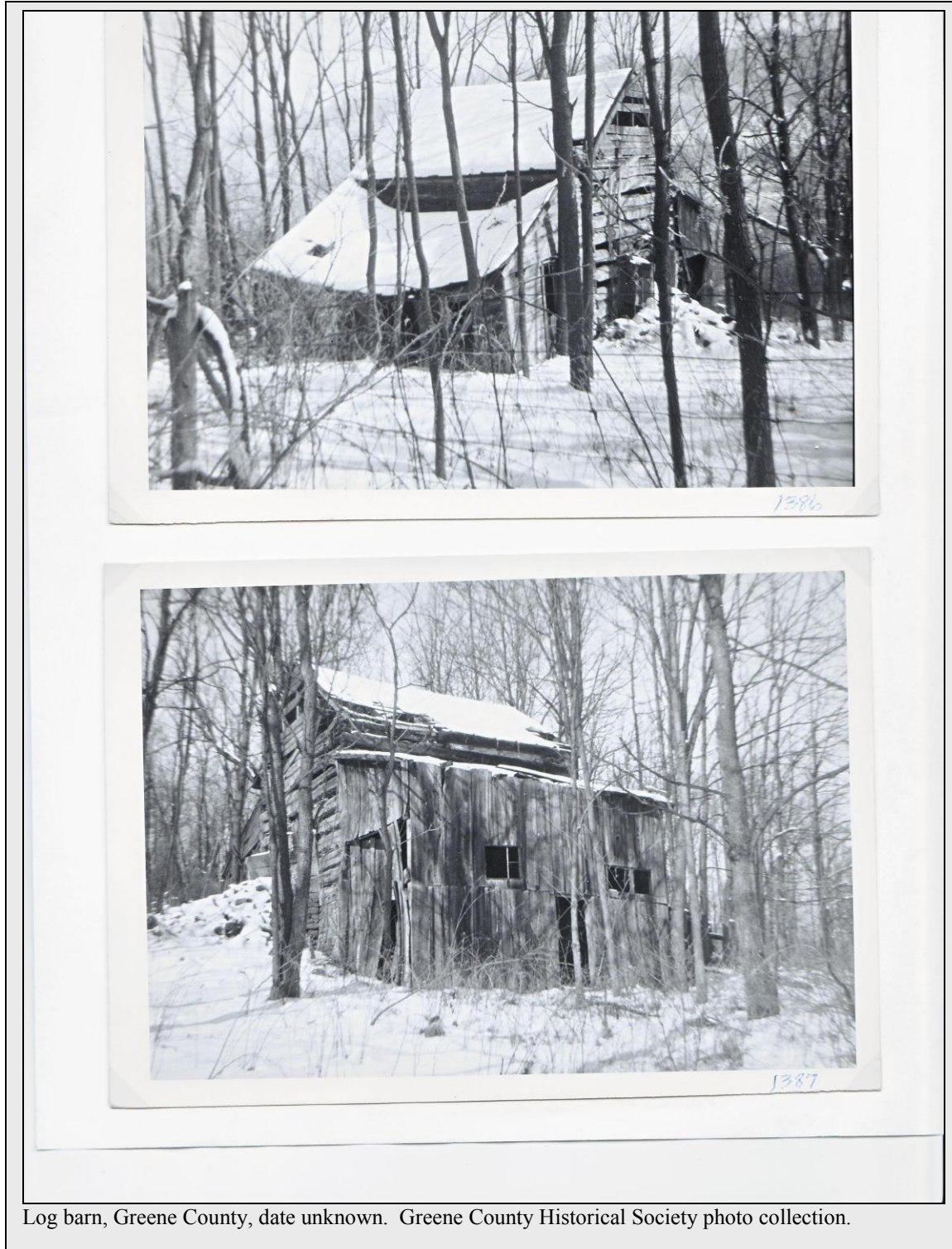
Three-bay “English” barn, Sullivan Township, Tioga County, early 19th century, later altered for poultry. Site 117-SU-003.



Barn near Towanda, Bradford County. Two early English barns were connected and ventilators added later. Photo-only site, no site number.



Interior log crib, Dunlop barn, Potter Township, Centre County, early 19th century. Photo only site, no site number.



The Direct Tax did list a few very large barns in areas that were recently settled. It is impossible to tell what these looked like or how many farms they served. A few large, double-crib log barns survive from the period. For example, the Dunlop Barn in Georges

Valley, Centre County, is a double-crib log barn, 68 by 36 feet, with the characteristic features of the Pennsylvania Barn, which originated late in the 18th century in the Pennsylvania German heartland. Its diagnostic features include: banked (or ramped) construction, eaves side in the bank; and the projecting overhang, also called a “forebay.” This forebay could hang free; it could be supported on one or both gable ends; or sometimes it could be supported on posts. Early “Sweitzer” barns (the Dunlop barn is one) have asymmetrical gable ends, because the interior framing did not incorporate the forebay; later barns have symmetrical gable ends, because framing was adjusted to incorporate the forebay. The Dunlop Barn and others of its size that date to this period probably served more than one farm. This inference is made because so few individual farms could possibly have cultivated enough crops and kept enough livestock to justify this big a barn; and because there were quite a few landowners with many tenants during this period.

Outbuildings

On a few farms, small outbuildings or temporary shelter probably housed poultry, hogs or sheep, and dairy work. The commonest outbuildings mentioned in the 1796 Union County local tax records were: stable; barn; springhouse; kitchen; shop; still house; mill; and corn-crib. Among the buildings or structures mentioned in Andrew Gregg's accounts (1790-1814) were log stables, a storehouse, and a springhouse. The 1798 Direct Tax lists kitchens, smokehouses, milk houses, wash houses, and springhouses on farms in the interior, but only a small minority were listed with any of these buildings. A few artisans' buildings, such as weaver shops, occasionally appeared, as did “still houses” and even one or two “corn houses” (probably granaries). Virtually all were small (twelve to fifteen feet square were common dimensions), and made of log. Fieldwork has not documented any of these ephemeral log buildings. A few stone springhouses and one stone ice house could date from this period, but definite dates are not available.

Springhouse

The most common outbuilding documented for this period was the springhouse. A springhouse is a structure built over a spring or creek. In this period, springhouses were built usually of log, but occasionally of frame, or stone, generally with a gable roof. The

lower portion is usually masonry, since water either runs through it or rises up into it. Springhouses have a square-ish or rectangular footprint. Sometimes they are banked. Usually they are only one story, but sometimes they have working spaces over the ground-floor level. A gable end door provides access. Few openings pierce the walls. Inside, there is usually a channel for water to run through, or to confine the spring; often there will be masonry or flagstone floors, and low ledges on which milk pans were set.

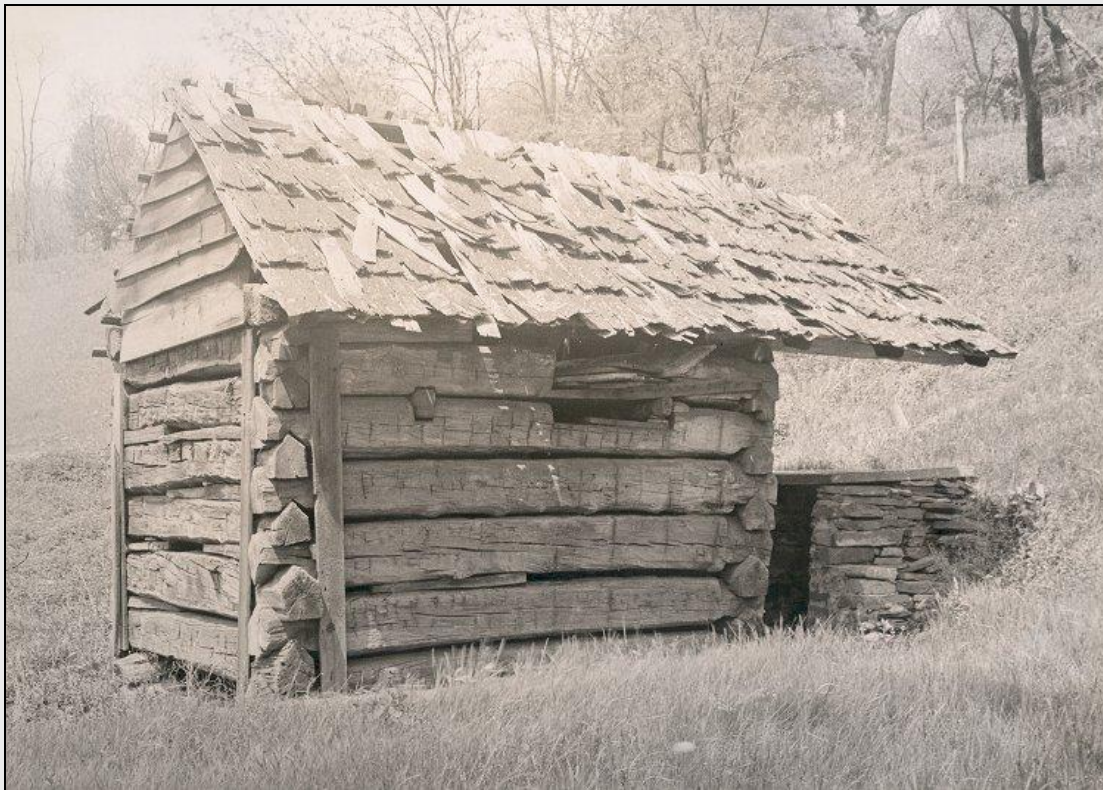
The purpose of a springhouse is to protect a valuable water source, but also to provide a space with a constant, cool temperature for cooling milk and other perishables. The springhouse's siting is of course determined by where the spring is; so with respect to the farm buildings, its location is unpredictable.³² Larger springhouses could also have served as still houses.



Lowry Springhouse, near Frankstown, Blair County, 1785. Photographed c. 1932-35. Charles M. Stotz Photographs, 1901-1975, MSP 21, Library and Archives Division, Senator John Heinz History Center



Springhouse, Samuel Harper House, near Carmichaels, Greene County, c. 1800. Photographed c. 1932-35. Charles M. Stotz Photographs, 1901-1975, MSP 21, Library and Archives Division, Senator John Heinz History Center.



Springhouse near Washington, Washington County, date unknown. Photographed c. 1932-35. Charles M. Stotz Photographs, 1901-1975, MSP 21, Library and Archives Division, Senator John Heinz History Center

Landscape Features

A traveler passing through Northern Pennsylvania in 1832 has this description of a farm. He encountered a

neat, low, red farmhouse, in one of the broader valleys. It stood a few rods from the road, with a pretty garden and some fruit trees near it. The barn and out-buildings were nearby. A large pasture, in which were a number of cattle and sheep, stretched along the hill side, back of the dwelling. In front, on the opposite side of the road, was a meadow with a clear, spring brook... running through it, and stealing away round the foot of a neighboring hill into the forest. Further up the valley along the meadow, was a field of corn, potatoes, oats, and rye, and a small patch of summer wheat. This was the farm.³³

This description is likely embellished, but it identifies important landscape elements such as pasture, meadow, small crop fields, circulation pathways, gardens, and orchards. Typical features might have included stump, brush, or worm (also known as rail or

zigzag) fencing; very small crop fields; and some meadow land. Cattle and hogs likely roamed free in unfenced woodland. Some communities retained the colonial custom of a “commons” and even put up common holding areas during the fall roundup. Large woodlots supplied lumber for cash income, building needs, and the sugar bush. Stump fields were a common sight then, and appeared well into the next half of the century and even into the 20th century.³⁴

Few landscape remnants survive from this period. Possibly, elements of early siting and circulation pathways might remain. Early farms were often sited to take advantage of springs and solar heat, rather than oriented toward the roadside. In some places within the study area, modern studies have confirmed that present boundary tree lines, wood lots, and rock fence lines remain as evidence of these early patterns. In Miles Township, Centre County, for example, existing treelines and fence lines match up almost exactly with original survey lines from the 1790s.³⁵

Property Types and Registration Requirements – Criterion A, Agriculture

Property Types: These property types apply to properties in all regions.

Farmstead

A farmstead is defined here as encompassing the farm dwelling[s]; barn; outbuildings; and the immediately surrounding land on which these buildings are situated. It normally excludes cropland, meadow, pasture, orchard, and woodland, but would include such landscape features as yards, windbreaks, ponds, gardens, ornamental trees, decorative fences, driveways, etc.

Farm

A farmstead plus crop fields, meadows, pastures, orchards, woodlots, etc., including landscape features such as fences, tree lines, contour strips, streams, etc. and circulation networks.

Historic Agricultural District

A group of farms which share common architectural and agricultural landscape features; are linked together by historic transportation corridors, including roads, railroads, paths, and/ or canals; and together express characteristic features of local historical agricultural patterns.

A. Criterion A, Agriculture

This section first outlines general consideration for Pennsylvania as a whole, with reference to considerations related to labor, gender, and tenure. These are followed by Criterion A requirements for each region and subregion.

General Considerations for Pennsylvania as a Whole

National Register eligibility with respect to agriculture in each Historic Agricultural Region of Pennsylvania will depend upon how well a given property reflects the historical farming system in that region. It is very important to remember that Criterion A significance should be assessed in relation to how a given property typifies a farming system, not in relation to whether a property is exceptional or unusual. A property should exemplify a farming system in all its aspects. The totality of a property's representation

in the areas of production, labor patterns, land tenure, mechanization, and cultural traditions will determine its National Register eligibility.

Historic Patterns of Agricultural Production

A key characteristic of Pennsylvania agricultural production from settlement to about 1960 is diversification on small, family farms. Therefore, a farmstead, farm, or historic agricultural district must reflect diversified agriculture through a variety in historic buildings and landscape features. It is critical to note that diversified agricultural production involves two facets:

1) a mix of products. This mix varied with time, place, and culture. For each region, the narrative explains the prevalent mix.

-AND-

2) a variety in use for those products, ranging from direct household consumption, to animal consumption, barter exchange, and cash sale to local or distant markets. In general, as far as use is concerned, over time a larger proportion of products went to cash markets, and money figured more and more prominently as farm income. However, production for family consumption, animal consumption, and barter exchange continued to occupy a significant position well into the twentieth century, with a notable surge during the Depression years. Historic resources should reflect the variety of household and market strategies employed by farming families.

Social Organization of Agricultural Practice

Historic production patterns are necessary but not sufficient to determine eligibility. Social organization of agricultural practice had a profound influence on the landscape that must be recognized. Labor, land tenure, mechanization, and cultural practice should be considered. For example, in the Central Limestone Valleys, share tenancy was an important and enduring practice that significantly influenced the architecture and landscape of farmsteads, farms, and farm districts. In the Northern Tier, conversely, high rates of owner-occupation lent a different appearance to the landscape. The level of mechanization was related to labor practices, and also shaped the landscape through field patterns and architectural accommodation (or lack thereof) for machinery storage. Insofar as cultural factors influenced agricultural production or practice, they should be taken into account in determining the eligibility of farmsteads, farms, and farm districts. For example, Pennsylvania German food ways may have influenced agricultural production patterns and hence architectural forms; Yankee/Yorker families brought with

them the English barn (which, because of its organization, shaped farming practice) and the penchant for classical revival styling.³⁶

Issues of Chronology

To be determined significant with respect to Criterion A for agriculture, a farmstead should either:

1) possess a strong representation of typical buildings and landscape features from one chronological phase of the region's agricultural history,

-OR-

2) possess a strong representation of typical buildings and landscape features that shows important agricultural changes over time.

How to Measure a Property in its Regional Context

Whether it depicts one chronological period or change over time, a farmstead, farm, or historic agricultural district will normally be significant under Criterion A only if:

1) its individual production, for the period in question, reflects the average or above average levels for its township in the same period. (This can be determined by comparing the farm's manuscript agriculture figures to township figures.)

2) its built environment reflects that product mix. (The Narrative explains how different agricultural building types relate to agricultural production.)

3) its built environment reflects locally prevalent social organization of agriculture including a) levels of mechanization, b) labor organization (including gender patterns) and c) tenancy.

3a) levels of mechanization: in highly mechanized areas (relative to the state levels) we would normally expect an array of machine sheds, machinery bays integrally placed in barns, horse-power extensions, etc.³⁷ Conversely, in low-mechanization areas such as the Northern Tier, these facilities will likely be less visible.

3 b) labor organization: Patterns of collective neighborhood labor may be present; for example, a butcher house might be located near the road. For early phases of agricultural development, we would not expect to find overt architectural accommodation for hired laborers. But in the wage-labor era, those expressions would range from accommodations on the

farm (rooms over springhouses, wings of houses) to purpose-built migrant housing. Mechanization could affect labor organization because it eliminates workers. Architectural and landscape elements that illustrate patterns of labor organization should be assessed for significance (with respect to agriculture) based on the level of clarity, intensity, and chronological consistency with which they show labor patterns. For example, if a c. 1850 farm house has a c.1880 workers' wing with back stair and no access to the family living area, that is both a clear and chronologically consistent illustration of shifts in hired labor's status.

Establishing significance for the gender organization of labor is more complex. We could think in terms of a continuum: from work almost always done by men—to work almost always equally shared by men and women – to work almost always done by women. In general, the farmstead and even the farm should be regarded as a mixed-gender workspace, because so much farm work was shared. However, there are a few cases where work was not only clearly associated with either men or women, but also had spatial and architectural manifestations to match. So we should focus on these cases when assessing significance with respect to gender patterns of agricultural labor. In the regions under discussion here, besides work done in the house (by women), several cases fit these criteria. On Northern Tier farms (1830–1900), men generally milked, and women made butter; the former activity occurred in the barn, the latter either in a farmhouse ell or in a separate “dairy kitchen” sited between house and barn. Later, fluid milk sale (mainly organized and conducted by men) replaced home butter making. Some sort of facility for home dairying is a *sine qua non*; one that is sited and oriented efficiently with respect to house and work-yard would be of greater significance than one that was not. And, a farmstead that contained both an ell or kitchen and a milk house located by the barn would demonstrate the shift in gender patterns better than a farm with just one of each. Another important case is pre-1945 poultry raising, which was dominated by women. If a pre-1945 poultry house is located well within the house's orbit, it suggests that expresses more significance with respect to women's agricultural labor than a pre-1945 poultry house that sits on the edge of a field. And, if a farmstead has both a pre-1945, small poultry house located between house and barn, and a large, post-1945 poultry house sited far from the house,

this illustrates changes in gender patterns better than a farmstead that has only one poultry house.

3 c) Tenancy: This aspect of social organization will be reflected most in historic agricultural districts (rather than on farmsteads or farms). A historic agricultural district should reflect prevalent levels of tenancy for its region. So, we would expect to see fewer documented tenant properties in Northern Tier districts than in a Central Limestone valleys district. Where individual farms or farmsteads are concerned, a farm or farmstead with a documented history of tenancy are significant for tenancy, but only in regions where tenancy rates were historically higher than the state average.

Cultural Patterns

If, in instances where a farm has a strong, documented connection to a particular ethnic group, its architecture and landscape should show evidence of that connection. [See Narrative for discussion]. Significance should be evaluated by the degree of clarity with which ethnic heritage is expressed (i.e. is it highly visible in more than one way, for example in both construction details and use?); and in cases of farmsteads, the extent to which multiple buildings and landscape features express ethnically derived agricultural practice.

In every case, even where all of these substantive requirements are met, there will be degrees of quality in representation. In other words, it is not just the presence of links to the region's agricultural history (i.e. the overall property's integrity) that makes a property outstanding, but also the quality and consistency of those links. Where possible, nominations should attempt to assess what we might call "intensity" or "layering" of representation. This intensity of representation may appear in the way the farm's component parts preserve historical relationships. For example, if a farmstead retains a springhouse near the main house and a milk house sited near the barn, that is an especially intense illustration of changes in the dairy industry. The idea of "layering" connotes the multiple meanings that can be contained in the siting, layout, and content of the architectural and landscape features. The farmstead and farm features together might, for instance, offer expressions that are simultaneously cultural and local, and also show how wider trends affected agriculture. For example, a Northern Basement Barn indicates cultural heritage (in placing an "English barn" above a basement) and agricultural change (in dairying-oriented basement level). Another example of "layering" could be if the

economic and cultural importance of livestock is illustrated by several buildings and landscape features – not just one or two. And, there could be a variety of farm workspaces that testify to the diversified strategies historically pursued by farming families in the region.

When assessing agricultural change, remember to consider not only changes in barn, outbuildings, and landscape, but also in the farmhouse. For example, on a farm where large-scale production was accompanied by a shift in gender patterns of labor, look for changes in the farmhouse's interior work space; typically these might include smaller, more isolated kitchen spaces and more spaces devoted to display or leisure. Or, where dairy processing became centralized, dairy dependencies attached to a house might be converted to other uses. Rural electrification and the shift away from wood for fuel could also affect interior farmhouse organization. For example, with electrification, the summer kitchen's function often moved back inside the house.

Property Types and Registration Requirements for Criterion A. Agriculture: Specific to the Settlement Period, c1800-c1840

Registration requirements like those that have been established for later time periods cannot apply without modification to this period, because of the relative rarity of resources and the lack of quantitative and qualitative historical sources. Looser estimates of farm production, social patterns of labor, the presence of multiple flexible enterprises, and cultural influences must suffice. Tax records sometimes give indications for individual farm production; the 1798 Direct Tax lists buildings (as do the 1796 tax records for early Mifflin County); and occasionally there may be ledgers, letters, or travel descriptions relating to an individual property. Lacking these, reliance will have to be placed on the general descriptions of agriculture such as those cited in this document.

It seems likely that properties with resources dating to this period will fall into two categories. One would be those which retain remnants of a typical early farming operation. The other would be those which originated as elite establishments and therefore retain exceptional buildings.

By definition, since there is only one chronological period covered in this portion of the context, a property could:

A. possess a strong representation of typical buildings and landscape features from this chronological phase of the region's agricultural history.

To be determined eligible for illustrating just this period, a farmstead should retain integrity, and a small log house and a small tripartite log or frame barn. A kitchen, springhouse, or other outbuilding dating to this period would be a plus. Alternatively, an elite farmstead would retain an elite house (not necessarily stone or brick, but two stories, and larger than the local average as noted in the Direct Tax), and a "thirty by forty" barn or a Pennsylvania barn (probably a log crib barn). A farm should retain clear evidence of original property boundaries and siting. A historic agricultural district should have a collection of connected farms that collectively show these attributes. It is highly doubtful that very many properties exist that can meet these standards and illustrate solely this early period.

Note, however, that a property could also demonstrate change over time and include settlement-era resources along with later resources. It would need to meet registration requirements for a specific region, and also retain some elements from the settlement period as described here.

Property Types and Registration Requirements – Criterion B, Association with the lives of Significant Persons

These requirements apply to properties in all regions. To be eligible under Criterion B, a farmstead, farm, or historic agricultural district must establish a documented link to an individual who had a sustained and influential leadership role which resulted in a verifiable impact on local, state, or national agricultural practices, trends, or thought. A “sustained” leadership role would mean long-term involvement in important agricultural organizations such as the Grange, Dairymen’s League, rural electric cooperative, and so on. Impact should be demonstrated, not asserted. An agrarian figure who achieved a higher than usual degree of productivity or prosperity in farming would not normally meet this standard, nor would one who was an early adopter of new agricultural methods or technologies. But, an individual who influenced others to adopt new practices could. For example, Robert Rodale clearly played a foundational role in the rise of the organic farming movement nationally. On a more local level, a hatchery owner who initiated a new industry in an area, thus creating a shift in production patterns on many farms, might qualify.

Property Types and Registration Requirements – Criterion C, Design and Construction

These requirements apply to properties in all regions. Typical examples are encouraged to satisfy Criterion A for agriculture, but average or ordinary examples are not likely to qualify under Criterion C for Design and Construction. A farm or farmstead will not be eligible under Criterion C simply because it has farm buildings that retain integrity.

Under Criterion C, to be eligible as property must exhibit the “distinctive characteristics of a type, period, or method of construction or that represent the work of a master, of that possess high artistic values, or, as a rural historic district, that represent a significant and distinguishable entity whose components lack individual distinction”.³⁸

This MPDF follows the evaluation models established by the 1992 MPDF *Farms in Berks County* and the 1994 MPDF *Historic Farming Resources of Lancaster County*, which defines standards for architectural significance of farm buildings as "a rare or intact example of a period, style or type" or as a “noteworthy example of a particular building type ...”.³⁹ To be eligible under Criterion C for Architecture, a farm building, farmstead, farm, or historic agricultural district must possess physical characteristics that specifically reflect aesthetic, cultural, craftsmanship, or production values associated with regional agriculture and rural life. Farm buildings and structures must exhibit qualities of design, workmanship, and artistic merit that are tied to the period of construction.

This document explains the specific Criterion C issues that apply to farm buildings and structures. Criterion C relates to significance primarily for Architecture, Art, and Engineering. While most farm structures will not be evaluated individually, structures notable for their construction technology or design may factor into the Criterion C significance of a property.

Evaluation conventions for the architectural style of dwellings are well established so they are not covered here. However, what constitutes architectural significance for farm dwellings and agricultural buildings and structures in the area of Agriculture is less widely defined.⁴⁰ This section lays out some considerations for how to assess architectural significance for farm buildings and structures based on their engineering and design characteristics related to agriculture.

As with any other architecturally significant building type, resources must conform closely to the seven aspects of integrity. Significance must be demonstrated, not merely asserted.

What does qualify as a significant design?

A barn might qualify if its design reflected essential characteristics of specific barn types, such as Pennsylvania bank barn, Stable barn, English Barn etc. (The salient architectural features of each type are defined within the narratives that accompany this MPDF.) The significant elements of barn layout (location of threshing floors, hay mows, stables, granaries; typical interior organization for a given type; vertical work-flow arrangement where relevant) should retain integrity. The same would be true for outbuildings, for example if a granary or spring house retained essential characteristics of its type. A house, barn, or outbuilding that has been altered or modified to accommodate changing maintenance habits, popular taste, or the convenience of the farmer would not be considered significant unless the new features are demonstrably tied to regional patterns in agricultural buildings and the built environment for the period of significance. For instance, a mid-19th century vernacular farmhouse that was Colonial Revitalized in the early 20th century might be significant for its stylistic features outside this MPDF but would not be architecturally significant under this MPDF because the alterations are not associated with the needs and priorities of farm life. But a farmhouse modified to reflect important transitions in the relationships of farm family members to each other, labor, or the market could be considered significant (such as the addition or removal of quarters for hired hands, cooking facilities for feeding threshing crews, social spaces separated from spaces devoted farm matters, etc). Changes reflecting access to modern amenities and willingness to adopt modern amenities could also be considered significant, such as the addition of a bathroom, running water, a heating plant, or electrification. However, the design features reflecting these changes must be demonstrated to be part of a local or regional pattern of construction; individual, personalized or idiosyncratic alterations that lack design features not adopted elsewhere in the community would not be considered significant under Criterion C, but would support significance under Criterion A for their association with labor and production patterns. In the post-World War 2 era, many farmhouses have undergone dramatic changes in ways that make them indistinguishable from contemporary suburban residences in their materials, styles, amenities, and use. Thus it will be difficult to evaluate the Criterion C significance of post war farmhouses without further study.

Design includes massing, proportion, fenestration, and ornament. Ornamentation will be very important in determining Criterion C eligibility. It could include decorative ironwork (hinges especially); roof-ridge cupolas; gable-end “stars”; painted or trimmed louvers; datestones; painted decorations; cutout designs; cornice detailing; brick-end patterns; and bracketing.

Design could include examples of marked visual relationship of buildings to one another through such qualities as colors (historically), siting, proportions, and materials. Thus significant design can potentially apply to a farmstead or even a historic agricultural district.

Design also includes overall layout of the farmstead or farm, for instance if buildings are arranged in a recognized, regionally typical pattern in orientation and layout, such as linear organization of eastern and central Pennsylvania (as described by Henry Glassie, Joseph Glass, and others); or; farmsteads bisected by a road as is common in the Northern Tier (as described by Trewartha).

What qualifies as significant workmanship?

Workmanship is evidenced in quality of masonry, timber framing, durable construction, including evidence of skilled workmanship in details such as hardware or even nails. Masonry, for example, might exhibit carefully cut stone rather than fieldstone. Another facet of workmanship would be cases where there is a good quality example of particular construction method such as log, *blockstanderbau*, plank, timber frame, Shawver Truss, etc. Workmanship applies primarily to individual buildings.

What qualifies as significant “artistic merit”?

This is the most hard to define category of the three. It connotes skill in achieving desired aesthetic qualities. For example, careful proportions, sensitive siting, and originality of design are important components of aesthetic merit. Again, ornament is where aesthetic merit shows most clearly, for example in locally characteristic designs for hardware, weathervanes, bracketing, and the like.

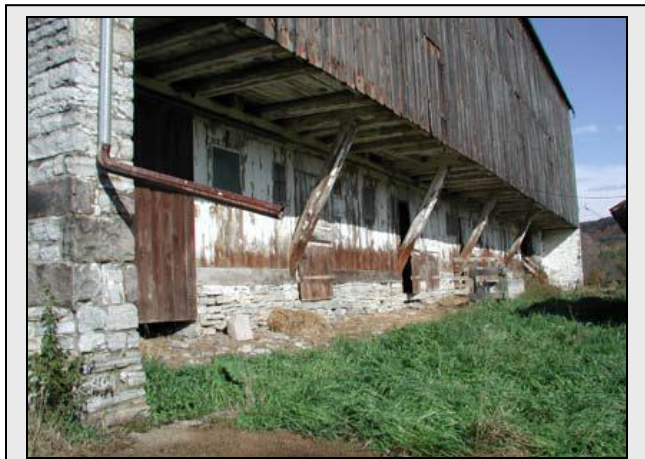
Examples

Example 1: Hodge Barn, Centre County, c. 1870.

This is a double-decker Pennsylvania barn with decorative ornament, double bankside bridges, and struts under the forebay, located in Centre County. This barn would qualify under Architecture because of its design features (double decker with multiple mows and floors), its workmanship (technical mastery represented in bridges, struts, and interior framing), and its artistic merit (decorative ornament).



Ornament on Hodge Barn, Centre County



Hodge Barn, Centre County, struts under forebay

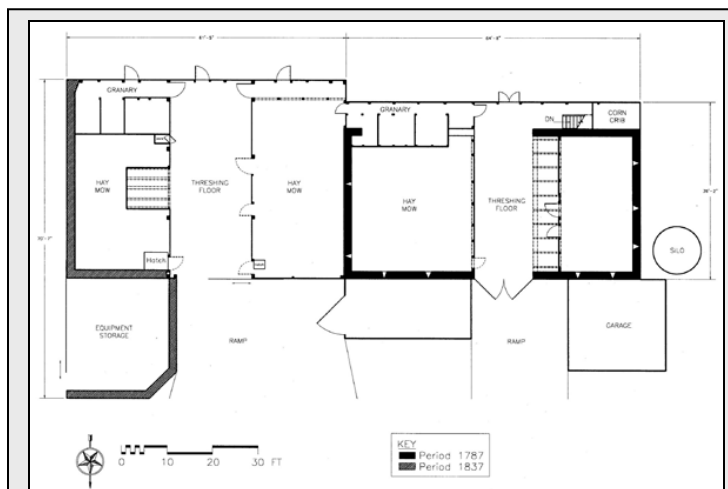


Hodge Barn, Centre County, struts under forebay

Example 2: The Bertolet Barn in the Oley Valley of Berks County, 1787 and 1839. This barn shows the evolution of the Pennsylvania Barn. The 1787, stone portion has a Germanic *liegender stuhl* framing system; forebay granary with bins; two mows flanking a threshing floor; and intact stable level. It is significant because of its design (the multi-level system was worked out to perfection), workmanship (the masonry and the timber framing) and artistic merit (in its proportions, materials, etc). The 1787 date is inscribed over the bankside door. The 1839 portion (also dated, thus affording a rare chronological benchmark) is significant for different reasons: it shows adaptations of framing systems, but still assembled with a high degree of skilled workmanship; it shows continuity of design and artistic merit from the earlier portion.



Bertolet Barn, Oley Valley, 1787 and 1839.



Bertolet Barn, Oley Valley, Berks County, floor plan of upper level. University of Delaware Center for Historic Architecture and Design.

Example 3: the Plank Barn in Cumberland County. This brick-end barn was built in 1853. It is significant for its design, workmanship, and artistic merit. Its significant design features clearly include attention to simple proportions. Its workmanship is important in the significant masonry technique needed to create the openwork patterns in the gable ends. Its artistic merit is represented in the diamond



Plank Barn, Cumberland County, 1853

motifs. The datestone helps to establish chronological frameworks for these barns. The owner manufactured a local plow and the barn is evidence that he was consolidating his wealth.

Example 4. Smokehouse, Tulpehocken Manor, Lebanon County, late 18th century. Most examples of architectural significance will likely be larger buildings such as barns, but this smokehouse (in Lebanon County) is an example of a smaller building which might qualify because of its masonry (which qualifies both under workmanship and design, because its decorative corner quoins are clearly ornamental) and the hand-wrought ironwork, which includes a bar against thieves which is inscribed with the owner's name and date. The building clearly exhibits all the characteristics of its type.



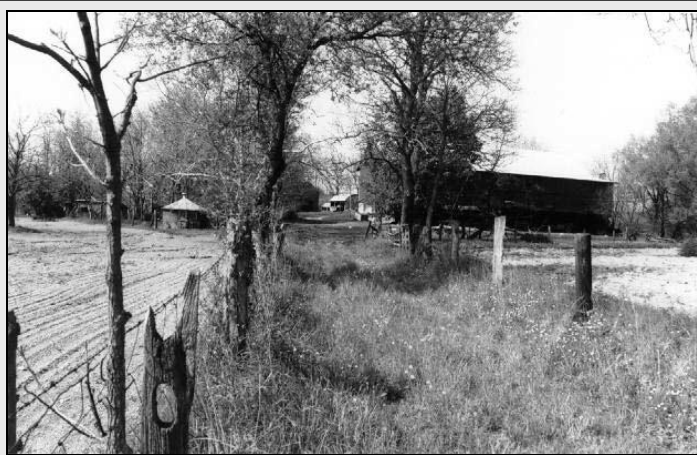
Smokehouse, Tulpehocken Manor, Lebanon County, late 18th century

Example 5: Chicken house at Landis Valley Museum, Lancaster County, early twentieth century. Although in poor condition, this chicken house, located in what is now the Landis Valley Farm Museum, embodies the character-defining features of “modern” housing recommended by the extension services and growers associations for optimum management of large flocks. The massing, proportion, and fenestration, as well as the interior arrangement maximize efficient work flow and healthy stock management.



Chicken house at Landis Valley Museum, Lancaster County, early 20th century.

Example 6: Joel Dreibelbis Farm in Berks County. Properties can be significant under Criterion C for reasons other than their architecture. The farm plan with the siting of the buildings in relation to each other and to the surrounding fields make up a carefully planned complex. The spatial organization of the buildings and the land use patterns, which include a wet meadow, reflect traditional German labor and conservation ethics.



Joel Dreibelbis Farm, Berks County, farm lane, fields, outbuildings. Pennsylvania Historic Preservation Bureau file photo.

Property Types and Registration Requirements – Criterion D, Archaeology

These requirements apply to properties in all regions. The examples below are not meant to be an exhaustive list of ways in which a farm or farmstead site could be eligible under Criterion D in Agriculture; instead, they are meant to provide a limited overview of current research into the archaeology of farms or farmsteads and of data that these excavations have yielded. Other datasets could yield significant information about agriculture. In addition, many of these research topics pertain equally well to both demolished and extant farms or farmsteads. In addition, keep in mind that archaeology can be used to support evaluation under any Criterion or area of significance.

To be eligible under Criterion D, a property must “have yielded or...be likely to yield information important in prehistory or history.” For Agriculture, although farms and farmsteads may contribute other (or various types of) information to the study of Pennsylvania history important information on archaeological farm properties in Pennsylvania is information that contributes to the understanding of the major themes identified in this context either for the state or for the individual agricultural regions or for both. To recap, these themes include representation of agriculture of one time period or representation of agricultural change over time; representation of typical production, in terms of both production and use; and representation of labor patterns, land tenure, mechanization, and cultural traditions. These requirements should not be considered in a vacuum; they must be examined in the context of the cultural milieu of the historic agricultural regions developed elsewhere in this MPDF.

Based on current research in historical archaeology, the registration requirements for archaeological properties that are farmsteads in Pennsylvania are that the site provide important information on changes to landscape and the built environment over time; on the use of agricultural products; on labor and land tenure; and on cultural patterns. To be eligible under these registration requirements, a site must provide important information on the topics listed below and must also demonstrate integrity. For archaeology, integrity should be measured in light of the current state of archaeological knowledge for that region, the research questions being addressed, and the unit of analysis. For example, the standards of integrity for a region without a robust archaeological record would be less stringent than for an area that is well-documented archaeologically. In addition, a site where the significance lies in its ability to provide information about change over time

should have discrete deposits that can be directly associated with different time periods. The above are only two general examples to guide assessments of integrity.

Change Over Time

Agricultural resources may yield important information about modifications to the landscape to accommodate both farming and changes in farming. The creation of a farm obviously involves alteration of the landscape; archaeology can document this alteration. For example, Mary Beaudry (2001-2002: 137-138), working at Milton Farm in Scotland, was able to document how the landscape was altered to accommodate the creation of a farm dedicated to raising sheep. Excavations revealed the massive drainage efforts that were undertaken to turn the land from marsh into productive pastureland. Therefore, important information would document how farmers modified the landscape to begin farming as well as to keep up with changing agricultural practices in their region.

Archaeology can also provide important information on the evolution of the built environment. “The rendering of a farmstead on an atlas dating to the middle of the 19th century does not mean the site sprang from the ground full blown... (Catts 2001-2002: 145).” Often, buildings were moved or reused over time (Beaudry 2001-2002: 130). In some cases, buildings were never even documented in the historical record or the documentation is contradictory (Garrison 1996: 24, 32). These data can provide important information on how farmers responded to the larger movements and innovations in agricultural practice for their regions, documenting both the degree to which farmers followed the latest prescriptions, and the amount of time it took for these ideas to diffuse from other areas (Beaudry 2001-2002: 130; Catts 2001-2002: 145). Archaeology can also provide important information on how changing patterns of refuse disposal illustrate larger changes in farming practice. For example, archaeologists were able to tie modernization theory into their study of South Carolina farmsteads by examining refuse disposal at these sites (Cabak, Groover, and Inkrot 1999: 35). Comparing the density of artifacts at both “modern” and “traditional” farmsteads, archaeologists were able to document the ways that disposal patterns reflected modernization. In addition, useful features may be filled with refuse later on. Mary Beaudry (1986: 39) documents the filling in of water-related features, pointing out that that process can be related to “...an ongoing series of changes made in response to technological innovations, economic and social pressures...” etc. Catts (2001-2002: 148) also documents a trend of refuse disposal in specific dumping areas away from the farmstead. The timing and reasons for this change could provide important information

on the evolution of agricultural practice, as well as on the degree with which innovations diffused from other areas.

Agricultural Production

In terms of production, archaeology can provide important information on agricultural production for a market economy. One of the most fruitful lines of evidence, faunal analysis, has the potential to reveal a great deal of important information regarding how market forces shaped production patterns on farms. By comparing faunal remains from both rural and urban sites in Massachusetts, archaeologists were able to document changes in rural production to meet urban demand (Bowen 1998). The percentage of calves in urban assemblages was much higher than in rural assemblages; therefore, it appears that increased production of milk for urban areas also led to increased production of veal for those same areas. Rather than spend precious resources on animals that were useless for dairying, farmers would sell male calves to urban consumers (Bowen 1998: 143).

Examination of faunal disposal patterns is most profitable when done in conjunction with oral historical or other information (Whittaker 1999: 53-54). In Iowa, for instance, archaeologists found that, in general animals that were slaughtered for farm consumption were generally either burned or discarded; rarely, they were buried. The existence of a large, rapidly filled pit, filled with more remains than would be necessary for a farm family, therefore, pointed out that slaughter for market was taking place at this site (Whittaker 1999: 53-54). These types of data could provide important information on the degree to which individual farms participated in the market system.

Labor and Land Tenure

In terms of labor and land tenure, archaeology can produce important information on the interplay between land tenure and changes over time. For example, archaeologists in Massachusetts were able to correlate changes to the landscape with specific changes in ownership in Estabrook Woods (Garman et al. 1997: 65-66). One owner clearly modified the yard to create better drainage. In addition, as ownership changed, the field layout also changed: earlier field features (mounds for corn cultivation) were incorporated into later field patterns. This type of information could be especially useful if different owners represented different ethnic groups. For example, archaeology could provide important information on the changes wrought when a Welsh family purchased a farm from a Pennsylvania German family, and how those changes are manifested in the archaeological record.

Aside from providing important information on individual farms and individual ownership, archaeology can provide important information on the effects of larger events on the farming culture. For example, during the Napoleonic Wars in Europe, European demand for American goods (including agricultural products) rose dramatically. With this in mind, archaeology can document the effects of this heightened demand on agricultural production and practice in each agricultural region in Pennsylvania (Garman et al. 1985: 73). In addition, the Civil War was another event that had a dramatic impact on agricultural society. Besides raids, forage, and simply the movement of large bodies of troops across the agricultural landscape, this event occasioned a tremendous loss of life and shortage of manpower after the war. In the southern United States, this loss of manpower hastened the mechanization of many farms. Archaeology could demonstrate how this loss of manpower was manifested in the landscape and material culture of Pennsylvania's agricultural regions (Catts 2001-2002: 149).

Labor and land tenure also ties into several major research themes within historical archaeology, including status (e.g. Miller 1980), class (e.g. McGuire and Walker 1999), and ethnicity (e.g. Stine 1990). In terms of status, the archaeology of Pennsylvania farms can provide important information about the ways in which farmers displayed their status. For instance, investigations in New Jersey suggest that farmers chose to display their status by improving their agricultural holdings, as opposed to participating in the consumer culture (Friedlander 1991: 27). Ceramic and glass artifacts indicated a status position that was not in keeping with the farmer's status as derived from the historic record. Tenant farmers, on the other hand, may have more fully embraced consumer culture since there was little use in improving structures and land that they did not own (Rotman and Nassaney 1997: 56). Archaeology within Pennsylvania's agricultural regions could provide important information on the general applicability of these findings.

Status, in combination with ethnicity and role (owner, tenant, etc.), has the potential to yield important information on the social hierarchy of agriculture. For example, statistical analyses in North Carolina found that the material remains of African American landowners were more similar to those of white tenants than to those of either African American tenants, or white owners (Stine 1990: 40). African American and white tenants, on the other hand, were nearly impossible to distinguish. Overall, ethnicity played a role in the ranking of landholding farmers; however, economics appears to have played a

more important role than ethnicity in the rank of tenant farmers. Investigations in Pennsylvania could test this model across regional lines.

Closely related to the above themes of ethnicity, status, and role, is the concept of class. Class has variously been defined as “the relationship of a social group to the means of production” (McGwire and Walker 1999: 160), as a description of a fixed position in society, and as a relative measure of the relationships between different social groups (Wurst and Fitts 1999: 1). According to some archaeologists, however, regardless of the definition of class, its role has not been sufficiently examined in the archaeological record; the historical archaeology of class has been “meager.” (Wurst and Fitts, 1999). Therefore, this concept may yield important information for the study of Pennsylvania agriculture. For example, in New York state, archaeologists examined the manifestations of class between servants and their employers in Binghamton and found that artifact types and locations can represent different classes within the same property and that mixed assemblages may be the result of different class structures on the same property (Wurst 1999: 17). In agricultural regions of Pennsylvania where migrant labor was important, this type of study could produce important information on the differences between the owners and the workers. In addition, Wurst (1999: 13) demonstrated how, at a rural tannery, the owners minimized the material cultural differences between themselves and the workers.

Cultural Patterns

In terms of cultural patterns, archaeology can provide important information about the degree of cultural exchange that took place in agricultural communities (i.e. assimilation and acculturation). In some areas of New Jersey, for example, English and Scottish farmers borrowed certain architectural elements from their Dutch neighbors; archaeology may be able to document this exchange in other areas, such as land use and other material culture. In addition, the historical record indicates that the Dutch maintained many of their ethnic ties, including language; however, other aspects of material culture, such as ceramics, indicate that some cultural exchange was taking place (Scharfenberger and Veit 2001-2002: 68). For Pennsylvania, archaeology can provide important information on assimilation within the cultural milieu of the agricultural regions discussed within this MPDF.

Archaeology can also provide important information about cultural patterns, as manifested in religion and religious practice. For example, in Arkansas, archaeology, in conjunction with the documentary record, was able to document the degree to which one family maintained its Jewish heritage, despite being isolated from any large Jewish

congregation. The faunal assemblage demonstrated that this family did not observe kosher law; however, the documentary record points out that the family was active in establishing a synagogue in New Orleans and was still a participant in the larger Jewish world. It appears, therefore, that the family's location in an isolated, non-Jewish area led to certain changes (e.g. not keeping Kosher law), but did not break all of their ties to the Jewish community (Stewart-Abernathy and Ruff 1989: 97 and 105). In Pennsylvania, archaeological investigations at a Quaker-owned farmstead in Chester County were able to provide important information on the interplay (and contradictions) between Quaker belief and Quaker participation in the larger market system (Bailey et al. 2004:131).

Faunal Studies

Although not one of the overarching themes in Pennsylvania agriculture, faunal analyses have the potential to provide a great deal of important information about the above themes. For example, past archaeological studies have used faunal analyses to examine the use of the landscape and change over time, as well as status. By combining oral history with faunal analysis, archaeologists in Missouri were able to provide information on different processing methods and disposal of fauna (Price 1985: 46-47). For example, smaller animals, such as squirrels, would have been processed in the yard, leaving some bones there. Other bones, however, would have been discarded at the margins of the yard after the meal. Larger animals, such as pigs, would have been slaughtered near the smokehouse (Price 1985: 48). In areas without standing remains, or where spatial relationships are not clear, this data could provide important information on the layout of agricultural properties through time. Also, the use of wild animals in the diet can point out the status of the site's inhabitants. Both higher status and lower status farmers would likely have a larger percentage of wild animals in their diet, either through conscious choice, or due to economics (Scharfenberger and Veit 2001-2002: 64).

Conclusion

The registration requirements for archaeological properties that are farmsteads in Pennsylvania are that they must provide important information on the themes developed in this MPDF. It is important that the important information relate not only to the themes, but also to the themes as they are manifested in each agricultural region. Broadly, these themes are change over time, agricultural production, labor and land tenure, and cultural patterns. In addition, a separate category, faunal analysis, has the potential to yield important information on several of the themes identified in the MPDF. Aside from significance, as represented by the potential to yield important information, farmsteads must also display integrity. The assessment of integrity should be based on the

archaeological record of a particular region, as well as the research questions and the unit of analysis.

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Statement of Integrity

This Statement of Integrity discusses the seven categories of integrity as defined by the National Register, for each of the three Property Types (farmstead, farm, historic agricultural district) defined in this context. This statement applies to properties in all regions.

Location:

Integrity of Location refers to the requirement that buildings and landscape elements remain in their original location. Normally, a building loses eligibility if it has been moved. However, where a farmstead is concerned, farm buildings present a challenge to the normally straightforward rule. Historically it has been very common to move and reuse farm buildings. Some, like poultry houses, were actually designed to be easily moved. Other types of smaller farm buildings were frequently rearranged. The New England Connected Farm complex, for example, resulted from moving buildings. Therefore, if an agricultural building has been moved, and the change in location can be interpreted as a reflection of changing agricultural patterns, integrity of location has not been compromised. If a farm building has been moved or reused after the period it is supposed to represent, integrity of location is not present.

Integrity of Location for a farm is well defined by the SR 30 context, which says “an agricultural property must be located either where it was constructed or where important trends or patterns in agriculture occurred.... Siting with respect to natural features and topography, use of local and indigenous materials, relationship to roadways, the presence of native species... and other responses to the natural environment all add to integrity of location.”⁴¹

Integrity of Location by definition is present in a historic agricultural district, as it is unlikely that an entire area would be relocated.

Design:

To quote the Georgia agricultural context, design is the “combination of natural and cultural elements that create the form, plan, style, and spatial organization of a property.”⁴²

For individual farmstead buildings, design includes such elements as siting, orientation, form, massing, proportion, fenestration, location of doors, roof types, and ornament. Integrity of Design applies to both exterior and interior elements. For houses, interior integrity is well established elsewhere; for barns and outbuildings, interior integrity of design refers to the presence of significant plan elements characteristic of a given barn type. So, for example, an English Barn should retain the characteristic one-level, three-bay layout with mow, threshing floor, and stables arranged crosswise to the roof ridge. A Pennsylvania Barn should exhibit the characteristic multi-level work-flow arrangement, and the diagnostic features of the type (forebay, banked construction, and so forth.) Another aspect of interior design would be framing systems; while these are covered under Workmanship, they also fall under Design because often they were assembled to permit hay tracks, expand storage space, and delineate spatial divisions both vertically and horizontally. Barn and outbuilding interior alterations that show significant agricultural changes in a region do not compromise integrity, because they can contribute to significance based on change over time. However, if they postdate the period of significance and/or obliterate historical fabric, then integrity is not present. For example, a Pennsylvania Barn whose lower level was cemented and fitted with stanchions for dairy cows in the 1930s could retain integrity because it illustrates changes within a period of significance, but if its entire lower level was gutted, expanded, cemented, with new partitions in the 1980s, it would likely not retain integrity.

Farmstead layout and the relationship of buildings to topography are important elements in Integrity of Design. Farm layout should retain integrity with respect to farm labor patterns for the period of significance in the region where the farmstead is located. In most cases, this means spatial organization to facilitate family and neighborhood labor. So, for most pre-1930 farms, a poultry house, detached dairy house, or hog facility should show a siting relationship to both house and barn, usually being situated between house and barn, or in a clear relationship to the house's dooryard (as in the Yankee Northern Tier) or *vorhof* (more common in German Pennsylvania), or in an arrangement where all buildings are closely clustered. Integrity of farmstead design also can apply to characteristic cultural or regional patterns. In the Northern Tier, for example, it was common for a road to bisect the farmstead, whereas in German Pennsylvania, a linear or court-yard organization was more prevalent.

For farmstead landscape elements, Integrity of Design applies to whether the farmstead retains traces of the fabric and location of boundaries, lawns, fences, ponds, circulation elements (paths, drives), gardens, farm lanes, orchards, and ornamental plantings. It would be rare for these to survive in their entirety, but some vestiges should be present.

Integrity of Design also applies to the collection of buildings on a farmstead. Most farmsteads will contain a mix of contributing and noncontributing buildings and structures. A determination must be made as to whether there is too high a presence of noncontributing elements. In such cases, it is important that the farmstead adequately reflect the composite patterns of the relevant agricultural region and period. For example, a farmstead might have an early wood-stave silo, a c. 1940 concrete stave silo, and a c. 1975 Harvestore silo all clustered together, next to a barn complex that includes a c. 1900 Northern Basement barn, a milk house, and a c. 1950 cow shed. In this context, the noncontributing Harvestore silo does not detract from Integrity of Design, because its scale and siting relate to the historical fabric. On the other hand, a farmstead may have a Pennsylvania Barn surrounded by a 1990s livestock loafing shed twice its size, and a 1980s manure lagoon. If modern livestock-handling facilities dwarf the historic building in scale, or if they are sited so close as to overshadow the historic fabric, then Integrity of Design is doubtful. However, it should be noted that in many cases, modern livestock handling facilities are sited away from older buildings, and in these cases (especially if the modern facilities are all concentrated in one place), Integrity of Design may still be present. Scale and location should be considered in determining Integrity of Design in cases like these.

At the farm scale, Integrity of Design is present only when a significant proportion of acreage remains. It is desirable, though not an absolute requirement, if continuity of use is present – i.e. crop production, pasture, livestock raising, and so on. In addition, a farm's Integrity of Design depends on the extent to which it retains traces of field divisions, fields (such as small fields or historic strip cropping) property boundaries, treelines, hedgerows, fencing, woodlots, circulation paths, and the like. If continuity of use is present, it is unlikely that all historic landscape features will have survived intact, because of the needs of modern farming; but at least some traces should be evident. If large-scale monocropping resulted in the removal of field boundaries, woodlots, treelines, fencing, and circulation paths in the 1990s, Integrity of Design may have been lost.

A historic agricultural district retains Integrity of Design when its constituent farms have an acceptable level of integrity collectively. Since contributing resources are counted

individually (so, each resource, even within a farmstead, would be counted), this must be determined with respect to whether and how the sum total of contributing resources creates a coherent whole. For example, there may be cases in which one or two farms are included because they have one outstanding building, even though its other resources are not exceptional. But overall, there should be a consistent presence of contributing resources on farms that make up the district. Also, elements of the historic transportation routes, waterways, etc. that connected the farms in the district should remain.

A historic agricultural district's integrity of design depends very much upon landscape features. Intact historic field patterns, treelines, ponds, disposition of pasture and woodlot, etc. should count heavily in an assessment of integrity in a district. Consider also that since farm fields, waterways, and woodlots are such crucial components of an agricultural district, their integrity should weigh equally with architectural integrity of buildings. So for example, a district might contain buildings where there has been some impairment to integrity, but if many landscape features are clearly intact, the overall district's integrity would still meet National Register standards. Another example would be a situation where small patches of modern development are interspersed within the boundaries of a historic agricultural district. In a case like this, the total number of noncontributing resources might be relatively high, but overall integrity would still meet National Register standards because the land area occupied by the intrusions would be minimal compared with the total area taken up by the district.

Setting:

Integrity of Setting with respect to a farmstead has two dimensions. Integrity of Setting can be present with respect to the farmstead's interior organization, for example if it retains its original relationships among buildings, natural features, and landscape elements that make up the farmstead. Integrity of Setting also applies to the farmstead's surroundings, so at least part of a farmstead (one or two sides at least) should border on open space, woodland, or agricultural land. If a literal spatial buffer is not present, Integrity of Setting may still be present if the farmstead retains visual buffers. For example, what if a farmstead lacks much original acreage, and abuts on a modern subdivision? It may retain Integrity of Setting if it is visually set off from the subdivision through such means as topographical features. However, if not, the farmstead probably does not retain Integrity of Setting.

Integrity of Setting with respect to a farm normally involves continuity of use. There may, however, be cases where continued farming with modern methods has all but wiped

out historic farm landscape elements such as patterns of crop rotation and field organization, hedgerows, treelines, shade trees, rock piles, fencelines, fences, and the like. In extreme instances, Integrity of Setting may be compromised by continuous farming. An example would be if 1930s aerial photographs showed all of these features, and a present-day site visit showed that a large monocropped field had supplanted these earlier farm landscape features. Integrity of Setting for a farm is also present if a farm abuts open land, woodland, and/or historic transportation corridors.

Integrity of Setting with respect to a historic agricultural district can be reckoned with respect to internal relationships among buildings, landscapes, natural features, and transportation corridors. So for example a district along a historic canal corridor should include canal features like locks, masonry lining, and the like; a district in a sharecropping region should include a number of farms that were historically and thus architecturally interrelated. A historic agricultural district possesses Integrity of Setting if its external surroundings continue to reflect general historic patterns and use.

Materials:

Integrity of Materials refers to the presence of “key exterior materials from the period of significance”⁴³ Integrity of Materials is well covered for houses elsewhere. For the other buildings of the farmstead, barns and outbuildings often are constructed, or reconstructed, of recycled materials, and integrity of materials is present as long as the recycling can be interpreted as contributing to significance for agriculture. On a farm property, some materials may be organic – such as a fenceline made of rubble, trees, and spontaneous growth. (However, the original vegetative material of crops, or the original fence, does not need to be present.). A historic agricultural district retains Integrity of Materials if its constituent properties possess Integrity of Materials collectively. As well, in districts Integrity of Materials can refer to the presence of key materials across property boundaries, or along shared property boundaries. Remnants of irrigation systems would be an example.

Workmanship:

Integrity of Workmanship refers to the retention of traditional or historic craftsmanship. These include such familiar skills as wood joinery (log, plank, post and beam framing), masonry (stone and brick), but also skills more closely related to agriculture such as fence building, contour plowing, windbreak planting, crop rotation, garden construction, farm pond construction, or farm planning. Workmanship can also refer to the skilled use of technologies that are not necessarily hand-tool derived. For example, the Shawver Truss, a barn framing system popular c. 1900, combined artisan skill with industrial

technologies. Evidence of recycling or reuse may contribute, as long as it is part of a pattern or historic trend. Integrity of Workmanship applies mainly to the farmstead buildings and landscape features. However, collectively Workmanship could conceivably have an impact on the overall appearance of a historic agricultural district in some instances, for example, if in a district a group of farms collectively exhibits particularly adroit arrangement of contour strips.

Feeling:

Integrity of Feeling refers to the “Ability to evoke the aesthetic sense of a particular time and place.”⁴⁴ This is an intangible quality, which depends to some extent on integrity of design, setting, materials, and workmanship. If the farmstead, farm, historic agricultural district, or the general area continues under agricultural use, integrity of feeling is enhanced. Integrity of Feeling also is present if a property retains a sense of scale characteristic for its period; the interrelationship of the human and natural that is so important in agriculture; if there are many vantage points from which agricultural activity or evidence of agricultural activity are vividly apparent.

Association:

Integrity of Association refers to the “direct link between the property and the... events and persons that shaped it.”⁴⁵ For significance with respect to agriculture, a farmstead or farm must have contributed to a working farm for its period of significance. The presence of historic landscape features related to agriculture is a key aspect of Integrity of Association. Close attention should be paid to identifying intact or remnant features. For example, are crop field size, scale, shape, and patterns are retained from the pre-contour stripping era? Are there remnants of early woodlots or sugar bushes? Is there evidence of land use such as pasturing? A majority of farms in a historic agricultural district should have a continued association with agriculture for the period of significance. To ensure Integrity of Association, the inevitable “intrusions” should be kept to a minimum. However, a historic agricultural district could conceivably have a high percentage of noncontributing properties relative to an urban district. For example, a concentrated 25-acre subdivision with 50 noncontributing houses might be contained within a 1,000-acre historic agricultural district with fifty contributing farms. Even though technically, the subdivision elevates the percentage of noncontributing properties, it does not reduce Integrity of Association, because it is such a small percentage relative to the continuously farmed (and contributing) acreage in the remainder of the district land area.

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Note: a more extensive general bibliography is available through the Pennsylvania Agricultural History Project website.

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Endnotes

¹ E. Willard Miller, ed., *A Geography of Pennsylvania* (University Park, PA, 1995), 47.

² Sherman Day, *Historical Collections of Pennsylvania*, 1843, 620-621, mentions that Robert Rose at one point controlled 100,000 acres in what is now Susquehanna County.

³ Edward Muller, ed., *Concise Historical Atlas of Pennsylvania* (Philadelphia: Temple University Press, 1989), maps pp 86 and 83.

⁴ Historical Census Browser, <http://fisher.lib.virginia.edu/collections/stats/histcensus/>

⁵ Bettye Hobbs Pruitt, "Self-Sufficiency and the Agricultural Economy of 18th-Century Massachusetts," *William and Mary Quarterly* 3rd ser. 41 (July 1984): 333-364; Carole Shammas, "How Self-Sufficient Was Early America?," *Journal of Interdisciplinary History*, Vol. 13, No. 2. (Autumn, 1982), pp. 247-272.

⁶ Elizabeth Perkins, "The Consumer Frontier: Household Consumption in Early Kentucky," *Journal of American History* September 1991: 486-510; Richard Bushman, *The Refinement of America* (1982).

⁷ Diane Lindstrom, *Economic Development in the Philadelphia region, 1810–1850*. New York: Columbia University Press, 1978.

⁸ *Hazard's Register* 15: July 1829. Edwin M. Barton, *History of Columbia County* (Columbia County Historical Society, 1958), p 45, quotes a Danville newspaper of 1824 records that 100k bushels wheat, 3000 bushels clover seed, 3000 barrels whiskey, 250 tons of pork were sent downriver by arks and rafts.

⁹ Thomas Gordon, *Gazetteer of the state of Pennsylvania*, 1832, p. 61. See also de la Rouchefoucauld, 1795, quoted in *The Settler*, volume III No. 1, February 1955, p. 30-31.

¹⁰ *Ibid*, p. 112-113.

¹¹ Rebecca Eaton, , *A Geography of Pennsylvania, for the Use of Schools, and Private Families*. Philadelphia: Key and Biddle, 1835, 202; *Hazard's Register* April 1833, 239.

¹² Samuel R. Brown, *The Western Gazetteer* (Auburn, NY, 1817), 336.; *History of Crawford County Pennsylvania* (Chicago, 1885), 240; Samuel W. Durant, *History of Lawrence County, Pennsylvania* (1877), 92

¹³ Stevenson Fletcher, *Pennsylvania Agriculture and Country Life*, volume 1, page 290-91.

¹⁴ Crèvecoeur, St. John de (J. Hector). *Journey into Northern Pennsylvania and the State of New York*. Translated by Clarissa Spencer Bostelmann. Ann Arbor: University of Michigan Press, 1964. Original published 1800, p 182, mentions ginseng.

¹⁵ *Harford Township Susquehanna County Pennsylvania 1790-1940*, p. 348. See also C. B. Johnson, *Letters from the British Settlement in Pennsylvania* (1819), pp. 76-79.

¹⁶ Charles Snyder, *Union County, Pennsylvania, a Celebration of History* (200), p. 37. Andrew Gregg Account Books, PSU Special Collections.

¹⁷ Ben Van Horn, *Bible, Axe, and Plow...* (Apollo, PA: Clossen Printing, 1986), 153.

¹⁸ Wolf, George D. *The Fair Play Settlers of the West Branch Valley, 1769-1784: A study in Frontier Ethnography* (Harrisburg: Pennsylvania Historical and Museum Commission, 1969), p 53; George Dunkelberger, *The story of Snyder County from its earliest times to the present day* (Snyder County Historical Society, 1948), p. 299.

¹⁹ 1939 *Picture of Lycoming County*. Pa Writers' Project of the WPA, supervised by Frank H. Painter, 67.

²⁰ Munro was likely being optimistic about peaches; they did not usually do well in this climate.

²¹ Cheese could have been produced from sheep's milk, but there is no evidence that this occurred in Pennsylvania at the time.

²² This was posted on the Tri-Counties Genealogy & History Sites of Joyce M. Tice, <http://www.rootsweb.com/~pabradfo/mornings.htm>, accessed June 2005.

²³ Lucy Simler, "Tenancy in Colonial Pennsylvania: the Case of Chester County." *William and Mary Quarterly* 3d ser., 43, no. 4 (October, 1986): 542–569; See Sherman Day, *Historical Collections of Pennsylvania*, 1843, p 620-21. *Letters from the British Settlement in PA*, 1819, puffs the area but should be heavily discounted because of its promotional intent. Robert Rose, for whom Montrose is named, owned a lot of acreage in the early days; but his paternalistic vision failed, and eventually the land was sold off in small parcels. In Centre County, Samuel Miles and General Potter owned large acreages, but those "manors" were broken up by the mid-19th century.

²⁴ An 1808 tax list on the Northumberland County GenWeb site implies that many if not most of taxables were tenants. <ftp://ftp.rootsweb.com/pub/usgenweb/pa/northumberland/taxlists/1808miff.txt>, accessed June 2, 2004.

²⁵ Lee Soltow and Kenneth Keller, "Tenancy and Asset-Holding in Late Eighteenth-Century Washington county, Pennsylvania," *Western Pennsylvania Historical Magazine*, January 1982, 1-17; Phillip Benner Papers, PSU Special Collections, 1822; Andrew Gregg papers, PSU Special Collections; John B. Linn Family Papers, PSU Special Collections, agreement between John Smyth and James Hayes, September 1846; Irvine Family Papers, PSU Special Collections, Letters # 15 and 16.

²⁶ "Structures and Occupations in two Central Pennsylvania Townships in 1796," no author, *Material Culture* vol 27 (1995), no. 1, pp. 32-42. The anonymous author speculates that "scutched" meant that the bark had been peeled, and that "chipped" meant that the log had been hewn thinner than usual.

²⁷ Soltow, Lee and Keller, Kenneth W. "Rural Pennsylvania in 1800: A Portrait from the Septennial Census." *Pennsylvania History* 1982 49(1): 25-47.

²⁸ *Story of Snyder County 1855-1955*, (Official souvenir booklet, Snyder County Centennial, 1955 PSU Special Collections), p. 41. The phrase "German-Georgian" was apparently first used by Henry Glassie; it refers to dwellings which merge qualities documented as "Germanic" with those considered "Georgian." For example, the Lutheran parsonage at Stouchburg, PA, has a center hall with four ground-floor rooms and two of those rooms have end wall corner fireplaces ("Georgian" characteristics), but on the other side of the hall, the two rooms share a large walk-in fireplace oriented along the roof ridge—a Germanic feature. In the Moyer house, the end chimneys may signify a "German-Georgian" form.

²⁹ http://www.familyoldphotos.com/pa/2o/old_stone_house_davidson, accessed July 26, 2005.

³⁰ Compared with southeastern or south central Pennsylvania.

³¹ Henry Glassie, calls them "three-bay", "Yankee," or "Connecticut" barns. Sometimes lean-to "cow house" sheds were added. Henry Glassie, "The Variation of Concepts Within Tradition: Barn Building in Otsego County, New York." *Geoscience and Man* 5 (June 10, 1974): 177–235. W. J. McKnight, *Pioneer Outline History of Northwestern Pennsylvania* (Philadelphia, 1905), 212 and 255.

³² See photo in *Rural Delivery* of a stone springhouse in Union County near Winfield, which was there when the book was published. The Snyder County Historic Sites Inventory from the 1970s listed one or two early spring houses.

³³ *Hazard's Register of Pennsylvania*, July 21, 1832, p. 133. This description was originally published in the *Genesee Farmer*, no date given.

³⁴ A 1926 Department of Highways photo near Brookville showed a stump fence.

³⁵ Douglas Macneal, "Introducing Edward Heary's Connected Warrants Map of Centre County," *Centre County Heritage* vol. 31, # 1, 30-42. This article shows that many original boundaries are still marked by tree lines, pathways, and fence lines.

³⁶ Note that while the *buildings* represent an identifiable cultural tradition, the *owners or occupants* may not have necessarily share the same cultural heritage over the entire history of the property. People borrowed, reused, and adapted. For example, an "English" farmer in southeastern Pennsylvania may have built a Sweitzer barn because it best suited the diversified farming of the region.

³⁷ In some places, only some farmers owned machinery, and it was shared around, so some farms would have lots of machinery buildings and others would have few. This was not true in the regions researched for this context.

³⁸ NR Bulletin *How to Apply the National Register Criteria for Evaluation*, p 17.

³⁹ *Historic Farming Resources of Lancaster County*, MPDF, 1994.

⁴⁰ In addition see the discussion of the regional architecture of farm buildings in the MPDFs *Farms in Berks County* (1992) and *Historic Farming Resources of Lancaster County* (1994).

⁴¹ "Corridor Improvement Study, Reconnaissance Survey and Historic Contexts Report.. SR 0030, Section S01, East Lampeter, Leacock, Strasburg, Paradise, Salisbury, and Sadsbury Townships, Lancaster County., Pennsylvania." 2 Volumes. Prepared by A.D. Marble Company; 2004, Volume I, page 175. The SR 30 study involved an exhaustive survey of all resources in the multi-township area of Lancaster County and preparation of contexts for agriculture, industry, and several other themes. For agriculture the study identified character-defining features for both English and Plain Sect farms.

⁴² "Tilling the Earth: Georgia's Historic Agricultural Heritage, A Context." Prepared for the Georgia Department of Natural Resources, Historic Preservation Division, by Denise P. Messick, J. W. Joseph, and Natalie P. Adams, New South Associates, Inc. 2001. http://hpd.dnr.state.ga.us/assets/documents/tilling_the_earth.pdf

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.