INTRODUCTION

The purpose of this report is to describe salvage archaeological operations conducted at the 19th century Bernard Glatz (or Glatts) house site (7NC-D-102) along Limestone Road (Route 7), in northern New Castle County, Delaware (Figure 1). The site was first located during a Phase I survey of of Limestone Road conducted in 1985 (Catts, Shaffer, and Custer 1986:78-83). The survey work was undertaken by the University of Delaware Center for Archaeological Research for the Delaware Department of Transportation and the Federal Highway Administration under section 106 of the National Historic Preservation Act to evaluate the effects of the proposed relocation of Delaware Route 7 on significant, or potentially significant, cultural resources as defined by the National Register of Historic Places (36 CFR 60). The Glatz site was located within and adjacent to the proposed project right-of-way (ROW), and Phase II excavations were recommended for the site. However, before Phase II excavations began, immediate destruction of the site was threatened by a private construction project adjacent to the DelDOT ROW. Salvage operations were begun immediately by UDCAR field crews during the week of March 20, 1985 (Plate 1). Salvage excavations constituted data recovery and this was reflected in the excavation methods. Because the plowzone had been mechanically stripped by the contractor, only undisturbed features, or portions thereof, could be excavated. The excavated features and archival data form the basis for the analysis and interpretation of the site.

FIGURE 1

Project Area Location

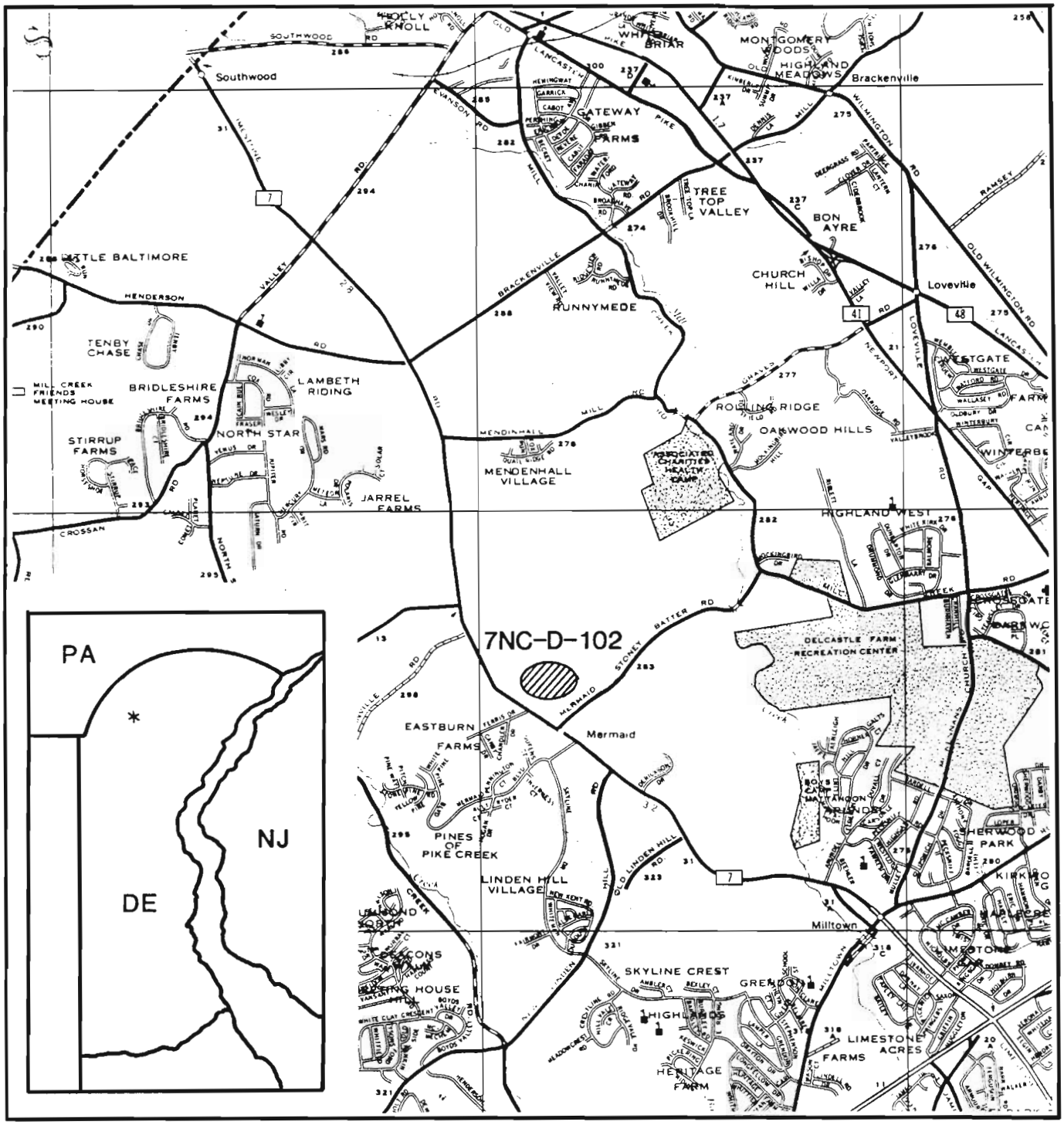

PLATE 1

Salvage Excavations at the Glatz Site

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Overviews of the regional environmental setting of the project area and the regional history are presented below.

Environmental Setting

The Glatz site is located in the Delaware Piedmont Uplands. The summary of the local environmental setting presented below is abstracted from the work of Custer (1984:23-25) and Custer and DeSantis (1985).

The Piedmont Uplands of Delaware represent the northernmost portion of the Delmarva Peninsula and are characterized by a diversified relief dissected by narrow and deep stream valleys with isolated knolls rising above the general upland level (Spoljaric 1967:3). Thornbury (1965:88) notes that within the Piedmont Uplands there are no large tributaries of the older incised river systems, the Susquehanna and the Delaware. Rather, there are a number of smaller, lower order drainage systems. Some large floodplains can be found along some of the higher order streams such as the White Clay Creek and the Brandywine, Elk, and Northeast rivers. However, these settings are uncommon. Elevation differences of up to 82 meters (270 feet) can be found between small floodplains of the numerous drainages and the tops of the adjacent knolls, and these elevation differences are sufficient to cause changes in tree community distribution (Braun 1967:192-194). Soils of the Piedmont Uplands can generally be characterized as well-drained with some poorly-drained areas in floodplains and upland flats. The Glatz site is located on a knoll adjacent to the head of a low order ephemeral stream.

Regional History

The following regional history is abstracted from two previous DelDOT reports (Coleman et al. 1984; Coleman et al.

1985) and from the Archaeological Society of Delaware publication "Current Research in the Historic Archaeology of Northern Delaware" (Custer and Cunningham 1986). A complete bibliography can be found in these reports.

The first historic settlement in what is now Delaware was a whaling station established by the Dutch West India Company in 1630 near the present town of Lewes. However, this post was destroyed by Indians in 1631 and no settlement in that area was attempted again until 1659. A Swedish colony was established in 1638 at Fort Christina near the present site of Wilmington by the New Sweden Company. Although the land was claimed by the Dutch, it was little used and was unsettled when the Swedes arrived. By 1654 a small village, Christinahamm, existed behind the fort, and approximately 400 Swedish, Finnish, and Dutch settlers resided in the area.

In 1655, the uneasy coexistence between the Swedes and Dutch was abruptly ended when the Dutch seized control of New Sweden. Dutch Fort Casimir, established in 1651, and the town of New Amstel (modern New Castle) became the economic and commercial center for the lower Delaware Valley. Ownership of the Delaware region changed hands again in 1664, when the English took control of all Dutch possessions in the New World. In 1682, the granting of proprietary rights to William Penn and his representatives gave economic and political control of the Delaware region to Philadelphia, the new seat of government (Munroe 1978).

The settlement pattern for this early period was one of dispersed farmsteads located along the Delaware and its tributaries, such as the Christina, Appoquinimink, Brandywine,

Mill Creek, White Clay and Red Clay Creeks, where the land possessed good agricultural qualities. The Swedish and Dutch settlers had pushed their settlement far up the valley of the Christina toward the Elk River. The town of Christina Bridge (modern Christiana), so named because it was the crossing place of that river, was established by about 1660 at the head of navigation of the Christina.

With the arrival of Penn in the 1680's, settlers pursued an individualistic system of land settlement, with the proprietors granting tracts or parcels of land. Penn usually granted land to families, the standard size being about 500 acres. In the study area, between the confluences of Mill Creek and Ball's Run extending northward, property sizes at the end of the seventeenth century ranged between 100 and 700 acres, but there were also nearby tracts of over 1000 acres. These large grants belonged to land speculation companies, such as the London Company, or to the friends and relatives of the Proprietors, such as Letitia Penn's Manor of Stenning. Based on contemporary deeds, and land warrants and surveys, there were only about a dozen land owners in the study area at the turn of the eighteenth century.

By 1683 the cultivated areas of the region consisted of the three lower counties, New Castle, Kent, and Sussex, and three Pennsylvania counties, Philadelphia, Buckingham (Bucks), and Chester. The total population of all six of these counties in 1683 has been estimated to have been about four thousand people. In New Castle County five tax districts, called Hundreds, had already been established by 1687. With the growth of the

population, four more hundreds were created in 1710, with Mill Creek Hundred, which includes the study area, being one of these (Conrad 1908:287).

With the exception of the port towns of Philadelphia and New Castle, there were no other major commercial or social centers in the area during the seventeenth century. The small hamlets that were established were situated on the major transportation routes of the period, almost always on a navigable watercourse. Few were located inland, for the road network was almost nonexistent. An exception to this was "Ogle's Town", which was located along the road to the Elk River as early as 1679. The villages of Christina Bridge and Cantwell's Bridge (present-day Odessa) were the only hamlets of any size in the area and both were located on major rivers and roads.

In the New Castle County region, water transportation was the major mode of travel and commerce in the late seventeenth century. Most of the farmstead tracts and land grants had frontage on a water course to ensure that communication and the moving of produce to local markets could be accomplished (Hoffecker 1977). In a country that was heavily wooded with a mixture of oaks, walnut, hickory, chestnut, and maple, water travel was the easiest, safest, and most effective means of transport. Overland travel was extremely difficult, because roads were few in number and very poor. Even the road from New Castle to Christina Bridge, probably the area's major overland transportation route, was in horrible condition. A 1702 survey map of the study area has no indication of the location of Limestone Road. Generally, the roads in the area were simply

intra-regional connectors to the coastal towns.

Swedish settlers in the region grew rye and barley on their farms, but later immigrants quickly replaced these grains with wheat when it was found that it could be grown more easily. More importantly, it was realized that wheat was a marketable commodity, and the farmers and settlers in the area soon shifted from a subsistence-oriented to market-oriented agriculture. Wheat, and to a lesser extent corn, were grown and then shipped by water to local milling sites. The transportation of grains to milling sites supported an extensive coastwide trade employing shallops or other similar boats. Milling sites were among the earliest manufacturing complexes in the region. There was a mill in New Castle by 1658, and one on Red Clay Creek by 1679 (Pursell 1958). Villages such as Christiana Bridge, Newport, and Appoquinimink grew larger as a result of this shipping trade, and became market places for the surrounding country. By the start of the eighteenth century, the region was beginning to be recognized as a wheat and grain producing area.

Unsuccessful attempts at the mining and smelting of iron ore were tried in the Delaware region during the seventeenth century. In Delaware, the Iron Hill area in western Pencader Hundred was an area known to contain iron deposits by 1673, the date of publication of Augustine Hermann`s map which labels the spot "Yron hill". The manufacture of iron became more widespread with the start of the eighteenth century. By 1716, iron production was well established in Pennsylvania. In Delaware, Sir William Keith had started a blast furnace on the slopes of Iron Hill by

1725, and a bloomary furnace was known to be in operation near St. James Church in Mill Creek Hundred, operated by John Ball (Swank 1884: 142, 179). From documentary sources, it appears that Ball purchased the land in 1706, and erected the bloomary soon thereafter. Deed records indicate that he was a blacksmith by trade.

Mill Creek Hundred and New Castle County were part of a broader regional economy that was centered in Philadelphia. This city, in the last quarter of the seventeenth century, quickly began to dominate the economic scene in the lower Delaware Valley. New Castle County was part of Philadelphia's agricultural and commercial hinterland, along with western New Jersey, northeast Maryland, southeastern and northeastern Pennsylvania, and Kent and Sussex counties in Delaware. Farmers in the region sent their grains to the local milling centers, where the wheat flour was then shipped to Philadelphia for export to the West Indies, other North American colonies, and southern European countries. The farmers in New Castle County quickly adapted to this market system of agriculture and it is estimated that over one-half of the farmers in the area were situated within eight miles (or a half-day's journey) of a mill or shipping wharf (Walzer 1972:163).

Settlement in New Castle County during the 18th century continued much as it had in the previous century. In the Philadelphia region, there was a large influx of immigrants between 1725 and 1755, particularly Scotch-Irish, most of whom were indentured servants. As the transportation network improved, colonists began to move inland away from the navigable

rivers and streams. Good, productive land was settled first, but as the population began to grow, marginal property was also occupied. The size of farms in New Castle County ranged between 100 and 200 acres. The decline in the size of landholdings from the seventeenth century was due to a tendency for the large grants and tracts to be divided and subdivided by sale and inheritance (Munroe 1954:19). By mid-century, improved land along Limestone Road was selling for a little over one Pennsylvania pound per acre. In the study area, settlement began in earnest in the first quarter of the eighteenth century. Deed records become more common during this period, and several extant houses in the vicinity of Limestone Road were constructed at this time. The Simon Hadley house (1717), located near the Chester County line, and the Mermaid Tavern (1720's), both contain sections that date to this period. The Armor house, which also dates to the 1720's, was probably erected by the blacksmith noted above, John Ball.

In regards to urbanization, Lemon (1967, 1972) has divided the eighteenth century in the Philadelphia region into three periods of growth. The first period (1700 to 1729) was one of urban stagnancy after the initial rapid growth of the seventeenth century. However, hamlets which were unplanned towns that sprang up at crossroads and around taverns, ferries, churches, and mills, did begin to appear at this time. Ogletown, in White Clay Creek Hundred, and the Mermaid - Stoney Batter Road intersection on Limestone Road, are examples of eighteenth century hamlets in New Castle County. Both were located at

crossroads on major transportation routes. The second period of urbanization that Lemon recognizes (1730 to 1765) saw a renewal of town growth based on internal trade. Towns such as Newport, Cuckholdstown (modern Stanton), Milltown, Hockessin (then known as "Ockesson") and Newark were established and prospered during this period. Christina Bridge, which had stagnated since the 1680's, saw growth and prosperity as a major grain transshipment port for produce coming from the Upper Chesapeake Bay area.

The town of Stanton, known as Cuckoldstown as early as 1746, became an important milling and grain center in the late eighteenth century. A grist mill is known to have been in the vicinty of Stanton by 1679, and by 1800 the town rivaled Newport as a local grain processing center. Ships of moderate draft were able to navigate up the Red Clay Creek and take on local farm produce, as well as products from southeastern Pennsylvania which had been transported overland down the Limestone Road. Located at the confluence of Red and White Clay Creeks, Stanton was never a large town. A map of the New Castle County region, drawn in 1777, did not include the location of Stanton, and a travelers' guide, published in 1789, showed only a mill and ten houses in the vicinty of the town (Colles 1961:170). Hockessin, or Ockesson, grew around the location of the Hockessin Friends Meeting House, constructed in 1738. Nearby were a school and a blacksmith shop, the only structures in the hamlet until the 1820's.

Wilmington was by far the largest urban center in New Castle County that developed in this period. Chartered in 1739, Wilmington soon became a port of entry and a post town, and was

an important link in the Philadelphia trading network. Of special significance to the city's location was its proximity to the Brandywine Mills. Wilmington was thus a receiving center for local and regional farm produce, brought by water from Christina, Stanton, and Newport, and shipped up the Delaware to Philadelphia (Lindstrom 1978; Walzer 1972).

Lemon's third period of urban development (1766-1800) was marked by less noticeable town growth which paralleled more erratic economic patterns. Little growth in the towns of New Castle County took place during this period. However, increases in population and land tenancy were noted (Lemon 1972:216).

The conditions of roads in New Castle County improved considerably over the course of the eighteenth century, but in some locations they were unsatisfactory even by contemporary standards. Most improvement was due to both population growth and interregional trade. By 1750, the roadbeds of many of the area's present-day state roads (Routes 4, 7,and 273; portions of Pennsylvania's Route 896) were already established. Prior to the Revolutionary War, there were probably four main thoroughfares in the study area: The Old Wilmington Road, the road from Ockesson Meeting House to Cuckoldstown (established in the 1730's), the Kemblesville Road, running from Chester County to Corner Ketch, and the Limestone Road. All sources consulted agreed that Limestone Road was never formally laid out by either the New Castle County or Chester County legislatures; at least the Court records that would have established the road do not exist (Futhey and Cope 1881:354; Cooch 1936:80; Ward 1968:114). Throughout

the eighteenth century, the road was known by a number of different titles -- "the Newport Road", "the Great Limestone Road", "the Limerock Road", and "the Road from Stanton to Lancaster" -- but by the beginning of the nineteenth century it was known as the Limestone Road.

The first reference to the road by name, that research for this project was able to locate, dated to 1726 when it was called the "Limekiln Road". Limestone was used as a flux in eighteenth century blast furnaces, a large number of which were in operation in Chester County by the second decade of the eighteenth century (Swank 1884:142). By about this same time, as noted previously, Sir William Keith had established an iron furnace at Iron Hill (Heite 1983:155). The use of limestone as a fertilizer was not yet realized in the eighteenth century.

Based on these dates and events, and the known influx of colonists to the area which resulted in the formation of Mill Creek Hundred in 1710, it is probable that the Limestone Road was initially laid out in the first quarter of the eighteenth century. In addition to its use as a major transportation route for agricultural produce, the road may also have functioned as an overland route for the transport of burned and unburned limestone, which was quarried in the vicinty. It is conceivable that the road's major orientation was from south to north, or from the limestone quarries to the Chester County furnaces, and not southwards, towards the navigable streams.

The roadbed of the Limestone Road followed a course of easy grades and few fording places, the deepest being at Mill Creek, just north of Milltown. This crossing was bridged in 1836.

Throughout the eighteenth and nineteenth centuries, the road was utilized by teamsters because of its easy grades and because, unlike the Newport and Gap Turnpike located to the east, it was not a toll road.

Farming in the eighteenth century in New Castle County continued to be a system of mixed husbandry, combining the cultivation of grains with the raising of livestock. Farming was the most important occupation for between 80 and 90 percent of the area's population (Egnal 1975). Wheat continued to be the primary grain produced, followed by rye, corn, barley, oats, and garden vegetables. In many areas, generations of repeated tillage had begun to exhaust the soil. Agricultural practices in New Castle County followed an extensive, rather than an intensive, use of the land (Lemon 1972:179).

Delaware's manufacturing capacity in this century began to become realized. During the 18th century, the iron industry, lumber products, and grain milling enterprises continued to grow and prosper. New industries were started that engaged in the preparation of snuff from tobacco, the production of salt from brines in lower Delaware, and the rudimentary beginnings of the textile industry. By the end of the century Delaware was one of the leading manufacturing states and Wilmington and its environs constituted one of America's leading industrial areas.

In the northern Delaware area, the nineteenth century was marked by rapid industrial and urban growth and population expansion, and was accompanied by a noticeable decline in the number of people engaged in agriculture. The rapid growth of the

population during the early decades of the century forced many new farmers in the Middle Atlantic area to clear and farm lands of poor or marginal quality. Many of these farmers were hard pressed to turn a profit from their farmsteads, and this resulted in an outmigration of a large portion of the population during the 1820s and 1830s to better lands to the west, particularly in the Ohio River Valley (Hancock 1947). However, the loss of jobs related to agriculture was partly offset by the development of new sources of income and employment in urban and industrial contexts. Thus, much of the surplus population, which in previous centuries had been farm laborers, tenants, or unemployed, moved into urban and industrial centers where jobs were more plentiful. These trends occurred over the first half of the nineteenth century, and by 1860 were well established (Lindstrom 1979).

Urbanization in New Castle County during the first quarter of the century was closely tied to transportation routes and agricultural and industrial production. However, most of the towns of importance in the eighteenth century, which were settled because of their location on major transportation arteries, remained major marketing, milling and shipping centers for only a brief period into the nineteenth century.

In the first half of the nineteenth century, methods and routes of transportation underwent substantial changes in New Castle County as first turnpikes, then canals, and finally railroads were introduced. Throughout the century, improved transportation was the key to urban, agricultural, and industrial development. The first successful turnpike in Delaware, and the

one that is most important to the history and development of the study area, was the Newport and Gap Turnpike, begun in 1808. Although the pike was a more direct route to the wharves of Newport, it was a toll road, had numerous grades, and crossed several watercourses, all of which made the Limestone Road an important and well-traveled alternative transportation route for teamsters throughout most the nineteenth century. By 1820, Mill Creek Hundred had 74.5 miles of roads, rating it number two out of the nine hundreds in the County, second only to Appoquinimink Hundred.

The most significant canal built in Delaware was the Chesapeake and Delaware Canal, completed in 1829. Originally planned to connect the Elk and Christina rivers, it was later constructed across the Delmarva Peninsula below New Castle, just north of Reedy Island. The canal was expected to bring wealth and prosperity to the communities of northern Delaware, and in fact, two new towns were constructed at the termini of the Canal, Delaware City and Chesapeake City. Instead of widespread prosperity, however, the canal contributed to the economic decline of Christina, Newport, Stanton, and New Castle, as goods previously shipped overland across the peninsula could now be sent more cheaply by water. Even Chesapeake City and Delaware City were disappointed in their expected economic boom, and growth in these towns was slow. Only Wilmington, fast becoming an important regional industrial town, benefited from the Canal. Although not the original purpose of its construction, the Canal also came to serve as a border between two distinct socio-

cultural sections of Delaware: the industrial/commercial area of northern New Castle County, and the agrarian communities of southern New Castle, Kent, and Sussex counties. The Canal would continue to function as a borderline throughout the remainder of the century, and does so today.

Railroads came to New Castle County in the 1830s. The first line, the New Castle and French Town Railroad, was constructed in 1832 as a direct result of the opening of the Chesapeake and Delaware Canal, and was an effort to compete with that transportation route (Hoffecker 1977:43). In 1838, the Philadelphia, Wilmington, and Baltimore Railroad was completed, and quickly became the major transportation route across the peninsula. Throughout the remainder of the century, rail lines continued to be built in northern New Castle County, such as the Baltimore and Ohio, the Wilmington and New Castle, and the Wilmington and Western railroads. This last named line intersected the Limestone Road a few hundred feet south of the State line, at Southwood Station. The towns of Newark, Stanton, Hockessin and Newport benefited from their proximity to these railroads, staving off the economic stagnation and decline that were experienced by Christina, Ogletown, and Glasgow. Locally, the advent of the railroad, and with it cheaper and more efficient means of transporting goods and produce, marked the end of the prevalence of taverns on Limestone Road. The Mermaid Tavern lost its license in 1869, and Tweed's Tavern, located at the intersection of Valley Road and the Limestone Road, probably had closed prior to that date.

New Castle County continued to be predominately agricultural throughout the nineteenth century. In Mill Creek Hundred in 1804, there were 475 taxables, the overwhelming majority of whom were farmers, or worked in some related field, such as blacksmithing, coopering, or carpentry. At that time there were 99 log houses, 48 stone houses, and 21 brick houses in the Hundred (New Castle County Tax Lists, 1803-04).

At the start of the 1800s however, agriculture in New Castle County was in a dismal situation. Farming practices continued much as they had during the previous century with the use of the four field system of cropping. Wheat was the dominant crop and the use of fertilizers was infrequent. A large number of tenant farmers worked the land. Production was, on the whole, quite low during the first quarter of the century. The revival of the New Castle County Agricultural Society in 1818, one of the first such organizations in the nation, encouraged farmers in the use of improved drainage techniques, fertilizers, and machinery. With these developments, New Castle County was on its way to becoming one of the finest agricultural counties in the United States by 1860. Fertilization, farm machinery, and improved drainage were helpful in this agricultural success, but the county's rich natural resources, its fine transportation network, and the proximity of cities were advantages with which other areas, particularly Kent and Sussex counties, found it difficult to compete. Mill Creek Hundred contributed to this agricultural success through the quarrying and transporting of limestone for fertilizer. Many of the families in the study area maintained quarries and kilns, such as the Eastburn's, Black's, and Jeanes'.

By 1850, there were at least twenty limestone kilns in the vicinity of Limestone Road (Cooch 1936:43).

Tenant farming, which had been quite common in the eighteenth century, became even more prevalent during the nineteenth century. Large land owners, having acquired much of their holdings during the hard times of the 1820s and 1830s, leased their lands to tenants. Most land owners were white farmers, while some tenants and farm laborers, particularly in Kent and Sussex counties, were black. In other cases, the tenant was a member of the land owner's family, as was the situation with the Robert Ferguson farm (Coleman et al. 1983). By 1900 over 50% of all the farmers in Delaware were tenants or share croppers. Tenancy remained a dominant farming practice into the twentieth century (Bausman 1933:165).

Regional development during the nineteenth century was much more complex than in the previous decades, primarily due to the great strides in industrialization, urbanization, and transportation that were part of the Industrial Revolution. The first half of the century witnessed a noticeable decline in Philadelphia's economic influence over the region, caused by Baltimore's rise, the competition for markets between the two cities, and a drop in the consumption by foreign markets of Philadelphia's agricultural produce. The area responded by diversifying its agricultural production, but primarily it devoted increasingly more of its resources to manufacturing (Lindstrom 1978:122).

Much of the reemergence and success of both industry and agriculture in Delaware can be attributed to improved transportation facilities beginning in the 1830's. The linking of Wilmington by railroad with Baltimore and Philadelphia in 1837 provided not only Wilmington, but also its hinterland, with excellent markets both for the purchase of raw materials and the sale of finished products. Contained within this hinterland was also a sizable population of skilled mechanics and machinists who were able to perform the skilled labor required by the new technologies. This combination of good transportation, a large trained labor pool, and a ready supply of raw materials allowed industry in northern New Castle County to grow and diversify very rapidly into the 20th century (Hoffecker 1977).

In the 1920s, the newly formed Delaware Department of Transportation conducted several road projects on Limestone Road. These projects followed the route of the existing highway, and did not materially alter the road's course or width. In 1964, DelDOT undertook a major realignment and widening project on Limestone Road, which altered and changed the grade, width, and course of the road, notably at the Milltown intersection, from Mill Creek to New Linden Hill Road, at Chambers' Hill, and between Route 72 and Mendenhall Road. Due to this construction, many of the structures and dwellings in the Limestone Road project area that had survived into the twentieth century were demolished and removed.