



Part II

CULTURAL AND HISTORICAL COMPONENTS

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The Lehigh River watershed has a long and rich cultural history, from Native Americans to European Settlement, throughout the Age of Agriculture and the rise and fall of the Anthracite Industry and into the Contemporary Era. The historical events of the watershed have shaped both its landscape and its peoples.

A. Pre-History and the Paleo-Indians



Stone hammer heads were used by the Lenape as weapons and tools for more than 10,000 years.

During the last ice age, ending about 11,000 years ago, the sea level was lowered because much of the planet's water had turned into snow and ice. As the level of the seas declined, the area of land connecting Alaska and Siberia, the Bering Strait, was exposed. Some scientists believe that animals, particularly caribou, bison, and the woolly mammoth, which thrived on the plant life at the glacier's edge, crossed this land bridge. Following them were bands of hunters whose food and clothing came from the hides and flesh of the mammoth and other big game.

Little is known about the Paleo-Indians, as the earliest human inhabitants of the region are called. Some scholars believe they entered the area about 10,000 years ago when the last ice age was ending. The mastodon

remains, one of the animals hunted by the Paleo-Indians, have been found at Marshall's Creek, near the Delaware Water Gap. They are estimated to have been there since 10,210 B.C. Recent excavations at Vera Cruz in southern Lehigh County suggest that people were mining the jasper there and making tools as early as 12,000 years ago. If so, it is likely that the Paleo-Indians were living right on the edge of the Wisconsin Glacier, which terminated just south of Allentown.

Physically, the Paleo-Indians were similar to present-day humans. Living along the line of glaciation in a tundra-like environment that could not support human settlements of any great size, these people hunted big game. Their monuments—the bones of the animals they killed, scattered tools, and the ashes of their campfires—still lie hidden and unexplored under the earth of the Lehigh Valley (Hall, 1982).

About 10,000 years ago, the climate began to warm. The Wisconsin Glacier, which had covered most of the northeast for 60,000 years, began to recede. The mass of ice turned into rivers and streams that ate into the newly exposed land. As the climate warmed, the environment altered radically. The cold-weather plant life on which the mammoth and the mastodon had subsisted was replaced by conifer and deciduous forests. The large animals, unable to survive under these conditions, died off or were hunted to extinction.

1. THE LENNI-LENAPE

The retreat of the ice and the alteration of the Indian way of life seem to be described in the historical chronicle *Walam Olam*, the one surviving piece of Lenni-Lenape literature:

The ancestors of the Lenni-Lenape eventually ended their wanderings. They learned to fish, taking food from not only the Jordan, Lehigh and Delaware, but also, in patterns of seasonal migration, from the Atlantic Ocean. While not yet farmers, these Archaic Indians had begun gathering certain grains and grinding them in stone mills. "Tools became more sophisticated. While the details of Indian history are forever lost, the artifacts that they have left behind suggest a notable complexity and adaptability to changing conditions." (Hall, 1982). The appearance of polished stone tools and weapons suggests that the Indians of the area were, 3000 years ago, in contact with the highly developed civilizations of Central America. Recent discoveries at the Vera Cruz jasper mines seem to indicate that Indians came from all over the east coast to obtain fine-quality stone for tool making.

By 1,000 B.C., the Indians of the Lehigh River Watershed were doing more than merely imitating the tool forms of their highly sophisticated cousins of Mexico. "They were also profoundly influenced by Meso-American religion, engaging in a series of localized adaptations of burial and temple mound-building practices that were a woodland variant of the great stone temples of the Central American Indians." (Hall, 1982).

Certainly, the most important contribution of this southern contact was the introduction of maize (corn) as an agricultural crop and the introduction of technologies related to maize agriculture, most notably the use of pottery vessels for cooking and storage. "By the beginning of the first millennium, the Indians of this region had broken distinctly with their hunting and gathering past and were evolving relatively stable patterns of life." (Hall, 1982). They still hunted and fished, moving between inland areas and the shore with the seasons. However, their movements were governed by their need to sow and harvest the maize, beans, sunflowers and other crops that had become essential parts of their pattern of survival.

The Lenni-Lenape possessed a civilization with developed concepts and procedures of government, religion, education, social responsibility, morality and personal honor. Although Indian chiefs, or "kings" as the Europeans called them, nominally ruled the tribes, they governed more by consensus than by edict. The whole tribe often met in council, the chief in the center, surrounded by elders, young warriors, women and, in the outermost circle, children. William Penn remarked, "how powerful kings are, yet how they move by the breath of their people." The Indians had the rudiments of representative government and developed procedures for policymaking, diplomacy, declaring war, making peace, and handling personal misconduct.

After the rushing waters, the Lenape of the turtle were closer together, in hollow houses, living together there.

It freezes where they abode, it snows where they abode, it storms where they abode, and it is cold where they abode.

At this northern place, they speak favorably of mild, cool lands, with many deer and buffaloes.

As they journeyed, some being strong, some rich, they separated into house-builders and hunters. . .

Those from the north being free, without care, went forth from the land of snow, in different directions.

The fathers of the Bald Eagle and the White Wolf remain along the sea rich in fish and mussels.

Floating up the streams in their canoes, our fathers were rich; they were in the light.

Source: unknown



The Lehigh River was vitally important to Native Americans as a food source, and as a means of transportation.

*“Rivers must have been the guides
which conducted the footsteps of the
first travelers...”*

— Henry David Thoreau

Although the Lenape had no religion in the European sense of a organized theology, they based their lives on certain beliefs about their creator and the expectancy of judgment in an afterlife. The Indians had phrased the ideal of the Golden Rule long before they ever heard of the Bible, and found no difficulty accepting many Christian concepts (Klein, 1973).

These people would eventually contribute much to the early colonists. They shared their knowledge of agriculture and introduced Europeans to such crops as potatoes, corn, beans, squash, tomatoes, and tobacco. They provided the pelts for colonial ventures in the fur trade. They eased access to the interior of Pennsylvania not only by their canoes, but also by a network of well-defined Indian paths, so numerous and well placed that many of the routes still serve their original purpose, functioning as modern day highways. Their language, though unwritten, lives on in hundreds of picturesque names for counties, towns, mountains, and rivers.

Many of the names of places in the Lehigh River watershed are derived from names given by the Lenni-Lenape. Most of the settlement of the region was initially along the Delaware River. The Lehigh River flows into what is now the town of Easton. In the 1600s, it was called the Forks of the Delaware. The river was originally known by the Lenape name “Lechauwekink,” meaning, “where the forks are.” The Pennsylvania Germans shortened the name to “Lecha” and the English anglicized it as “Lehigh.”

Centuries before the first European settlers carved a roadway out of the virgin forest of Pennsylvania, the Native Americans had created an elaborate network of trails throughout the eastern half of the state. In Carbon County, three distinct trails—the Nescopeck Path and its two branches—have been traced by the Pennsylvania Historical and Museum Commission. The trail ran north of the Delaware River near Philadelphia through Bethlehem. Above Lehigh Gap, near Parryville, the trail passed through the Indian village of Pochapauchkug. A second trail branched off and ran about 20 miles east of Lehigh Gap through the Indian village of Wechquetank and joined the Wyoming Path that ran through the “Shades of Death,” a thick wilderness forest that once covered Monroe County. The Nescopeck Path again divided near Nesquehoning. One section ran north near Lehigh Tannery. The other section led travelers to the town of Nescopeck, a well-known Indian gathering place.

The routes reveal a keen knowledge of the land. The Indians who planned the paths made sure the trails ran on level ground where possible. Many modern highways follow the routes of these pathways. In addition to this, a system of road signs was created using bent trees to point travelers in the right direction. Almost a century after the first European arrivals in Pennsylvania, Indian paths were the only roadways available.

As Indian life stabilized in the northeast, particular groups, usually defined by language and kinship, came to occupy or have rights to certain geographical areas. Originally, the Indian languages were probably very similar. However, as each group settled into particular locations and developed lifestyles appropriate to different settings, the languages diverged. By the year Christopher Columbus arrived, it is estimated that Native Americans spoke some 2,000 mutually unintelligible languages (Sipe, 1927).

While it is true that all Lenape recognized one another as members of the same people, there was no tribal government. Instead, the Lenape were organized into village communities based

on common descent through the female ancestor. There were 30 or more of these communities. Authority within the communities was administered not by a powerful chief, but, according to historian C. A. Weslager, by a council of "older and spiritually powerful men." Decisions were arrived at through discussion and debate among these older men.

Perhaps the best description of the decentralized character of Lenape society has been written by C. A. Weslager, author of a definitive work on the Lenape. He wrote that one might compare their society

"to a number of small rural towns in modern America, scattered across the landscape, but lacking county, state or federal affiliation, each responsible for its own government and the welfare of its citizens. The main difference was that in the Lenape towns, there were a high percentage of persons related to one another, and the frequent movements of the people and the perambulations of their communities gave the population a group mobility generally lacking in modern American towns. The inhabitants of Lenape towns spoke dialects of the common language and had a sufficient feeling of common identity to call themselves Lenni-Lenape, just as modern dwellers in small towns refer to themselves as Americans."

The loose organization of the Lenape society would cause the Indians many problems, both with other Indian groups and ultimately in their dealings with European settlers. Scattered over a wide area, including portions of the present states of New York, New Jersey, Pennsylvania, and Delaware, and lacking a clearly defined system of political leadership, it was difficult for the Lenape to act as a unified group, even in war (Sipe, 1927).

2. THE LENAPE AND THE MENGWE

According to the Lenape national legend (the *Walum Olum*), the Lenape, who once lived in the vast region west of the Mississippi, migrated east. For reasons unknown they left their western home, and, after many years of wandering eastward, reached the Namaesi Sipu, or Mississippi, where they fell in with the Mengwe (who would later be called Iroquois by the French), who had also migrated from the distant west in search of a new home. The spies sent forward by the Lenape for reconnoitering, had discovered, before the arrival of the main body, that the region east of the Mississippi was inhabited by a powerful nation called the Alligewi. When the Lenape arrived at the Mississippi, they sent a message to the Alligewi requesting that they be permitted to settle among them. This request was refused, but the Lenape obtained permission to pass through the territory of the Alligewi and seek a settlement farther to the east. They accordingly began to cross the Mississippi; but the Alligewi, seeing that their numbers were vastly greater than they had supposed, made a furious attack upon those who had crossed, and threatened the whole tribe with destruction, if they dared to persist in crossing to the eastern side of the river (Sipe, 1927).

Angered by the treachery of the Alligewi and not being prepared for the conflict, the Lenape consulted together as to whether they should make a trial of strength, and were convinced that the enemy was too powerful for them. Then the Mengwe, who had been spectators from a distance, offered to join the Lenape, on the condition that, after conquering the Alligewi, they should be entitled to share the benefits of the conquest.

Having united their forces, the Lenape and the Mengwe declared war against the Alligewi, and started their onward march eastward across the continent, gradually driving out the Alligewi, who fled down the Mississippi Valley never to return. This conquest lasted many years, during which the Lenape lost great numbers of their best warriors.

For a long period, possibly many centuries, according to the *Walum Olum*, the Mengwe and Lenape resided peacefully and increased rapidly in population. Some of their hunters and warriors crossed the Allegheny Mountains, and, arriving at the streams flowing eastward, followed them to the Susquehanna River. Other enterprising pathfinders penetrated the wilderness to the Delaware River, and exploring still eastward, arrived at the Hudson. Some of these explorers returned to their nation and reported the discoveries they had made, describing the country as abounding in game and the streams as having an abundance of waterfowl and fish with no enemy to be dreaded (Sipe, 1927).

“The Lenape considered these discoveries as fortunate for them, and believed the newly found region to be the country destined for them by the Great Spirit as their permanent abode” (Sipe, 1927). Consequently they began to migrate, settling on the four great rivers—the Susquehanna, the Potomac, the Delaware and the Hudson. The *Walum Olum* states, however, that not all of the Lenape reached the eastern part of the United States, many of them having remained behind to assist a great body of their people who had not crossed the Mississippi, but had retreated into the interior of the country on the other side, upon hearing of the attack on those who had crossed the river. Another part of the Lenape remained near the eastern bank of the Mississippi. According to this traditional history, the Lenape nation finally became divided into three separate bodies.

The Lenape who settled on the eastern rivers divided into the Wolf tribe, or Minsi, who lived along the eastern ridges of the mountains; the Turtle tribe, or Unamis, who hunted and farmed in the lower Delaware valley; and the Turkey tribe, or Unalachtigos, who occupied the area between Delaware Bay and the Atlantic Ocean (Klein, 1973).

When the Lenape and the Mengwe divided the county of the Alligewi between them, the Mengwe took the part near the Great Lakes and their tributary streams, north of the part taken by the Lenape. The Mengwe later proceeded farther and settled below the Great Lakes and along the Saint Lawrence River, so that when the Lenape had moved to the eastern part of the United States, the Mengwe became their northern neighbors. “The Mengwe now became jealous of the growing power of the Lenape, and finally assumed dominion over them” (Sipe, 1927).

To the Moravian missionary, Reverend John Heckewelder, who had lived among the Lenape for more than thirty years, they related how this dominion came about. The great chiefs of the Lenape stated to Heckewelder that the Mengwe “clandestinely sought to start quarrels between the Lenape and the distant tribes, hoping thus to break the might of the Lenape. The treachery of the Mengwe having been at length discovered, the Lenape resolved upon the extermination of this deceitful tribe. War was declared against the Mengwe, and carried on with vigor, when the Mengwe, finding that they were no match for the powerful Lenape and their kindred tribes, resolved upon uniting their clans into a confederacy” (Sipe, 1927). Up until this time, each tribe of the Mengwe had acted independently of the others, and they had not been inclined to come under any supreme authority. Accordingly, about the year 1570, the Mengwe formed the great confederacy of their five kindred tribes, the Mohawks, the Oneidas, the Onondagas, the Cayugas and the Senecas, known as the Five (later six) Nations.

The Lenape claimed that the confederacy was formed for preventing the extermination of the Mengwe by the Lenape. “Other authorities say that the purpose was to end inter-tribal feud and war among the Mengwe, themselves; to enable the allied tribes to make mutual offense and defense, and to advance their general warfare.” (Sipe, 1927). Thannawage, it is claimed, was the aged Mohawk chief who first proposed the alliance. Other authorities say that Dekanawida,

the Iroquois statesman, prophet, and lawgiver, planned and formed the historic confederation; and that his disciple, Hiawatha, assisted him. The following chiefs, also, assisted in forming the confederacy: Toganawita, representing the Onondagas; Togahayon, representing the Cayugas; and Ganiataro and Satagaruyes, representing the Senecas. This confederacy is known in history as the Five Nations, until the Tuscaroras, a tribe having been expelled from North Carolina and Virginia in 1712 or 1713, and having sought an asylum among the Mengwe of Pennsylvania and New York, were formally admitted to the alliance in 1722, after which time the confederacy is known as the Six Nations. The French gave the Indians of the confederacy the name of Iroquois, while the Lenape continued to call them Mengwe.

To resume the story, the Lenape told Heckewelder that, after the forming of the confederacy, very bloody wars were carried on between the Mengwe and themselves in which they were generally successful, and while these wars were in progress, the French landed in Canada and combined with the Mengwe. "At last the Mengwe, or Iroquois, seeing themselves between two fires, and not seeing any prospect of conquering the Lenape by arms, resorted to a stratagem to secure dominion over them" (Sipe, 1927).

The plan was to persuade the Lenape to abstain from the use of arms, and to assume the station of mediators and umpires among their war-like neighbors. It was not considered becoming for a warrior to ask for peace. He must fight to the end. The women of the tribe were encouraged to make moving speeches and persuade the enraged combatants to bury their hatchets and make peace. On these occasions, they were very eloquent. They would describe the sorrows of widowed wives, and, above all, of bereaved mothers. Speeches like this usually had the desired effect, and the women, by the honorable function of peacemakers, held a very dignified position.

These were the arguments used by the artful Iroquois to ensnare the Lenape, according to Heckewelder. Unfortunately, the Lenape listened to the voice of their enemies, and consented to subjugation.

The Iroquois denied that such an intrigue ever took place. They alleged that they had conquered the Lenape in battle and had thus compelled them to cease fighting,—to submit to the greatest humiliation a spirited and war-like nation can suffer (Sipe, 1927). "Many historians believe that the Delawares (Lenape) imposed upon the venerable Rev. Heckewelder by inventing a cunning tale in explanation of the humiliation under which they were smarting." (Sipe, 1927). In addition, President William Henry Harrison, in his "Aborigines of the Ohio Valley," gives the story of the Lenape little credence. He says that the Lenape were "too sagacious a race to fall into such a snare as they allege the Iroquois claim they conquered the Lenape by force of arms and not be stratagem, yet the Iroquois have no tradition among them of the particulars of the conquest."

Many authorities state, however, that the time of the subjugation of the Delawares was much later than the date given Heckewelder. "Some have stated that the Delawares were not made tributaries of the Iroquois until after the coming of William Penn; but the celebrated Delaware chief, King Beaver, told Conrad Weiser at Aughwick on September 4, 1754, that the subjugation took place before Penn's arrival" (Sipe, 1927). At the first extended conference between the Pennsylvania Authorities and the Indians, of which a record had been preserved, held at Philadelphia on July 6, 1694, the Delaware chief, Hithquoquoan, advised the Colonial Authorities that he and his associate chiefs had shortly before this time received a message from the Onondagas and Senecas containing the following statement: "You Delaware Indians do noth-



Chief Teedyuscung was the “king” of the Lenape tribe. His name means “He who makes the earth tremble.”

ing but stay at home and boil your pots, and are like women; while we Onondagas and Senecas go ahead and fight the enemy.” We therefore conclude that it can not be stated with exactness, just when the subjugation of the Delawares took place; and, inasmuch as there is no record of any conquest after the time of Penn’s arrival, it may be that the subjugation took place through fear and intimidation rather than by war (Sipe, 1927).

“Whatever may be the facts as to how the Iroquois reduced the Delawares to a state of vassalage—whether by artifice, intimidation or warfare—the fact remains that about the year 1720, this powerful northern confederacy assumed active dominion over them, forbidding them to make war or sales of lands” (Sipe, 1927), a condition that existed until the time of the French and Indian War. During the summer of 1755, the Delawares declared that they were no longer subjects of the Six Nations, and, at Tioga, in the year 1756, their great chieftain, Teedyuscung, extorted from the chiefs of the Iroquois an acknowledgment of Delaware independence. However, from time to time, after 1756, the Iroquois persisted in claiming the Lenape were their vassals, until shortly before the treaty of Greenville, Darke County, Ohio, in August 1795. This was a famous treaty between the United States Government, represented by General Anthony Wayne, who had defeated the western tribes at the battle of the Fallen Timbers, on August 20 of the preceding year, and the Shawnees, Delawares, Wyandots, Ottawas, Potawattomies, Miamis and smaller tribes, by the terms of which treaty about two-thirds of the present state of Ohio was ceded to

the United States. “The subjection of the Delawares to the Six Nations greatly complicated negotiations on the part of the colony of Pennsylvania for the purchase of the lands of the Delawares, inasmuch as the Iroquois’ seat of government was the colony of New York” (Sipe, 1927).

During this time, the domain of the Five Nations extended from the borders of Vermont to Lake Erie, and from Lake Ontario to the headwaters of the Delaware, Susquehanna, and Allegheny. This territory they called their “long house.” The Senecas, who lived on the headwaters of the Allegheny, and many whose settlements were in Pennsylvania, guarded the western door of the house, the Mohawks, the eastern and the Cayugas, the southern, or that which opened on the Susquehanna (Sipe, 1927).

The Smithsonian Institution, in its “Handbook of American Indians,” says the following of the Iroquois:

“Around the Great Council Fire of the League of the Iroquois at Onondaga, with punctilious observance of the parliamentary properties recognized in Indian diplomacy and statescraft, and with a decorum that would add grace to many legislative assemblies of the white man, the federal senators of the Iroquois tribes devised plans, formulated policies, and defined principals of government and political action, which not only strengthened their state and promoted their common welfare, but also deeply affected the contemporary history of the whites in North America. To this body of half-clad federal chieftains were repeatedly made overtures of peace and friendship by two of the most powerful kingdoms in Europe, whose statesman often waited with apprehension the decisions of this senate of North American Savages.”

In addition, Colden in his "History of the Five Nations," says:

"The Five Nations are a poor and generally called barbarious people; and yet a bright and noble genius shines through these black clouds. None of the greatest Roman heroes discovered a greater love to their county, or a greater contempt of death, than these people called barbarians have done when liberty came in competition. . . . They carried their arms as far southward as Carolina, to the northward of New England, and as far west as the River Mississippi, over a vast country, which extends twelve hundred miles in length, and about six hundred miles in breadth; where they entirely destroyed many nations, of whom there are now no accounts remaining among the English."

So great was the scourge of the Iroquois that, during the closing decades of the seventeenth century and the first two decades of the eighteenth century, the region south of Lake Erie on both sides of the upper Ohio and Allegheny contained practically no Indian population; and the Iroquois looked upon the vast territory as their hunting ground (Sipe, 1927).

Speaking of the warfare of the Iroquois, DeWitt Clinton said:

"They reduced war to a science, and all their movements were directed by system and policy. They never attacked a hostile country until they had sent out spies to explore and designate its vulnerable points, and when they encamped, they observed the greatest circumspection to guard against spies. Whatever superiority of force they might have, they never neglected the use of stratagem, employing all the crafty wiles of the Carthagenians."

B. The Rise of Indian-European Conflict

The political fragmentation characteristic of Indian society would also lead to confusion and bitterness between the Lenape and the Europeans. European settlers assumed that Indian societies were organized like European ones, with recognized leaders who could speak for their subjects. Thus they mistakenly thought that when they purchased a particular piece of land from one particular chief, that the chief was acting with the consent of all of his people. Europeans frequently purchased land, only to find other Indian groups claiming that the land sale had no validity. By the late 17th century, a migrant Indian band might arrive on the shore at the end of a trek from the Forks of the Delaware only to find that their cousins at Brandywine or Tulpehocken had sold their land rights to the Swedes, the Dutch, or the English (Hall, 1982).

The problem of social and political organization was only one source of misunderstanding between the Lenape and the Europeans. More fundamental were radically different concepts of property ownership. For the Indians, property ownership meant the right to use the fruits of the land—to hunt, to fish, to plant. It did not imply absolute and exclusive possession. Thus, while the Indians amicably signed treaties granting tracts of thousands of acres to the Europeans, they were shocked to discover that they could no longer hunt or even traverse the lands that they had used for thousands of years. To them, the European gifts of cloth, beads, tools, and liquor were merely tokens of hospitality and friendship, not purchase prices for pieces of real estate, "but these conflicts between concepts of political authority and property were only symptomatic of a far more significant clash between Native American and European cultures" (Hall, 1982).

1. 1700-1790, EUROPEAN SETTLEMENT OF PENNSYLVANIA

When the first Europeans appeared in the Middle Atlantic area, Indians of the Algonquian language occupied the Delaware River Valley. They called themselves Lenni-Lenape, signifying “the real people” or “the original people,” with a connotation of superiority and special destiny (Klein, 1973). The English later gave these Indians along the banks of the Delaware River the name “Delawares” (named after the Governor of Virginia Thomas West, Baron De La Warr).

Throughout most of the 17th century, the region was almost uninhabited. The quiet woodlands were disturbed only by the seasonal movements of the Lenape as they moved upriver to their hunting grounds in the mountains or downriver to the plains around present day Allentown and Bethlehem where they annually burned off brush and scrub to clear land for planting maize, beans and pumpkins. Even though their plantations were large enough to produce thousands of bushels of grain, their largest hardly intruded on the primordial forests and streams (Hall, 1982). The Lenape numbered no more than 8000 to 10,000 people scattered across four states.

Neither the settlement of the Scandinavian colony of New Sweden on the lower Delaware in the 1640s nor the incursions of New York-based Dutch traders affected the Lehigh Valley. Rich as its soil, timberlands and mineral deposits were, it was remote and isolated, protected by steep hills that rose west of the Delaware and by its distance from the coast (Hall, 1982).

The 17th century was a time of great religious and political turmoil in Germany, France and England, and peoples lives were changing in every aspect. Dissatisfaction with the Roman

Catholic Church led to the Protestant Reformation and civil war. In 1618, war swept across Germany and resulted in the deaths of millions over the course of the Thirty Years’ War. By the 1640s, as the war was ending, the Protestants were threatened with extermination in France and were frantically searching for religious asylum (Hall, 1982).

America was not necessarily a safe haven for these exiles. Neither the Southern colonies (Virginia and the Carolinas) nor New England were particularly tolerant of religious dissent. “Of all the regions of the New World only Pennsylvania offered both economic and religious freedoms” (Hall, 1982). This was due in very large part to William Penn.

William Penn was the son of a prosperous merchant who, having survived the difficulties of the English Civil War, emerged after the restoration as a distinguished admiral in the English wars with the Dutch in the 1660s. In the course of his naval career, King Charles II had become deeply indebted to Admiral Penn. When Penn died in 1670, his son (William), who had become a dissenter from the Church of England, offered to settle the debt in exchange for a grant of land in the New World. In 1681, William Penn became the largest single landowner in the world. In September of 1682, William Penn set sail for the Delaware to examine his new land and to make plans for its settlement. The territory measured about 54,000 square miles or 35 million acres overall (Eckhart, 1992). The province contained about 2,000 white inhabitants comprised pri-



This statue of William Penn is located at Pennsbury Manor, his home and farm near Bristol, Bucks County.

marily of English, Dutch and Swedes and approximately 8,000 Lenni Lenape. English and Welsh Quakers were the first immigrants. In 1701, a Charter of Pennsylvania was issued which remained in effect until the drafting of the State Constitution in 1776. William Penn had three sons, Thomas, Richard, and John, who succeeded him as heirs.

William Penn learned much from the troubled times he lived in. He came to believe in religious tolerance as a matter of conviction. As a Quaker, he believed that God revealed himself to men not through the pronouncements of bishops or the edicts of kings, but through intense personal experience. Because of this, he and the other Quakers opposed the intrusion of the state or of powerful religious organizations into the private relationship between man and God. "He thus envisioned Pennsylvania as a Commonwealth open to all, whatever their way of worshiping their creator" (Hall, 1982).

He recognized that the immense land grant given to him was only valuable if it was inhabited by people willing to purchase or rent portions of his vast estate. In addition, because he was a merchant, he recognized that settlers meant markets for important goods, sources of valuable raw materials, as well as tenants for his property. "To open Pennsylvania to the thousands of Europeans displaced by war, intolerance and economic disorder would serve both his religious convictions and his pocketbook" (Hall, 1982).

When William Penn and his party arrived on the site of Philadelphia in 1683, the colony consisted of over 2000 people, but it would be decades before the first European settlements appeared in the Lehigh Valley. In addition to the formidable physical barriers to the valley, another obstacle to its settlement was the fact that the Indians, King Charles notwithstanding, regarded the lands granted in Penn's charter as their own. "Penn, motivated by his Quaker pacifism and profiting from the mistakes made by the English settlers of New England, who had waged bloody warfare with the natives for three decades, decided the Lenape should be paid for their lands and their mutual rights established by written treaties." (Hall, 1982). Finally, as a merchant with an eye for profit, Penn wished his lands to be settled in an orderly fashion. His model of order was a feudal one: the grant would be divided into manors, the basic English unit of rural government. He also established a general government with an executive (the governor), to be appointed by the Proprietor, and a legislature (the assembly), to which representatives would be elected from the various civil divisions, townships and boroughs of the colony. "Pennsylvania may have been an early model of political democracy and religious tolerance, but it was also, first and foremost, a private land speculation" (Hall, 1982).

2. SETTLEMENT OF THE LEHIGH VALLEY AND THE WALKING PURCHASE

Few Europeans ventured into the Lehigh River Watershed before the 1720s. Not only was the area still regarded as Indian Territory, but migration was also impeded by the formidable barrier of the South Mountain. Far more accessible and fertile lands lay to the south, in Chester, Lancaster, Berks, and York counties.

By the 1730s, William Penn had died and the entire European population was estimated at fewer than 10,000. As his sons struggled to pay their father's debts and as immigrants, particularly from Germany and Ireland, began to arrive in the colony in ever-increasing numbers, attention turned to the lands at the Forks of the Delaware and beyond. Eventually immigrants began to move into the Lehigh Valley region. Following rivers, creeks and Native American trails, they located along the banks of streams or near springs. As settlement continued, immigrants selected readily accessible and obviously fertile sites near a fresh water supply (Fletcher, 1950).



Trout Hall, Allentown's oldest residence, was built in 1770 as a summer residence by James Allen.



Thomas Penn, son of William, enforced the infamous "Walking Purchase" agreement in 1737 that was forged by his father 40 years earlier. The trick of using trained runners for the "walking" task prompted the end of good relations between the Lenape and the Europeans.

By 1738, families of similar religions began to settle in the same areas. These included such notables as Casper Wistar, James Bingham, James Hamilton, and William Allen. Allen, for example, acquired his lands at Allentown from his business partner, Joseph Turner, who, in turn, had received them from the Penns in settlement of a debt. These land speculators were anxious to earn profits from their Lehigh properties and their anxieties increased as they watched a growing number of squatters moving onto their lands. Added pressures to these landowners were the protests of the Indians, who resented the squatters' unauthorized incursions into their territories. The landowners felt it was clearly time to open the area to orderly development and civil government. The first step would need to be the negotiation of a treaty with the Lenni-Lenape.

"Although William Penn's pacific and legalistic approach to Indian affairs had largely spared Pennsylvania colonists from the murderous struggles that had typified New England's relations with the Indians, European incursions into the Lehigh Valley presented a host of difficulties." (Fletcher, 1950). As the Lenape had ceded their lands on the coast and the lower Delaware, they had moved in large numbers to the Tulpehocken, the region along the Lehigh between the South and Kittatinny Mountains. Lamenting the loss of their once vast domain, the Lenape were especially reluctant to permit further cessions of their possessions to the English.

William Penn's sons and their friends were insistent. They cheated the Lenape in the Philadelphia Treaty or Walking Purchase of 1737. The sons produced a copy of a document that had the signatures of three dead Lenape chiefs. It stated that the Lenape had agreed to sell a parcel of land up to the Blue Mountains or, as they agreed, equal to the distance a man could walk in one and a half days. At the end of this walk, a line would be drawn eastward to the Delaware River then down the river to the starting point. This section of land would then be available to the colonists for settlement. On September 19, 1737 from a Chestnut tree in present day Wrightstown, Bucks County, Pennsylvania the walk began. The walkers were James Yates, Solomon Jennings, and Edward Marshall. All three were very athletic and experienced hunters. To make certain the walk would go well an advance party spent nine days blazing a trail and clearing brush to speed the walkers. To insure the total commitment of the walkers, five pounds and 500 acres of land

were offered to the man who traveled the farthest.

Jennings stopped at the Lehigh River between Allentown and Bethlehem exhausted at the end of the first day. At the beginning of the second day, Yates collapsed in a stream coming off Blue Mountain, was stricken by blindness and died three days later. Finally, after 36 hours the last walker, Edward Marshall, threw himself full length on the ground at noon just outside present day Jim Thorpe. He had traveled over 65 miles from the starting point.



The route of the “Walking Purchase” was much longer than the Lenape anticipated – 65 miles in total. At the end of the walk, a line was to be drawn to the Delaware River. Penn drew the line at 45 degrees, rather than due east as the Lenape had understood to be the agreement.

After going 35 miles farther than the Lenape had anticipated the Colonial authorities proceeded to draw the line to the Delaware River at a right angle to the river a distance of 66 miles. This fraudulent measurement then took in all the MiniSink land and thousands of acres more than if the line had been run to the nearest course to the Delaware. The Lenape refused to move from the Walking Purchase lands. Thomas Penn persuaded the Lenape to sign a document to confirm the Walking Purchase but guaranteed them that they would not be removed from the MiniSink lands. However, as soon as the Lenape had signed the Penns arranged for the Iroquois Indians, who were the dominant Indian nation in the region, to force the Lenape removal because they did not honor the agreement held in the original Walking Purchase.

Realizing that they had perhaps gone too far and that the resulting Lenape resentment might impair the value of their properties, James Logan, the Penns’ representative, made some significant concessions to the Indians. He relinquished all claims to lands north of the Kittatinny Mountains and granted the Lenape a 10-square-mile tract south of the mountains, which included major Lenape villages. However, the Lenape would continue to resent the unfairness of the Walking Purchase. The events of 1737 marked the end of the friendly and trusting relations between the Indians and the English. What had begun in 1683 with the declaration in Penn’s treaty with the Lenape, that the two peoples should live together “in love as long as the sun and the moon endure,” was, by the 1760s, characterized by Lord Jeffrey Amherst’s request that his officers contrived “to send the Small Pox among these disaffected tribes of Indians” (Sipe, 1927).

As a result of this incident, the Lenape declared war on the settlements. There was bloodshed on both sides. Through battles and treaties, the Lenni-Lenape continued to lose land. After the thirteen colonies became the United States, a treaty was written on September 19, 1778 to establish an Indian Territory in the Ohio area and make it the fourteenth state. However, congress did not ratify this treaty and the Indian leader, White Eyes, who signed the treaty, was believed to have been murdered by the militia on November 10, 1778. By 1778, most Native American tribes had been forced out of Pennsylvania. Some moved north into New York and finally settled in Canada. Others moved into the Ohio area and over time moved to Kansas, Louisiana, Oklahoma, and Mexico. Many died due to starvation and European diseases. Some were converted to Christianity and lived with the Moravians in Bethlehem.

Although a few European families had been living in the Lehigh Valley since the 1720s, they represented only scattered settlements until the next decade when groups of Germans, Scotch-Irish, and Huguenots (French Calvinists) began to build churches and set out farms on the frontier. Most of these early settlements lay below South Mountain, near Saucon and Milford townships. However, the largest groups of settlers did not begin to arrive in the region until after 1737, when the Walking Purchase had settled ownership of the valley.

The 18th-century settlers of the Lehigh Valley belonged to four large groups. The first consisted of individual German Protestants, members of the reformed and Lutheran churches, who purchased land in various parts of the county, and considerable numbers of French and Swiss farmers who made common cause with German members of the Calvinist Reformed Church.

The second group was also largely German, but unlike the rugged individualists of the Reformed and Lutheran churches, these settlers (Moravians, Mennonites, Dunkers, Amish, and Schwenkfelders) were "religious radicals, and they combined to varying degrees intense piety with doctrines of civic and family organization that set them apart not only from the English, but from their fellow Germans" (Hall, 1982).

The third group, the Scotch-Irish, was composed of Protestant families from the north of Ireland. Their ancestors had been brought to north of Ireland by a succession of English monarchs, beginning with Elizabeth I, in order to dilute the power of the native Irish Catholics. Although not communitarians, the Scotch-Irish tended to gather for religious and social reasons. The areas of the valley where they settled with particular density lay along the eastern bank of the Lehigh River between Hokendauqua and Catasauqua and eastward to the town of Bath.

The fourth group, the English, never settled in great numbers in the Lehigh Valley during the 18th century. Nevertheless, they were particularly important because they were the largest landowners in the region. Even where the English were numerically insignificant, their influence was pronounced, for they decided where the major townships would be, they laid out the house lots of Easton in the 1750s, and those in Allentown in 1762. They were responsible for attracting settlers to those places as part of their plan to develop the region and profit from their investments.

3. BRITISH-FRENCH CONFLICT AND THE PENNAMITE WARS

The orderly settlement of the Lehigh Valley was interrupted between 1755 and 1763 by a series of bloody Indian uprisings. These were part of the larger struggle between the French and the English for control of the New World. The English were allied with the Iroquois tribes of New York, who held the Lenape in subjection for nearly a century. The Lenape saw in the French-English conflict an opportunity to regain their ancient domain and to settle old scores with their Iroquois enemies. In addition, they were inspired by an Indian religious movement which had begun in the West and through which the "culturally broken natives hoped to revive their morale and resume their former dominance of the continent." (Hall, 1982). Finally, there were very concrete economic and political grievances underlying the uprisings. In 1749, the Iroquois sold all the remaining Lenape lands to the Penns, including those north of the Kittatinny Mountains. They claimed a right to do so by virtue of their 17th century conquest of the Lenape.

By the early 1760s, the British military had assumed control of Indian affairs. Knowing the sympathy of certain tribes for the French and wishing to nip any uprisings in the bud, Lord Jeffrey Amherst, governor general of British North America, effectively blocked the sale of trade goods

to the Indians. The Indians, having no market for their furs and no means of obtaining the tools, firearms and clothing on which their lives depended, were faced with starvation. From Pennsylvania into New York and as far west as Ohio, desperate Indians began to arm for war.

Complicating the deterioration of relations between the English and the Indians were conflicts among the Europeans themselves, which rendered the situation of settlers in the Lehigh Valley very uncertain. The first involved land claims made by the colony of Connecticut on the northern part of the Pennsylvania.

In 1662, when Charles II granted Connecticut its charter, its southern boundary was 41° north latitude. Nineteen years later, when William Penn received his charter, King Charles granted him lands whose northern boundary lay along 43° north latitude. The Connecticut grant included all lands north of the Delaware Water Gap—a considerable portion of Pennsylvania and New York. As the colonies' populations swelled and as land speculators in Connecticut and Pennsylvania sought new sources of profits, King Charles' vagueness about North American geography developed into a major crisis, the Pennamite Wars.

The major antagonists in the war were the Province of Pennsylvania and two Connecticut—chartered private corporations, the Susquehanna Company and the Delaware Company. These companies were granted lands in the disputed territory by the Connecticut General Assembly. The Connecticut people, regarding the land as their own, did not feel bound by an arrangement made by the Penns with the Lenape, who, by the 1750s, had retreated into the Wyoming Valley north and west of the Lehigh. The representatives of the Susquehanna Company met with the Iroquois chiefs at Albany in 1754 and purchased what they regarded as legitimate title to these lands. Within the year, families from Connecticut began to arrive.

By 1760, Teedyuscung, the Lenape leader, was warning the governor of Pennsylvania that if he would do nothing about "those intruding people" that "the Indians would put a stop to it," which would, he threatened, "certainly bring on another Indian war" (Sipe, 1927). In addition to the danger of an Indian uprising, the Connecticut incursion was stirring up political discontent among the European settlers on the frontier. Many of them, unhappy with the Penns' feudal system of land tenure through which they were only permitted to lease land rather than buy it outright, were attracted by the possibilities of fee-simple ownership offered by the Connecticut companies (Sipe, 1927). They also looked to the opportunities offered by the opening of the Wyoming Valley to white settlement, a move that had been forbidden by the Penns' treaties with the Lenape and Iroquois.

"The conflict between Pennsylvania and Connecticut, the anger of the Indians, and the dissatisfaction of the frontiersmen were further aggravated by the development of a fundamental split in Pennsylvania politics between those who supported the Proprietaries (the Penns and their friends) and those who supported the Quaker merchants of Philadelphia." This cleavage anticipated the conflict between Tories and Whigs that would emerge in the 1760s and would bear fruit in resistance to the Stamp Act and culminate in the American Revolution (Hall, 1982).

The Proprietaries' interests were closely tied to those of the British government. They favored enforcement of the Navigation Acts, which limited where and in what commodities Americans could trade and which curtailed manufacturing in many areas. The Quakers on the other hand, favored free trade, avoided British efforts to enforce trading laws whenever possible, and favored the enforcement of Lenape claims on disputed lands, especially in the Wyoming Valley.

"This conflict had serious consequences, for it rendered the governor of Pennsylvania virtually powerless to deal with either the Connecticut incursion on the Susquehanna or Teedyuscung's threat to call his braves to arms" (Sipe, 1927). The Indians, recognizing that the whites no longer spoke with one voice, were quick to attempt to play off one party against the other.

On July 9, 1755, 400 miles west of the Lehigh Valley, a band of several hundred Indians, including many refugee Lenape, joined battle against the British Regulars under General Edward Braddock near Fort Duquesne, the present site of Pittsburgh. The brightly uniformed and highly trained professional soldiers, unfamiliar with the guerilla techniques of frontier warfare, were routed. British authority collapsed in the Ohio valley and the French began to move in, taking over British trading posts and military strongholds.

Gnadenhuetten (present day Weissport), in the Mahoning Valley was the first settlement of Europeans in the area now embraced in Carbon County. It was established by the Moravians as an Indian mission in 1746. Each Indian was given his own plot of ground and lived in seeming harmony with the white spiritual advisors. For a short time, Chief Teedyuscung lived there. However, as the Indians began to waiver in their allegiance to the English and prepare to take up the hatchet on the side of the French, it became a matter of concern to them that many of their people were living in the Moravian settlement as Christians. Teedyuscung urged them to withdraw from Gnadenhuetten. For a time the Christian Indians refused to move, but Teedyuscung's influence was eventually great enough to draw many away from the settlement. The Indians that had joined the French were incensed that any remained with the Moravians and began to plan revenge.

By October, the Lenape were on the warpath. By November, settlers were gripped with fear. Moravian missionaries wrote to their Bishop in Bethlehem begging that their Indian converts be escorted to safety and that guards be sent to protect the village against imminent attack. On November 24, 1755, the Indians attacked Gnadenhuetten, killing eleven of the fifteen inhabitants, and burning their barns and houses. The Indian attacks continued into December, moving ever closer to the centers of settlement along the Delaware and Lehigh rivers. The residents of the frontier counties repeatedly asked Governor Morris for aid in defending themselves, but he could do nothing, since the Quakers controlled the assembly and refused to grant him funds for such a purpose.

Finally, in January of 1756, Benjamin Franklin, agent of Governor Morris was sent to the area to see to its defense. He arrived in Bethlehem on January 7th to find the town crowded with terrified refugees from the surrounding countryside, including the remnants of the Northampton County militia, who had been soundly defeated by the Indians on the road to Gnadenhuetten. Franklin, a notable organizer, took command of the confused situation. Rallying 500 troops, he left on January 15th for Gnadenhuetten, where he began construction of Fort Allen. It was completed ten days later, establishing a major military stronghold at the strate-



This statue of Ben Franklin is located in a public park in Weissport, Carbon County. In 1756, Governor Morris sent Franklin to the Lehigh Valley to see to its defense. As a result, Fort Allen was erected in the Lehigh Gap, along with numerous other block-house forts on Blue Mountain.

gically important Lehigh Water Gap. Within the next few weeks, Franklin and his men constructed half a dozen other forts and blockhouses along the frontier in Schuylkill, Monroe, and Carbon counties.

By April of 1756, Governor Morris, although still opposed by the Quakers, declared war on the Lenape, offering cash rewards of \$130 for the scalp of every male Indian over 10 years of age and \$50 for the scalp of every woman or girl. At the same time, he opened negotiations with the Indians in a series of conferences at Easton, which would meet intermittently between 1756 and 1762.

These conferences were the Lenape's last stand. Caught up in an international power struggle between two great world empires, the English and the French, their rights overlooked in a boundary dispute between Connecticut and Pennsylvania, and outrun in the jockeying for imperial favor among other Indian tribes, "they could do little more than vacillate between impotent threats and pathetic appeals" (Hall, 1982). The Lenape's situation was summed up by Teedyuscung when he declared:

"I sit here as a Bird on a Bow—I look about, and do not know where to go; let me therefore come down upon the Ground, and make that my own by a good Deed, and I shall have a Home forever."

Landless, demoralized, and scattered, the Lenape stood little chance of recovering what they had lost. The failure of the French to hold the Ohio Valley deprived them of their strongest ally. Continuing raids on isolated white settlers not only alienated their Quaker friends in the Pennsylvania Assembly, but also aroused such hostility among frontiersmen that "no Indian, whether Christian or pagan, was safe even in broad daylight" (Sipe, 1927). The last Easton conference, in the summer of 1762, left the status of the Lenape unresolved. They were free to live in the Wyoming Valley as far as Pennsylvania authorities were concerned. However, the Wyoming was occupied by Connecticut settlers the government at Philadelphia was powerless to displace.

In the summer and fall of 1763, the long struggle of the Lenape finally ended. On April 19th, Teedyuscung, who had remained with his people in the Wyoming Valley, was burned to death as he slept in his cabin. The fire had been set by agents of the Susquehanna Company who, at the same time, put the entire Indian village to torch, burning more than 20 houses and chasing their inhabitants into the woods. The destruction of Wyoming was accompanied by countless other outrages against the Lenape.

By fall, the Lenape were ready for revenge. Early in October, Captain Bull, Teedyuscung's son, descended with a war party on Northampton County, killing 54 persons. Shortly after, they struck the Connecticut settlement at Wyoming, where the thirty to forty people who remained were tortured and murdered.

These attacks sealed the fate of the Indians. The government could not protect them as groups like the Paxton Boys at Lancaster were killing every Indian they could find—man, woman or child. By the 19th century, the remnants of the tribe were scattered throughout Oklahoma, Indiana, and Canada.

The Pennamite Wars between Connecticut and Pennsylvania were not finally settled until the 1770s. Although no actual fighting took place between the two colonies, it was a struggle of major consequence. First, the aggressiveness of the Connecticut settlers sparked a conflict between the whites and Indians, which not only caused enormous bloodshed, but also, by its

conclusion, had eradicated the Indian presence in Pennsylvania. Secondly, the impotence of the British government and its agents in dealings with the Connecticut invaders and the Indians permanently discredited English officialdom in the eyes of the settlers. This alienation would have had much to do with the enthusiasm with which the inhabitants of the Lehigh Valley would greet the outbreak of the American Revolution (Hall, 1982).

4. EUROPEAN PROLIFERATION AND THE REVOLUTION

With the eradication of the Lenape in the early 1760s, the people of the area passed beyond the frontier stage and began to build their own distinctive version of what would later be termed the American Dream. Virtually every corner of Lehigh and Northampton counties was dotted with farms, taverns, and mills by the last quarter of the 18th century.

Bethlehem was the metropolis of the Lehigh Valley during this period. It owed its growth to its strategic location at the juncture of the Lehigh and Delaware rivers. The Moravians, or Unity of Brethren, were descended from a reformation movement that antedated the preachings of Martin Luther by almost a century. The Moravian settlement in Pennsylvania occurred by accident. The sect had originally hoped to settle in Georgia, and a party of ten arrived in Savannah in 1735. The non-Moravians proved unfriendly—especially after the Moravians refused to bear arms against Spanish marauders from Florida. In Georgia however, the Moravians encountered George Whitefield, the Presbyterian evangelist. Whitefield, who owned a large tract of land that

included present day Bethlehem and Nazareth, had hoped to establish in the Pennsylvania wilderness school for Negroes and a sanctuary for English debtors. He proposed that the Moravians come to his “Barony of Nazareth” to begin building houses for his beneficiaries. The Moravians arrived in Nazareth in 1741 and made friends among the other settlers, including Nathaniel Irish, land agent for William Allen. The Moravians cast their lot for a tract of Allen’s land at the junction of the Lehigh River and the Monocacy Creek. By the next year, when Whitefield found himself in financial distress, they were able to purchase his holdings.

The Moravian settlement grew rapidly from that point on. The ownership of the real estate in the towns that they controlled—Bethlehem, Emmaus, and Nazareth—remained restricted to the Moravian Church until the 1840s. The pooling of resources and the coordination of activities enabled the Moravians to mount educational, cultural, and missionary ventures. “Within months of their first settlement, the strains of fugues and cantatas could be heard on the banks of the Lehigh” (Hall, 1982).

The Moravians encouraged the visual arts. John Valentine Haidt, who arrived in Bethlehem in 1754, was one of the most skilled portraitists in colonial America. He and his successors created a visual record of life in an early American community that is unrivalled, even by major cities like New York and Boston. The Moravians did not confine their interests to aesthetic and religious matters. They were accomplished engineers and architects. Their pumped water systems at Bethlehem, the first in North



The Moravian settlement in Bethlehem, and elsewhere in the lower Lehigh River valley, brought a sturdy religious orientation to the region, as well as a level of culture not typically found in the frontier.

America, began operation in 1754. Moravian architects built large structures of stone and brick that still stand today, unimpaired by two and a half centuries of use. In addition, Moravian engineers laid out the roads that made Bethlehem the hub of the region.

The American Revolution left tiny Allentown, busy Easton and cosmopolitan Bethlehem physically untouched; the centers of fighting lay to the north in New England, New York and New Jersey, and to the south in Virginia and the Carolinas. While most of the Moravians were pacifists and did not fight in the war, they maintained a stance of friendly neutrality toward the patriots. Among the non-Moravians, however, support for the cause of independence was almost universal. When the people of the county (which included present day Lehigh and Northampton) were called upon to swear oaths of allegiance to the Continental Congress in 1777, 4,821 subscribed to the declarations. Only 59 refused. By May of 1775, over 2,000 volunteers stood ready for military service. George Taylor, the pioneer manufacturer of Easton and Catasauqua, was one of those who stepped forward to sign the Declaration of Independence. (Hall, 1982)

The Lehigh Valley had much to gain from the revolution. The unusually fertile and productive agricultural region was a major supplier of provisions to the Continental armies. The struggling government set up military hospitals at Easton, Bethlehem, and Allentown. Among the disabled soldiers who recuperated in the valley was the young Marquis de LaFayette, who had been wounded at the Battle of Brandywine in 1777. As Philadelphia fell to the British in the autumn of that year, the Lehigh Valley became a place of refuge for the patriots. The Liberty Bell, symbol of the nation's aspirations, was transported to Allentown and hidden in the basement of Zion's Reformed Church to prevent it from falling into the hands of the Tories. Bethlehem became an important meeting place for patriot leaders. The Founding Fathers—Washington, Adams, Jefferson and Hancock—and such military nobles as Casimir, Pulaski, Baron von Steuben, Henry Knox, Nathanael Greene and John Paul Jones, all spent time in Bethlehem during the war. However, the most important effect of the war on the Lehigh Valley involved the development of manufacturing, particularly of desperately needed armaments. Many of the German craftsmen in the area were descendants of ancient arms-making families in cen-



The engineering skills of the Moravian settlers provided many amenities to frontier life, like the water works in Bethlehem built in 1754.



In 1777, the Liberty Bell was transported from Philadelphia to the Lehigh Valley, and stored for safe keeping in the basement of the Zion's Reformed United Church of Christ in Allentown. The Liberty Bell Shrine can be seen there today.

tral Europe. Bringing their skills and tools to the wilderness, they had been quick to adapt the European rifle to frontier uses, producing the remarkably accurate and dependable Pennsylvania rifle. "The stimulus of war laid the basis for the subsequent industrial development of the region, which would be largely devoted to the mining and manufacturing of ferrous metals" (Hall, 1982)."

With the end of the war, the artisans and farmers of the Lehigh Valley returned to their normal pursuits. The Lehigh Valley remained largely rural. Of the 25,000 inhabitants of the region in 1800, less than 2,000 lived in its three largest towns. In addition, it was even more Germanic than it had been before the war, for many of the Scotch-Irish of Northampton County, unwilling to support the struggle for independence, had departed for places where King George was more favorably regarded.

As the farms in the countryside grew more prosperous, producing surpluses of grain, dairy products, and cattle, the towns grew larger. They also became trading centers where the farmers went to sell their goods and purchase what they could not grow themselves. The towns were also centers of information. In the taverns the farmers, artisans, and merchants wrangled over state and national politics, exchanged gossip, and renewed old friendships. Their arguments as well as their sense of identity were no doubt fueled by German-language newspapers, which had been published in Philadelphia as early as the 1750s and which, by 1810, were being printed in Easton and Allentown (Hall, 1982).

After almost three-quarters of a century of being alternately flattered and neglected by the English-speaking politicians of Philadelphia, the Pennsylvania-Germans were beginning to recognize where their political interests lay. Profoundly conservative, tied by choice to the land and intensely suspicious of officialdom of any kind, the Germans were quick to oppose efforts to increase the power of both state and national governments (Hall, 1982).

The Pennsylvania Germans' devotion to self-government was so great that, in 1798, when Federalist President John Adams attempted to levy a direct federal tax on real estate in order to finance the unpopular undeclared war with France they rose in rebellion. Liberty poles were erected throughout the Lehigh Valley and the old revolutionary slogans about taxation without representation were heard in the taverns.

"This localism and cultural insularity did not, for the most part, cause the inhabitants of the Lehigh Valley to turn away from the greater world" (Hall, 1982). While it is true that the Moravians became increasingly withdrawn and isolated, outcasts even among their fellow Germans for their neutrality during the revolution, the majority of Pennsylvania Germans were actively interested in commerce and politics. Indeed, with Jefferson's election to the presidency in 1800 and the subsequent relaxing of the suffrage laws, they became major participants in state politics, promoting the movement of Pennsylvania's capital to Harrisburg and, after 1820, electing a series of Pennsylvania Germans to the governorship.

In many ways, the struggles of the Pennsylvania German pioneers in the 18th century were the same as those of any group settling on the American frontier before the revolution, but there were important differences. "The horrors of religious warfare in Europe, in which the possession of a single piece of territory might pass, within 30 years, between half a dozen governments, had made the Pennsylvania Germans intensely suspicious of all authority" (Hall, 1982). This suspicion was intensified by their experiences with the English colonial government and their encounters with aggressive New Englanders in the northern part of the valley.

“Thus, while the Yankees were quick to extract from their land what they could before moving on to the West or into commerce and manufacturing, the Pennsylvania Germans single-mindedly kept at the task of improving the land and replacing makeshift wooden structures with stout fieldstone farm-houses.” (Hall, 1982).



In 1820, Allentown was a bastion of Pennsylvania-German pioneers. Rather than extract the region's wealth and move west, as others did, the "Pennsylvania Dutch" stayed to build and improve their land and buildings.

The fundamentally agrarian nature of the people of the Lehigh Valley gave the towns a unique character. Unlike towns situated in the heart of other agricultural regions, the Lehigh Valley towns of Allentown, Bethlehem and Easton did not drain off the wealth of the surrounding countryside. Although the population of urban areas in the nation increased at almost double the rate of rural areas between 1790 and 1830, the towns of the Lehigh Valley grew no faster than the rural townships around them. The earliest paintings of Easton, Allentown, and Bethlehem show them, in the 1820s and 1830s to be small clusters of buildings set amid pastures and fields.

“The strong ties between town and countryside were not coincidental. They were a product of the Pennsylvania German's profoundly traditional attitudes which regarded land as the only real source of security and the family and Scriptures as the only true sources of authority” (Hall, 1982).

“This ongoing relationship between county and town led to a perpetuation of rural conservatism. The towns, rather than becoming outposts for the spread of political, economic, and religious activities inimical to the preservation of Pennsylvania German culture were, rather, citadels of resistance to the English-speaking mainstream”(Hall, 1982).

By the 1820s and 1830s, the region presented rich possibilities to the enterprising. The entrepreneurs of Philadelphia, New York and Boston looked to its untapped iron, coal, timber, and agricultural resources with eagerness. The Pennsylvania Germans, however, having created and perpetuated their own distinctive way of life, were not about to permit the Lehigh Valley to be transformed into a colony of avaricious outsiders. Nor were they, like the Amish of Lancaster or Moravians of Bethlehem, willing to turn their backs on the new. Commerce and industry would develop in the Lehigh Valley along lines quite different than it did elsewhere. The social gulf between owners and laborers characteristic of many other industrial areas would be largely absent in the 19th century, for employers were reluctant to exploit their employees and laborers trusted their employers to act in their common interest. Because the Pennsylvania German community was so powerful and cohesive, industry would come to serve the community; the community would not exist merely for the convenience of industry.

C. Industrialization of the Lehigh River



Using swiftly moving water for transportation, the harvesting of trees was a relatively easy matter. These logs became fuel and building material for the Lehigh Valley's communities, as well as the boats, locks, and dams of the Lehigh Navigation.

Early settlers took advantage of the Lehigh River as a source of water, food, transportation, and power. The first industries included a tannery, mills, and logging. Logging was a big business. The virgin forests of the Lehigh were clear-cut to provide a source of fuel and building materials for the settlements. Later the logs were used to build canal boats and canal locks. The forests have re-grown in the upper Lehigh but in the lower Lehigh, the land remains deforested as farms, and more recently, building lots.

As time passed, deposits of coal, iron, slate, and limestone were discovered. Each became a major industry and made the Lehigh region the heart of America's Industrial Revolution.

1. STODDARTSVILLE, AN EXAMPLE OF INDUSTRIAL DEVELOPMENT ON THE RIVER

Stoddartsville is situated at the Great Falls of the Lehigh River, 14 miles southeast of Wilkes-Barre and 30 miles northwest of Easton. It was built by John Stoddart, a poor English immigrant who rose to financial power. The town was to serve as the hub of Stoddart's business empire, which rested on a fortune built through dry goods merchandising, book publishing and speculation in real estate and stocks.

In the early 1800s, Stoddart joined others in investing in the Poconos. Most warrants for land in the Poconos were then purely speculative, as the names from the period indicate: Silverhill, Mine Hill, Moneymore, Grand Object, Expectation, Industry, and Hope. However, Stoddart had a long-range vision that reached beyond such get-rich-quick schemes. He wanted to use the land itself to create a transportation and industrial center—one that would funnel raw grain from Pennsylvania's fertile Wyoming Valley to his mill, and then pass the flour down to markets in Philadelphia. The Wyoming Valley is a 20-mile stretch of farmland along the Susquehanna River near present-day Wilkes-Barre; at that time, the valley's grain was moving down the Susquehanna to the city of Baltimore, which was engaged in a trade rivalry with Philadelphia via the Lehigh and Delaware Rivers.

Josiah White was another visionary businessman who would eventually become Stoddart's partner. White was a member of the powerful industrialists and pioneering developers who lived in Philadelphia and dominated the industrial growth of the Delaware Valley for several generations. One of White's passions was to develop coal as a source of reliable power; though rivals had closed him out of the coal trade on the Schuylkill River, he hoped to get coal to Philadelphia by way of the Delaware River. Both Stoddart and White were seeking to exploit resources for the Philadelphia markets, and both were looking to secure an edge over their competitors. These motives brought their fortunes together.

Stoddart was an original investor in the Easton-Wilkes-Barre Turnpike Company, which was chartered in 1802. Stoddart planned the route of the turnpike to pass through Stoddartsville, as

he planned to call his proposed milling center. By 1806, the first 29 miles of the turnpike had been completed, from Wilkes-Barre past the great falls of the Lehigh. Stoddartsville itself would not be finished until 1819, three years after the completion of the turnpike and construction of Stoddart's gristmill.

Josiah White's fortunes began to mesh with John Stoddart's in about 1815. Stoddart situated his community along the turnpike—where an old Indian trail known as the Wechquetank Path, improved by General Sullivan's army in the Revolution, crossed the Lehigh. The site was also at the most elevated point on the river that navigational improvements could ever be expected to reach. The Pennsylvania Commonwealth's assembly—later its legislature—had been periodically passing bills to encourage improvements to navigation along the Lehigh River since as early as 1771. This legislation had given Stoddart hope that navigation would eventually be possible.



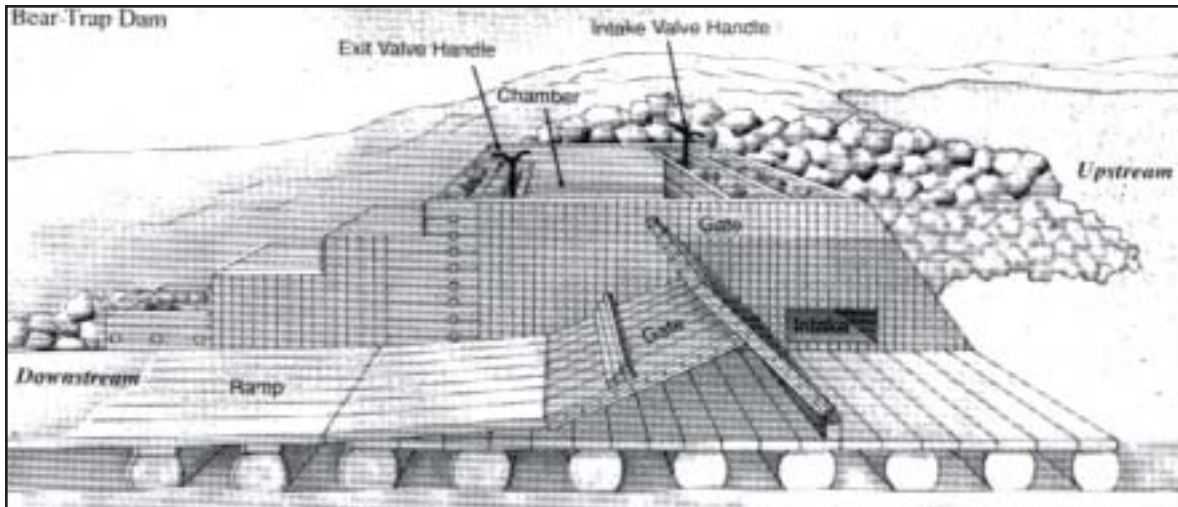
Protected recently by a local visionary, Commander John Butler, this historic grist mill at Stoddartsville, Luzerne County (near Blakeslee) was built to take advantage of the new Lehigh Navigation. Unfortunately, the northern terminus of the system was established 12 miles downstream in White Haven.

In 1815, White tried to get Stoddart to invest in a plan to open up the Lehigh to navigation. Stoddart clearly understood how navigation on the Lehigh could be beneficial to him. Whoever controlled river traffic and the canal that was to come would naturally charge tolls; and he hoped that the turnpike and the Lehigh Coal and Navigation Company (LCN) could be played off against each other to keep tolls down. As a charter investor in the turnpike, he probably hoped to moderate its charges against his commerce, and he doubtlessly hoped for the same from the LCN.

Moreover, Stoddart hoped that his town's strategic location would help him take advantage of both modes of transportation. The turnpike from Wilkes-Barre to Stoddartsville would bring raw grain to Stoddart's gristmill, since only overland transport from farms in the Wyoming Valley to the mill was feasible. From the mill to the Delaware, he looked forward to descending navigation via the Lehigh and, in time, two-way navigation using the canal. Eventually, he could avoid the turnpike altogether.

Stoddart's industrial center at Stoddartsville was highly integrated. His gristmill was large and automated to conserve scarce frontier labor and minimize the need for workers' housing in the village. The same millrace that provided water for the gristmill also fed water, by way of a wooden aqueduct, into a sawmill, which was supplied with timber from Stoddart's surrounding lands. The lumber from this sawmill was used in the construction of the gristmill and the supporting village, including an inn to cater to the turnpike trade.

Stoddart's sawmill also provided the lumber for river barges, or "arks" as they were called, that carried his grain downriver toward Easton. In an apparent show of good faith, White had begun clearing the Lehigh River channel right below Stoddartsville, working downstream toward the Delaware. He did this as soon as his charter was granted, building dams as he moved down river.



Pre-dating the Lehigh Navigation, which was a lock-and-dam system, the “bear-trap lock” was an ingenious device that moved laden boats, or “arks,” down the river on a released surge of water. From the collection of the National Canal Museum, Easton, PA.

White’s dams were destined to play a significant role in this story. His initial wing dams were designed to impede, but not actually block, the flow of the river in such a way that high water flowed through the part where the wings failed to meet. However, a drought occurred in 1818 just before the wing dams were completed. White was at this time under pressure from the stockholders to fulfill his obligations under the LCN charter, which mandated a minimum channel depth set by the state legislature. In response, he invented a new type of hydraulic dam with a collapsible middle section that became known as a “bear-trap” lock.

Unlike the wing dams, this new type of dam spanned the entire river. The river, completely blocked, rose behind the dam, drought, or no drought. Once the pool had reached a sufficient height, the hydraulically moveable middle section was dropped, and river transport rode downstream on a miniature flood or freshet that poured through the breach. The dams had a damaging effect on fishing along the Lehigh eliminating the shad runs formerly harvested by the Moravian missionaries and their Indian converts.

The most financially damaging aspect of these downriver systems was that they were one-way; the arks or barges carrying either flour or coal southward had to be broken up and sold once they reached their destination. This problem contributed to the demise of Stoddart’s fortunes. The cost of new arks was high, and his indebtedness grew with each passing year. His gristmill alone had cost him \$20,000. However, his creditors remained enthusiastic, and by 1820, after the construction of Stoddartsville was completed, the entrepreneur was \$250,000 in debt. Within eight short years, his debt grew to a staggering \$650,000 and financial ruin was upon him.

White exploited Stoddart’s situation to his advantage. White and the LCN needed wood from upriver of the coal fields to shore up the mines and build the arks to ship the coal, and the existing one-way bear-trap dams allowed for that. However, the cost was high, as it was for Stoddart.

In contrast, canal transport starting downstream from the coal fields would allow for two-way traffic and a return of coal barges loaded with supplies, thus recycling the arks and avoiding turnpike costs. White began construction of the canal, unlike the dams, at the Easton end of the Lehigh, with the foreseeable result that it would take some time—expensive time for Stoddart—for the canal to reach Stoddartsville.

It never got that far. In 1829, the canal reached White Haven, the closest point to White's upriver coal fields and 12 miles from Stoddartsville. There construction was stopped. Later the LCN lobbied the legislature into withdrawing the legal mandate for hooking in with Stoddartsville. John Stoddart's financial ruin was assured in the 1820s once it became likely that two-way navigation would never reach his mills because it presented no financial advantage to the LCN.

Foreseeing his ruin, and recognizing that White had made a series of tough decisions that put the squeeze on him, Stoddart took advantage of his friendly relations with his creditors. He divested himself of certain properties and assets so that the members of his family would not be dragged to ruin with him. Josiah White was one of the people who bought Stoddart's land. Technically, Stoddart avoided bankruptcy. In the end, he took up work as a clerk in Philadelphia.

Stoddartsville was almost dead by the early 1830s. It enjoyed a resurgence between the mid-1830s and the early 1860s, supplying wood to the downstream coal industry. By sometime in the 1860s, the gristmill and sawmill were ruined and the upstream bear-trap dams had been destroyed by floods and abandoned by the LCN.

2. THE LEHIGH CANAL AND THE LEHIGH COAL AND NAVIGATION COMPANY

In 1791, Phillip Ginter was hunting for a millstone at present Summit Hill when he noticed some "stone coal" which was later verified to be anthracite. The best way to get it to market, in, was via the Lehigh and Delaware Rivers. Placing it on rafts was not always successful, as the Lehigh was so shallow at times that the rafts were unable to float. A Philadelphia group, the Lehigh Coal and Mining Company, led by Colonel Jacob Weiss and Charles Cist, bought the rights to Ginter's mine and were deeded the land by the state of Pennsylvania. On March 9, 1791, the State Legislature approved an act for improving the Lehigh River, which consisted of the removal of boulders and other measures to make navigation easier. On February 27, 1792, the Lehigh Navigation Company was formed to improve the river. Through the early 1800s, they tried unsuccessfully to tame the Lehigh River and bring coal to Philadelphia.

In 1810, Josiah White and Erskine Hazard acquired ownership of the Schuylkill Falls at Philadelphia. Josiah White developed a dam and lock system for navigation purposes. Here, he built a nail manufacturing plant and a wire drawing plant. He used soft Virginia coal in his iron smelting operations.

During the War of 1812, Philadelphia was cut off from its supply of Virginia coal. Although there was high demand for wire and nails for the war effort, White and Hazard's operations had to be closed for lack of coal. They heard about the vast supplies of coal at Mauch Chunk and decided to inspect the town and study the Lehigh River as a source of navigation.



These canal boats – not barges, which have no steering mechanism – are laden with the matériel of an emerging nation. The Lehigh Navigation operated for over a hundred years, longer than any other canal in America.

On August 10, 1818, Josiah White, Erskine Hazard and George Hauto formed the Lehigh Navigation Company. On October 20 of that year, they also formed the Lehigh Coal Company for exploitation of the anthracite deposits. On April 21, 1820, the two companies consolidated into the Lehigh Coal and Navigation Company. They first tried to control the Lehigh River by building a series of dams. When the spring thaw came, a powerful freshet (high waters due to snow melt or heavy rains) destroyed the dams.

On March 17, 1821, Erskine Hazard wrote in Poulson's American Daily Advisor:

"... It has been estimated that upwards of ten thousand tons of iron annually are imported into the United States. It is now ascertained from experience that iron can be made with Lehigh Coal at half the cost of imported iron. Upon the improvement of the River Lehigh, iron likely will become even a large article of export from the State of Pennsylvania."

On March 6, 1821, Josiah White wrote in the Democratic Press:

"... On the waters of the Lehigh and the Schuylkill, about one hundred miles from Philadelphia, this species of coal resides. This fuel exists in a form more condensed than other species known. It is bulk one-tenth and in weight one-fifth that of oak wood for equal heat. It is consequently the fittest fuel for export. When transport by the Lehigh is improved, it is said the price of coal in the city of New York, along the seaboard to Boston, and including the seaboard south of Philadelphia, a population of four hundred thousand souls, easily will use two hundred fifty thousand tons of coal each year. In addition, estimating a profit of about two dollars a ton, such a market surely will awaken merchants out of their slumber and into a more active condition of enterprise."

In 1827, Josiah White conceived of a canal linking the coalmines at Mauch Chunk (currently Jim Thorpe) to the markets at Philadelphia. By 1832, his Lehigh Canal was carrying 100-ton barges of coal from Jim Thorpe to Easton and down the Delaware River to Philadelphia. The canal system was later lengthened north to White Haven and, again, from south of Easton to Bristol.

Coal was first mined at Summit Hill, at the top of Pisgah Mountain about nine miles west of Jim Thorpe. In 1819, a route was graded which allowed anthracite coal to be hauled over the road bed in two ton capacity horse drawn wagons.



In May of 1827, The Mauch Chunk, Summit Hill, and Switchback Railroad, the first coal railroad and the third railroad in the United States, began operations. This railroad, known as the Switchback, used the steep descent of the mountain to carry the coal cars to the Lehigh River. Mules or horses rode down with coal cars and pulled the empty cars back up the mountain.

In 1844, stationary steam engines replaced the mules and horses. Later, in 1872, direct railroad service came to Summit Hill and the Switchback was retired from coal hauling. It became a popular tourist attraction,

Josiah White first developed a lock-and-dam navigation system for the Schuylkill Falls in Philadelphia before putting his ideas to work on the Lehigh River. Coal from the Mauch Chunk area was needed to replace the soft Virginia coal cut off from Philadelphia by the invading British during the War of 1812.

offering an 18-mile scenic ride through the mountains. The Switchback served as a model for the San Francisco cable car and the modern roller coaster. The railroad bed right of way was converted into a 16-mile recreational trail that begins at Summit Hill.

The Lehigh Coal and Navigation Company went before the Pennsylvania legislature and proposed to develop the Lehigh River for shipping. The LCN received a lease for 10,000 acres at Jim Thorpe for one ear of corn per year. Josiah White constructed a series of channels and Bear Trap locks to provide a sufficient water level for summer barge traffic. The Bear Trap locks provided a means of one-way travel. This succeeded in getting tens of thousands of tons of coal to Philadelphia and developing a market for anthracite (Zagofsky, 1993).

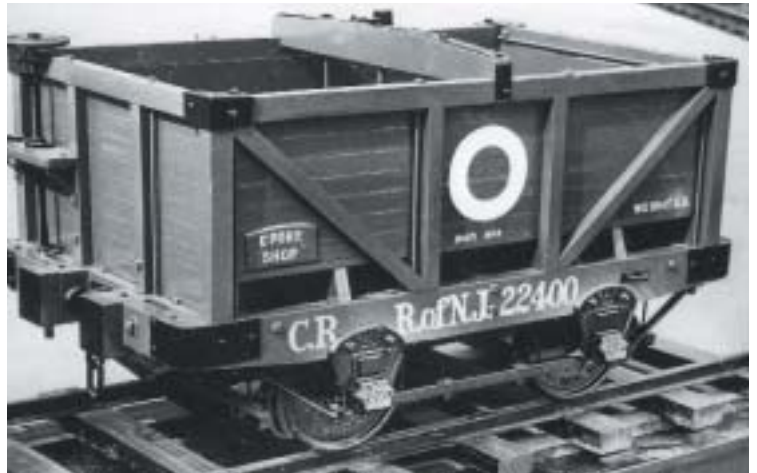
The Lehigh River had limitations as a shipping route. Under the best of conditions, it required great skill to steer the barges on the river and keep them off rocks and out of shallows. When the freshets came in the spring, the river became too swift to barge coal. In addition, the power of the water would damage the locks, sometimes totally destroying them. One-way travel created a constant demand for new barges, which, in turn, continued destroying the remaining forest (Zagofsky, 1993).

The first phase of the Lehigh Canal ran from Mauch Chunk to Easton. The canal measured 45 feet wide at the bottom, 60 wide feet at the top and drew five to six feet of water. The locks were designed to handle two barges traveling in opposite directions with each weighing up to 150 tons. The original section of the canal dropped 353.2 feet in 46.2 miles. In several places, where slackwater navigation was possible, the canal connected to the Lehigh River. It was made up of 10 miles of slackwater pools, 34.5 miles of canals, and 52 locks stretching 1.6 miles. It began operation in 1829 (Zagofsky, 1993).

During the construction of the canal, Josiah White discovered a source of hydraulic lime. He used the hydraulic lime to make waterproof joints in the canal lock masonry. This discovery



By 1832, these boats were each carrying 100 tons of "black diamonds" down the canal and river to Easton, and to the markets beyond.



Cars laden with coal were moved from the top of Pisgah Mountain in Carbon County down the Switchback Railroad to the Lehigh River and the Lehigh Navigation. From the collection of the National Canal Museum, Easton, PA.



Six feet deep, 60 feet wide at the top, and 45 feet wide at the bottom, the canals of the Lehigh Navigation were built to allow two boats to pass each other. From the collection of the National Canal Museum, Easton, PA.



Some locks in the 26-mile Upper Grand Section of the Lehigh Navigation were as high as 40 feet. In this section there were only eight short canals. Mostly it consisted of high-lift locks and dams. The boats traveled between the dams in the slack-water pools created by the dams. From the collection of the National Canal Museum, Easton, PA.



Forty-nine locks like this were built in the Lower Section of the Lehigh Navigation. From the collection of the National Canal Museum, Easton, PA.

started the cement industry in the Lehigh Valley. The second section of the canal connected Mauch Chunk to White Haven. It dropped almost 600 feet over 26 miles. This upper section consisted of 20.5 miles of slack-water pools, 4.7 miles of canals and 29 locks stretching 0.856 miles. This section was destroyed by the flood of 1862. A third section of the Lehigh Navigation System was constructed from White Haven to Stoddartsville. At Easton, the Lehigh Canal connected to the Delaware and Morris canals (Zagofsky, 1993).

When the railroads came to the Mauch Chunk area, the Lehigh Canal began to lose business. Railroads ran faster than canal boats and were able to operate during the winter when the canal was frozen.

By 1890, commerce on the canals had for several decades been deteriorating. Yet, the final demise was delayed until well after the First World War. One reason for this lay in the insistence of state governments that the canal companies maintain their properties. The Lehigh Valley Railroad Company was unable to relinquish its responsibility for the Morris Canal to the State of New Jersey until 1922. The Lehigh Coal and Navigation Company was even less fortunate. In most years between 1890 to 1930, the company operated the canals at a loss (Joint Planning Commission, 1963) per year. During these years coal tonnage on the Lehigh canal declined from 356,639 to 91,227 (Joint Planning Commission, 1963). In 1953, property was leased in Walnutport from Lehigh Coal and Navigation for improving fishing and restoring the canal. In 1955, a flood destroyed 3.5 miles of this restored section of the canal. In 1964,

LCN offered the canal property to the municipalities along the route. The Lehigh Canal has been significantly restored in Weissport, Walnutport, Freemansburg, Easton, and between Allentown and Bethlehem and is now used primarily for recreation.

In 1988, the United States Congress designated that the pathways of colonial development in eastern Pennsylvania be listed as a National Heritage Corridor. The corridor follows the railroad right of way beginning at Wilkes-Barre, meets with and continues along the Lehigh Canal to Easton and follows the Delaware Canal to its termination at Bristol. The Delaware and Lehigh Canal National Heritage Corridor Commission has been charged with helping towns along the corridor develop plans to maintain, restore and improve the lands, waterways and buildings.

3. OWNERSHIP OF THE LEHIGH RIVER

On July 19, 1965, Governor William W. Scranton signed into law a bill repealing a 143-year old legislative act that had given the Lehigh Coal and Navigation Company control of the Lehigh River, its tributaries and water rights by an act passed in the state legislature in 1822. Representative Samuel W. Frank, of Allentown, who offered a repealer, which had thirteen sponsors, uncovered the law granting this special privilege to the mining and coal company. The repeal bill passed the House 202-0 and the State Senate 40-0.



State Representative Samuel W. Frank, in 1966, engineered the return of the ownership of the Lehigh River to the public domain.

In the early years of development in Pennsylvania, special privilege laws were common to encourage the growth of industries such as mining, canals, transportation and toll bridges and highways. These rights were heavily relied on by the coal industry. These laws were valuable to the owners of the mines but also allowed for negative impacts to the environment. It was not until an aroused public opinion forced passage of the Clean Streams Act in 1965 in the State Legislature that corrective measures could be achieved by Pennsylvania officials in protecting the water quality of the Commonwealth without being totally hampered by unfavorable court rulings based on old laws (Beck, 1966).

4. THE RISE AND FALL OF THE RAILROADS

The very first railroad of significance in Pennsylvania had been the Switchback Gravity Railroad. It was built by Josiah White and Erskine Hazard to haul coal from the mine in Summit Hill to the Lehigh Canal at Mauch Chunk. The coal transported by this historic railroad fueled the Industrial Revolution in the United States.

At first, the railroad consisted of a single track that was used for the trip to and from the mine. Gravity was the power used to move the coal to the river, and mules were used to pull the cars back to the mine. In 1844, as coal became popular fuel and a quicker and more economical way was needed to move it, two inclined planes and a figure-8 track were installed to allow a continuous run between the mine and the river. The descending cars made the nine-mile journey in 20 minutes, an unbelievable speed for those times. They descended a total of 975 feet to the Lehigh River.

Josiah White's next railroad project was a 25-mile portage railroad, which he named the "Lehigh and Susquehanna Railroad" designed to bring coal from the northernmost extremity of his two-way navigation on the Lehigh River at White Haven, across the mountains from Wilkes-Barre in the Susquehanna River. Traffic became so heavy on the Lehigh and Susquehanna Railroad that the two tracks were taxed to capacity. Meanwhile, White's coal operation at Summit Hill had expanded into Panther Creek Valley to the north, and he developed a two-stage, four track inclined plane railroad to bring coal from Panther Creek to Summit Hill and from there to the Lehigh Canal at Mauch Chunk.

From the 1830s, steam locomotive railroads began to challenge the canals as the primary means of transporting anthracite coal and other industrial commodities. The first of these railroads, the

Beaver Meadow, began service in 1836. It was among the earliest steam locomotive railroads to operate in Pennsylvania's anthracite coal regions and the first to operate in the watershed.

The Beaver Meadow Railroad established the first railway service down the Lehigh River Valley. In the autumn of 1836, anthracite coal was carried from the mines at Beaver Meadow to Penn Haven along the Lehigh River through East Mauch Chunk to the Lehigh Canal docks across from Parryville. Originally planned to extend to Easton, The Lehigh Coal and Navigation Company persuaded railroad officials to end their railroad at Parryville and ship coal and freight via the canal. The 1841 flood destroyed much property between East Mauch Chunk and Parryville Coalport thus became the shipping terminus.

On April 21, 1846, a group of investors chartered the Delaware, Lehigh, Schuylkill, and Susquehanna Railroad Company. The petition for the charter was passed by the state legislature against strong opposition. During the winter, a route was surveyed from Mahoning Creek to Easton. In 1851, canal commissioners of the state appointed two men to determine if the railroad would be detrimental to the Lehigh Canal. They determined it would not be and construction of the railroad was authorized, but by that time, only 17 days remained before the expiration of the charter. The court sanctioned one mile of grading near Allentown to meet the requirements of the charter and thus the project was saved.

Asa Packer, railroad pioneer and founder of the Lehigh Valley Railroad Company (LVRR), dreamed of a continuous line from the Great Lakes at Buffalo, New York to the coastline of New Jersey. Packer's building of the Lehigh Valley Railroad between 1852 and 1855 marked the first major threat to the supremacy of the Lehigh Coal and Navigation Company. The Lehigh Valley Railroad initially stretched from Mauch Chunk to Easton and provided a more efficient and faster coal transportation route for anthracite than by canal. On June 11, 1855, the section connecting Allentown with South Easton formally opened with a locomotive named "General Wall" carrying passenger cars from South Easton to Allentown. Nearly the entire population of the communities along the route came out to see the train. By 1867, the Lehigh Valley Railroad was extended to the Susquehanna River at Wilkes-Barre, and in 1869 to New York State. In 1877, its tracks reached New York Harbor.

By 1855, immigrants from around the world flocked to the rich anthracite coal regions of Pennsylvania, and construction gangs laid track to hurry the shipment of coal to waiting factories. On September 15, 1855, sixty carloads of anthracite coal were carried from Beaver Meadow to East Mauch Chunk, and continued on the Lehigh Valley Railroad to South Easton and across the Delaware River on the new double-tier bridge to Phillipsburg, New Jersey. The coal transport was then continued on the tracks of the Central Railroad Company of New Jersey. On January 17, 1856, the first trainload of coal was shipped from Mauch Chunk to Trenton, NJ, covering the entire distance in only six hours. Lehigh Valley Railroad Company continued to expand with new construction and acquisition of existing companies.

Through a junction with the North Penn Railroad Company in 1856, the LVRR became the key link for both freight and passenger service between central Pennsylvania and New York. Although its main cargo was anthracite coal, not passengers, the LVRR prospered as all types of industries grew up along its route. A wealth of natural resources was diminished as large deposits of limestone, slate, clay and gypsum were carried to industries for refining.

By 1865 Packer owned 54 locomotives, nearly 4,000 coal cars, 11 passenger cars, four baggage cars, four house cars and 50 dump cars. "The LVRR was a tremendous success and a steady flow of traffic

rumbled up and down the river valley day and night." (Morning Call, 1997). The railroad industry throughout the upper watershed was also used in timber, tannery, and ice-cutting industries.

One publicity campaign that gained national attention came about when the LVRR held a contest to find a suitable name for its newest, most luxurious line. A hotel clerk from Toledo, Ohio was selected as the winner from among 35,000 contestants. His entry "The Black Diamond Express," symbolized the wealth of anthracite coal, often referred to as black diamonds. From the day of its first run in 1896, the Black Diamond became the symbol of the most modern in railroading. The streamliner was attended by a corps of chefs serving the finest delicacies of any railroad at the time. The interior of the train was decorated in polished mahogany with figured panels, domed ceilings, and French mirrors (Morning Call, 1997).



The Asa Packer Mansion in Jim Thorpe, Carbon County, is a well-preserved – and well-loved – example of a mid-19th century Italianate cubical villa. It is now a popular museum.

Asa Packer, whose 1860 home overlooks the town of Mauch Chunk, built the Lehigh Valley railroad that soon dominated the anthracite transportation. He went on to serve two terms in Congress and to fund Lehigh University in 1865. This latter contribution was part of a national trend following the Civil War. Men who had prospered during the war helped to foster higher education in America. Ario Pardee, coal magnate from Hazelton, financed Lafayette College. Joseph Wharton helped to finance both the University of Pennsylvania and Swarthmore College.

In reaction to both the threat posed by the Lehigh Valley Railroad and as a means of undoing the devastating effects of an 1862 flood that permanently destroyed the Upper Grand Section of the Lehigh Navigation, the Lehigh Coal, and Navigation Company extended the Lehigh and Susquehanna in 1871.

Although other rail lines, such as the North Pennsylvania and East Pennsylvania divisions of the Philadelphia and Reading Railroad, the Delaware, Lackawanna and Western Railroad, and later the Lehigh and New England Railroad, were all major carriers of anthracite coal in the region, it was the Lehigh Valley and the Lehigh and Susquehanna that were of the greatest importance to this region.

"It was a former boatman on the Lehigh Canal who recognized that the great "Iron Horses" would force the canal systems out of business, but it was years before anyone realized that railroads too could be pushed out of business by the painful loss of money year after year" (Morning Call, 1997).

Soon diesel engines were replacing steam engines across the country. In addition, as the demand for anthracite coal lessened, it became increasingly difficult for the LVRR to produce the money needed to replace engines and make improvements. The LVRR prospered temporarily during World War II, carrying coal for steel factories, supplies and homebound troops, but

once peace had been declared, labor strike after labor strike cut coal production, and the LVRR continued its steady decline.

The Lehigh Valley Railroad passed out of local hands into the control of J.P. Morgan in 1897. The railroads were hit with costly labor strikes in 1893 and 1902. The immigrant flow stopped when Ellis Island closed in 1924. By 1930, the economics of coal mining and railroading were in a steep decline. Coal was being replaced by oil. The numerous railroads serving the watershed went into mergers and bankruptcies until the federal government's Conrail and Amtrak finally acquired the remains in the 1970s. They have since consolidated operations and removed the track from obsolete routes.

One of the best places to gain perspective on the railroad competition after the 1870s is from Flagstaff on a hill south of Jim Thorpe. From this imposing promontory, one can see two ribbons of steel track snaking down either side of the Lehigh River. In that period, 100-car coal trains were seen daily.

D. The Anthracite Industry

1. COAL MINING AND THE MOLLY MAGUIRES

Coal mining was a highly skilled occupation. The miner often worked alone as he freed the coal by picking and blasting. Knowledge of blasting, shoring, and safety had to be combined with strength and endurance. Risk was high from poisonous gasses, cave-ins, and black lung disease. Since 1900, over one hundred thousand people have died in mining accidents (Broehl, 1965).

Once the surface layers were mined, the mining continued underground. The miner wore an oil lamp on his cap, further increasing the danger of setting the methane gas on fire. Low pay, poor working conditions, lack of safety equipment, child labor, continuous health problems, high death rates, and a lack of control over working conditions made the miner a prime candidate for unionism (Broehl, 1965).

In the Mauch Chunk and Summit Hill areas, the mines were owned and managed by the English and Welsh Protestants and labored by the Irish Catholics. In addition to the mining life being physically hard, the workers had to work long hours. There were frequent accidents, and children had to help sort coal for the families to make enough money to survive. The mine owners took further advantage of their work by paying them in a script that was redeemable only at the company store. Further, the owners would require the mine workers to pay for their gear and supplies. Any men objecting to the low pay and hazardous conditions were fired.

Beginning in 1842, there were unsuccessful attempts to unionize the miners. During the Civil War, the miners rioted to protest the draft. In 1862, Jack Kehoe, a miner and opponent of the war, spat on the American flag. A mine foreman, F.W. Langdon objected to this act and was stoned to death. Over the following decade, this violence grew and developed into a secret society called the Molly Maguires.

In 1869, Franklin Benjamin Gowen, the district attorney of Schuylkill County, became head of the Reading Railroad Company. He led the railroad into the mining business with a policy of scaring the mine operators and destroying the unions. Gowen had the money, the power, and the police in his control. "His only opposition was the secret avenging group called the Molly Maguires" (Zagofsky, 1993). In order to break the Mollies, Gowen hired the private detective

services of Allen Pinkerton. Pinkerton decided to plant an agent, James McParlan, a native Irishman who immigrated to America in 1867, within the Mollies. In 1873, McParlan adopted the name Jim McKenna, and quickly established himself as a colorful, bright Irishman with sympathy for the Mollies (Zagofsky, 1993). In just three years, “McKenna” became a member of the innermost councils of the group. Over the following years, McParlan gathered evidence on the Mollies for several murders in Carbon County. The Mollies, including Jack Kehoe, were arrested, convicted, and hanged.

2. THE NATIONAL SIGNIFICANCE OF THE PENNSYLVANIA COAL MINING INDUSTRY

The following section on the national significance of the Northeastern Pennsylvania anthracite industry is taken from the report titled *Anthracite Coal in Pennsylvania: An Industry and a Region* by the Pennsylvania Historical and Museum Commission, 1997. Mining information specific to the watershed is discussed under Aquatic Components.

The anthracite coal industry of northeastern Pennsylvania, along with the closely related anthracite iron industry and the anthracite canals and railroads that delivered the output of the mines and factories to markets outside the region, is nationally significant.

The anthracite industry played a critical role in the expansion of the American economy during the second quarter of the nineteenth century. The decade between 1839 and 1849 marked the most rapid expansion of the economy’s manufacturing sector in the nineteenth century. The opening of the anthracite fields directly influenced this critical development and helped “determine the timing and process of accelerated growth and institutional change in American manufacturing and mining” (Chandler, 1972).

Anthracite coal fueled the modernization of the American iron industry east of the Alleghenies. It facilitated sharply increased production at rapidly falling prices. By 1844, anthracite produced the cheapest iron ever made in America. This iron became railroad rails, stoves, household furnaces, agricultural machinery, and a host of other products whose manufacture is considered central to the industrial revolution in the United States.

Anthracite offered manufacturers an inexpensive alternative to waterpower, facilitating the widespread adoption of steam power and the spread of factory production. The lack of coal was probably the most significant technological constraint holding back the spread of the factory in the United States. In Great Britain, the adoption of coal as the principal industrial fuel occurred earlier than in the United States, largely because of the deforestation of the British countryside and the need to develop a substitute fuel for wood and charcoal. As a result, the British led the United States in the adoption of steam engines, the development of automated machinery, the use of factory production methods, and the development of improved iron making techniques (Clark, 1949). The opening of the anthracite fields lifted this constraint upon American industry and helped initiate a period of unprecedented growth within the manufacturing sector of the nation’s economy beginning in the 1830s. Steam factories, placed in cities where coal was delivered by water, were closer to raw material supplies and markets. These factories provided work for the increasingly important new labor supply comprised of European immigrants.

Anthracite also occupied a prominent role within the non-industrial sectors of the economy. It became, starting in the 1830s, the major fuel source for residential heating and cooking in the northeastern portion of the nation. The adoption of anthracite solved the fuel crisis confronted by northeastern cities in the 1820s and helped make the rapid expansion of urban areas possible.

The locations of these anthracite fields, behind mountain barriers and a considerable distance from urban centers, necessitated heavy investments in transportation systems in order to deliver the coal to market. Owners of the coal lands first began building canals into the region in the 1820s. As these canals came into service the output of anthracite soared, from almost nothing before 1825 to 290,000 tons in 1830. Spurred by the developments of the iron industry, themselves a result of the expansion of the coal industry, railroads rapidly began to supplant the canals. The interrelationship between the mining industry, the iron industry and the transportation industry within the anthracite region are exceedingly complex and represent some of the earliest vertically integrated industrial enterprises in the United States.

The regions patterns of urban development, its recognition of the environmental and social costs of mining and the histories of the various immigrant groups who supplied the work force for the mines and factories all have national significance. The industry's role in the development of industrial unionism and the transformation of labor relations in the United States is central to the history of labor. Anthracite was one of the earliest industries to unionize by industry, rather than by trade or skill. Anthracite pioneered industrial unionism in this county. Events in the anthracite fields provided examples and lessons for labor organizers in other industries throughout the country.

The anthracite coal industry played a major role in the transformation of the American economy prior to World War I. The industry's decline offered one of the nation's earliest examples of de-industrialization. Throughout its history, developments in the anthracite region reached far beyond the seven counties in which the anthracite fields lay. From the perspective of economic, industrial, business, social, ethnic and labor history, the anthracite region and the anthracite industry are clearly of national significance.

E. Economic Development and the Industrial Revolution

The Industrial Revolution replaced craft production in homes and small shops with mass-production in the factories. The Industrial Revolution also increased agricultural production through improvements in farm machinery, quicker and safer means of transportation, and research in better methods of farming, pest control, crops, animals, and marketing techniques. These improvements elevated farmers' standards of living. Quarrying of slate, mining of anthracite, iron, and zinc, and the building of canals and railroads introduced new types of people, new ideas, and new problems.

1. NATURAL RESOURCES

The first natural product to attract the attention of the colonists was lumber—immense stands of white pine, hemlock, and oak. These were once cut and floated down rivers in order to supply masts and spars for His Majesty's ships. Later these forests were cut to provide domestic firewood, building materials, and charcoal for the iron furnaces before the benefits of anthracite were recognized.

Large-scale lumbering took place with the opening of the canal system in the 1830s in order to supply the growing city markets. The area around Lehigh Gorge State Park in Carbon County was particularly active. As the original growth of pine and oak was stripped off, a secondary

industry developed in peeling the bark of spruce and hemlock trees to be used for tanning animal hides. The town name of Tannery in the Poconos attests to this industry.

The cement industry came to the region during the building of the Lehigh Canal, but it was the work of David O. Saylor at Coplay that gave cement making in the Lehigh Valley its major impetus. By 1877 Saylor had perfected a method of manufacturing Portland cement, which is both harder and stronger than the previously used hydraulic cement. The unique geological properties of the Lehigh Valley's Jacksonburg limestone formation provided an ideal raw material for the manufacture of Portland cement. By 1900, the Lehigh Valley had become the leading cement manufacturing center in America, a distinction it would hold for more than three decades.



A high-quality limestone was discovered in the Lehigh Valley during the construction of the Lehigh Navigation, and the American cement industry was spawned. These kilns, located in Saylor Park, Lehigh County, were used in the process of making limestone into Portland cement.

Limonite, also known as "brown ore," was found in such regions as the small, steep valleys east, southeast and northeast of Hellertown, Fogelsville, Guthsville, and Ironton. With the development of mining, came the process of smelting. The area's furnaces were small, had water wheels to provide power and used charcoal for fuel. Expansion was limited due to the expense of charcoal and availability of skilled labor and timber resources (Joint Planning Commission, 1963). At the same time, roads were beginning to deteriorate. The horse-driven wagon trains carrying ore turned the roads into dust in the summer and mud slicks in the winter (Joint Planning Commission, 1963).

With the discovery of zinc oxide made from ore and the completion of the Lehigh Canal, the slate industry began to rise (Joint Planning Commission, 1963). Large deposits of slate were found in a belt along the southern base of the Blue Mountain from the Delaware Water Gap to the western border of Lehigh County. Smaller amounts of slate were found in North Whitehall, South Whitehall and Lowhill townships.

From 1880 to 1930, the Lehigh Valley was the leading slate-quarrying center in America. Once again, it was the construction of the Lehigh Canal that provided a means of bringing this product to market. Beginning in 1845 at what is now Slatington, a major slate-quarrying and processing industry developed. Slate was made into blackboards, school slates, billiard tables, roofing materials and numerous products used in the building trades. The water-filled quarries and slate dumps of the slate belt, and the school slate factories of Slatington remain as visible evidence of this industry's former greatness.

The production of zinc played a significant role in the industrial history of the watershed. The zinc industry began with the discovery of large deposits of this metallic ore in the Saucon Creek Valley near Bethlehem. Soon a method of producing zinc oxide was discovered and a major market was created for using zinc as a paint pigment. Among the early investors and managers of the Lehigh Zinc Company was Joseph Wharton, a Philadelphia Quaker who later founded the Wharton Business School and the University of Pennsylvania, co-founded Swarthmore College,

and by the end of the century had become a major stockholder in the Bethlehem Steel Company. By 1870, the Lehigh Valley had become a center of the American zinc industry, but flooding at the Saucon Valley mines soon threatened it. Despite the installation of what was then the world's largest steam-operated pumping engine, the flooding problem drove up the cost of Saucon Valley ore. By the 1880s, most of the mines in the region had closed. However, in 1897 the zinc industry returned to the area when the New Jersey Zinc Company began the development of the planned industrial community of Palmerton in Carbon County.

As the mining industry grew, railroad production began to soar. This enabled communication and transportation of materials between major cities. With the spread of railroads in the valley, manufacturers increased exponentially, as did the number of people employed in manufacturing (Joint Planning Commission, 1963).

2. IRON AND STEEL

Iron and steel from the Lehigh River watershed fueled the growth of America and in the process made the Lehigh Valley extraordinarily prosperous. The very first iron furnace opened in 1727 at Durham Creek near the line between Bucks and Northampton counties, about a mile and a half inland from the Delaware River. Among its original owners were James Logan, Penn's colonial secretary, and William Allen, founder of Allentown. The Durham Furnace produced shot and shells for British colonial forces fighting in the French and Indian War and the American Revolution. During both of these conflicts, Durham Furnace was managed by George Taylor, who became a signer of the Declaration of Independence and a prominent patriot leader.

Another significant era in the watershed's industrial development began in 1840 when the Lehigh Crane Iron Company began operation at what is now Catasauqua. Since 1825, there had been competition to produce iron using anthracite as the blast furnace fuel. Many attempts were made in the anthracite regions of Pennsylvania, from Easton to Mauch Chunk. The Lehigh Crane enterprise was the first successful anthracite-fueled blast furnace in the United States. It was largely the creation of the Lehigh Coal and Navigation Company, which had brought Welsh iron-

master David Thomas to America. Thomas had discovered the secret of getting anthracite to burn in a blast furnace by heating the air blast in pipe stoves before it entered the furnace. The ruins of Thomas' iron works can still be seen among the weeds in Hokendauqua.

Since the Lehigh River watershed possessed abundant supplies of iron ore, limonite and coal, and the connecting Lehigh Navigation, Delaware Division and Morris canals gave ready access to both the Philadelphia and New York markets, other entrepreneurs emulated Thomas' success and built anthracite-fueled blast furnaces in the Lehigh Valley and in adjacent parts of Bucks and Carbon counties. By 1850, the Lehigh Valley had become the leading iron-producing region of



The remnants of the Thomas Iron Works in Hokendauqua, Lehigh County, are adjacent to the Lehigh River. This was the first plant in the country to burn anthracite coal successfully.

America, a distinction it held until 1880. The massive buildings of Lockridge Furnace Park at Albutis are all that remains to represent the Lehigh Valley's former pre-eminence as an iron-producing region.

The iron boom had a profound effect on the Lehigh Valley. It transformed small towns, such as Allentown, into major urban areas and spawned many subsidiary industries, which in turn brought about further population growth.

In 1863, the Bethlehem Iron Company began production at what is now the city of Bethlehem. The Bethlehem Iron Company began as a railroad rail mill, and by 1873 it became the only Lehigh Valley iron maker to make a successful transition to the production of steel. In 1873, the "panic of '73" hit the nation and five years of depression followed. The company's directors were convinced that the infant company would have to expand its product base if it were to survive the years ahead. Its opportunity came in 1882 with the government's decision to rebuild the U.S. Navy, and to do it with steel.



The Bethlehem Iron Company was the only Lehigh Valley iron maker to successfully make the transition from iron to steel, becoming Bethlehem Steel Corporation.

During the 1880s and 1890s, the Bethlehem Iron Company, under the leadership of John Fritz, built the first super heavy forging plant in America. This marked the beginning of the modern American defense industry. From the 1890s onward Bethlehem produced guns, armor plate, propulsion machinery parts, and later nuclear reactor vessels, for American and foreign warships, including battleships beginning with the U.S.S. Maine of the Spanish-American War fame and ending with the U.S.S. Missouri, on whose decks World War II was ended.

During the early twentieth century, the Bethlehem Iron Company was transformed by Charles M. Schwab into the modern Bethlehem Steel Corporation. Schwab had long been one of Andrew Carnegie's lieutenants and was the first president of the United States Steel Corporation. In 1904, Bethlehem Steel Corporation consisted of a steel plant at Bethlehem, Pennsylvania; the Juraqua iron ore mines in Cuba; the Union Iron Works, with shipbuilding facilities at San Francisco; and a few other facilities of lesser importance.

The services of Eugene G. Grace came with Schwab's acquisition of the company. Schwab, with a broad background in steel and a keen understanding of salesmanship, and Grace, who proved to be a master of production and management, soon became a formidable team. "Clearly, the towering skylines of America's major cities are monuments to the vision and determination of Bethlehem Steel's first management team" (Metz, 1994). Grace became Bethlehem Steel's president in 1916, and Schwab remained chairman of the board until his death in 1939.

Before the outbreak of the First World War, Bethlehem bought Chilean iron ore properties from French interests. These South American properties put Bethlehem into the ocean transportation business. To transport the iron ore, Bethlehem built its own fleet of ocean-going carriers.

The war in Europe soon brought orders from the British navy for submarine assemblies to be built at Bethlehem's shipyard in Fore River, Mass. Meanwhile, from the French, the Russians, and the British came a flood of orders for guns and munitions, and naval vessels were ordered by several countries, including China.

Bethlehem's ability to turn out military material in large quantities contributed greatly to the Allied cause and gave the company a sound financial basis for future growth.

During the growth of the 1920s, Bethlehem acquired additional steel-making facilities. Bethlehem entered the Pacific Coast market in the late 1920s and early 1930s with the acquisition of facilities in Los Angeles and Seattle. Unfortunately, the booming 1920s led to the depression of the 1930s. Bethlehem was hit hard by the depression. Much of the business was dependent on construction and the railroads, and both of these industries operated at low levels during this period. Still Bethlehem managed to improve many of its facilities.

At this time, Bethlehem became a more broadly based producer of steel geographically and a major erector of bridges and buildings. Two of the nation's landmark suspension spans, the George Washington Bridge over the Hudson and San Francisco's Golden Gate Bridge were fabricated and erected by Bethlehem Steel. Notable buildings built by Bethlehem in this period are the Merchandise Mart in Chicago and the Waldorf-Astoria Hotel in New York City. In addition, Bethlehem supplied the steel for New York's Rockefeller Plaza, New York Coliseum and Madison Square Garden.

By 1939, as war clouds hovered over Europe, Bethlehem had the ability to turn out steel products on a scale much larger than that called for in World War I. By 1944, its peak production year, Bethlehem produced more than 13 million tons of raw steel.

After the attack on Pearl Harbor, every phase of Bethlehem's operations shifted to a war production basis. In the war years, Bethlehem yards built 1,121 naval and merchant vessels and repaired nearly 38,000 ships, with the help of 220,000 employees. Bethlehem's contributions to the U.S. Navy are impressive. In 1925, the company built the U.S.S. Lexington, America's first aircraft carrier.

By the close of the 1950s, Bethlehem had increased its steel-making capacity by more than 50 percent over what it had been at the end of World War II. During this same period, it also invested heavily in overseas sources of raw materials in Canada, Africa, and South America. The capital goods boom ended in 1958 and left Bethlehem with enlarged capacity and a market that had shrunk by a quarter. The situation was also complicated by the longest strike in the steels industry's history (116 days) and the invasion of the domestic market by low-priced foreign steel.

New patterns of growth characterized Bethlehem Steel's activities through the 1960s, 1970s and 1980s: the development of new technology, its application to shifting market demands; diversification into other fields; and the continuing modernization of production facilities. In the 1990s, the steel company discontinued operations locally and eventually became bankrupt.

3. TEXTILES

Textile manufacturing was one of the very few industries that were historically found in almost all parts of the watershed. As early as 1832, a major cotton-spinning mill was established at the Abbott Street industrial area in Easton. Silk became the predominant textile industry of the Lehigh Valley. The great Adelaide Silk Mill in Allentown, constructed in 1881, was the first of many. The Allentown Board of Trade, concerned about the city's dependence on iron, was actively looking for other industries at the same time that silk manufacturers in Paterson, New Jersey, were seeking new locations for mills. The Lehigh Valley's superb transportation facilities, lack of labor union activity, and large potential labor force of women made it a major center of silk production by 1900. By 1920, the Lehigh Valley had become the second most important silk

producing region in America. There were mills in almost every town in the region. The Wyoming Valley became a major producer of Nottingham lace during the same period.

The Phoenix Silk Manufacturing Company, operator of the Adelaide Mill was one of the forerunners in the "Safety First" movement in twentieth-century American industry. The company operated a cafeteria for its workers, hired a trained welfare worker to advise its female employees, and sponsored recreational activities. Men in the textile industry were paid more than women, but this was one industry where women were allowed to rise to supervisory positions. Because of the predominance of female workers in the textile industry, social organizations developed to assist single women in urban areas. The economic downturn of the Great Depression, coupled with the development of synthetic fibers such as nylon, largely destroyed the textile industry. However, great numbers of surviving mill buildings, such as the Simon complex in Easton, the giant Adelaide Mill in Allentown and the Wilkes-Barre Lace Manufacturing Company, give evidence of the former economic importance of textiles to the inhabitants of the towns and cities of the watershed.

4. AGRICULTURAL

As manufacturing increased and transportation and communication improved during the Industrial Revolution, the agriculture community began to benefit. The transportation improvements provided farmers with new markets outside the valley, and the newer farming techniques and equipment increased production yields per acre of new varieties of crops.

"During the period from 1840 to 1940," writes S.W. Fletcher in the second volume of *Pennsylvania Agriculture and Country Life*, "Pennsylvania agriculture was transformed gradually from a simple and largely self-sufficing occupation and way of life into a capitalistic, scientific, and highly commercial enterprise." Most of this development occurred after 1890.

In terms of relative importance to the economy of the Lehigh Valley region, agriculture declined after 1890. Between 1910 and 1959 the number of farm operators in Lehigh and Northampton counties diminished from 6,860 to 2,749 (Joint Planning Commission, 1963). Over the same span of years, the amount of land in farms decreased from approximately 85% of the area of the two counties to 60% (Joint Planning Commission, 1963).

Yet agriculture continued to be one of the principal industries affecting the development of the region. One reason for this lay in the willingness of farmers to accept technological improvements for increasing the efficiency of production and raising standards of living. Around the turn of the century, the silo began to make an appearance. About the time of the First World War, the Model T Ford gave farmers an improved means of locomotion. After 1920 labor-saving devices such as tractors, milking machines and brooders came into increasing use. By the end of World War II, most farms in the region were supplied with telephones, electricity, and modern household appliances. The majority had at least one tractor larger than a garden tractor. Most farmers possessed trucks. Improved equipment meant that a farmer could till more land in less time than his ancestors had found possible. In 1910, the average sizes of farms in Lehigh and Northampton counties were respectively 58.2 and 54.0 acres. By 1959, the average sizes of farms in the two counties had risen respectively to 99.9 and 102.9 acres (Joint Planning Commission, 1963).

In addition, farmers learned to apply methods of scientific farming. In the Lehigh Valley region, this meant increased yields of crops on which farmers principally depended for cash income.

Among these were corn, wheat, potatoes, dairy products, fruits, vegetables, poultry, and poultry products. In time, the farmers became small businessmen with considerable investments in land, buildings, and equipment. Upkeep and replenishing of their capital necessitated a continual reliance on government and an industrialized economy. Farmers in Lehigh and Northampton counties were brought increasingly into contact with governmental agencies and programs (Joint Planning Commission, 1963).

On the national front, the next 50 years saw a proliferation of agricultural programs that offered various sorts of benefits to farmers but, at the same time, subjected them to greater governmental controls. The administration of Theodore Roosevelt concentrated on soil and forest conservation. That of Woodrow Wilson emphasized education of farmers in scientific methods of agriculture. In 1914 the Smith-Lever Act was passed, which aided the establishment of a system of county agents and farm bureaus to demonstrate improved methods for tilling the soil, rotating crops, using fertilizers, controlling pests, preserving the soil and selecting seeds. About the time of the First World War, the organization of farm bureaus on state and national lines produced the most powerful agricultural pressure group in the country, the American Farm Bureau Federation (Joint Planning Commission, 1963). In the 1920s the A.F.B.F. and other groups assisted the farmer in obtaining a variety of laws favorable to agriculture, especially laws encouraging the formation of cooperatives. Although the cooperative movement had its origin in the late 19th century, the decades of the 1920s and 1930s mark its greatest period of growth (Joint Planning Commission, 1963).

In the nation as a whole the period of the Great Depression beginning in 1929 saw still further increases in government aid to agriculture. Farmers received improved facilities for credit, support for parity prices, crop insurance, and rural electrification. These and other programs appeared in the administration of Franklin D. Roosevelt and were, in revised forms, continued through the administrations of Harry S. Truman and Dwight D. Eisenhower respectively. Farm credit banks and federal agents for administering production and marketing controls and other programs appeared in the region (Joint Planning Commission, 1963).

In general, farmers in the Lehigh Valley opposed these programs. In the 1920s and 1930s the farmers in the region organized a number of cooperatives for insurance, marketing, and purchasing. Among the largest of these were the Lehigh Valley Cooperative Farmers, the Farm Bureau Cooperative Association of Lehigh County, and the Lehigh Valley Egg Producers Cooperative Association. However, the cooperatives were not forced on the farmers by government. Cooperatives represented a voluntary effort to obtain services that would have been too costly to obtain by other means (Joint Planning Commission, 1963). However, with respect to the agricultural policies of the New Deal, the farmers took a different attitude. Subsidies, production and marketing controls, and other programs of direct governmental aid and regulation were of less benefit to the farmers of southeastern Pennsylvania than they were to those of the midwestern and western section of the United States (Joint Planning Commission, 1963). The Rural Electrification Administration never appeared in the Lehigh Valley region. Many farmers refused to apply for subsidies.

The family farm remained the basic unit of production. A few large commercial farms appeared, for example, the Trexler Farms in Lehigh County. The Trexler farms were an enterprise of General Trexler, who started them in 1901 with the purchase of large tracts of land in Lowhill and North Whitehall townships. In 1905, he planted about 300 acres to peach and apple trees. Three years later, he set aside a thousand acres as a refuge for deer, buffalo, and elk. This tract became known as "Trexler's Deer Park" – later, as Trexler's Game Preserve.

Yet, for the most part, large farms, such as the properties of General Trexler, occupied a small proportion of the total land in farms in the Lehigh Valley region. A more pronounced trend was that of farming rented or leased land, because farmers were often able to rent land more easily than they could afford to buy it. Although the number of farmers in the region was severely reduced, farming as a way of life was preserved for the several thousand families who were responsible for the major part of the agricultural production of the region.

5. UTILITIES

The landscape of the Lehigh River watershed region was altered in the midst of the Industrial Revolution. The rural areas showed the least change. Telegraph poles and wires lined many roads, and trains passed constantly through almost every part of the region. The farms and rural villages appeared more prosperous as better machinery and produce lay in the fields (Fletcher, 1950).

On the other hand, towns and boroughs were completely transformed. Industry and manufacturing dominated the boroughs that had once been small towns. These areas had no protection against the power of development (Eckhart, 1992). Houses were small and often overcrowded. Noise, smoke, and smells from the factory were part of daily life. Often piles of slag or other refuse bordered the residential areas. Factory wastes usually went into rivers and streams, which consequently became polluted. Narrow and poorly maintained streets were inadequate for the increase in traffic resulting from business and industry (Eckhart, 1992). Water systems and volunteer fire companies fell short of the needs of an expanding population (Eckhart, 1992). Very few parks or public recreation services existed. Sanitation including sewage disposal were considered each family's responsibility. In addition, most boroughs had little to no hospital services.

Communications and power displayed rapid trends toward a high degree of centralization. Utilities became known as a group of industries and services that were awarded special privileges and strict regulation. The growth of various utilities in the Lehigh Valley region presents great contrasts (Joint Planning Commission, 1963). Water supply and sewage disposal remained decentralized. The abundance of water supply in the region principally accounts for the decentralization of supply (Joint Planning Commission, 1963). In rural areas water supply still came from a private well on each establishment. In urban areas, the municipalities controlled the supply. Private companies were the original controllers of water but as the population grew and the concern for clean water grew, the supply of water became a public affair (Joint Planning Commission, 1963). After the Civil War, many municipalities took over the responsibility for providing their inhabitants with fresh water. This trend continued, until by the First World War most cities and boroughs in the Lehigh Valley region had municipal water systems. Then, as suburban populations continued to expand, municipalities had to extend their facilities. After the Second World War, as suburbs expanded into the townships surrounding cities, municipal governments began furnishing water by sale or contract to outlying areas. In more recent time, the growth of sewage disposal parallels that of the water supply. Prior to that, the demand for municipal sewage systems did not develop until people began to understand the nature of contamination and its relation to disease (Somerset Publishers, 1996).

In the act of improving the communication and trade, the telegraph entered the Lehigh River region in 1848. One of the large companies organized in 1876 became known as the Lehigh Telegraph Company. Telegraph consolidation was largely completed by 1890; Western Union joined most parts of the country, including the Lehigh Valley. In the telephone industry, consoli-



This beautiful art deco building, completed in 1927 by the Pennsylvania Power and Light Company, significantly changed the skyline of Allentown.

ation came more slowly. The period before the First World War was marked by considerable competition among small companies. Many merchants had to install the telephones of several companies in order to communicate with all parts of the Valley (Joint Planning Commission, 1963). For many years after the First World War, three principal companies remained in operation in the valley, Bell, Keystone and Lehigh (one of the enterprises of General Trexler). By 1930, the three had merged into the Bell system, of which General Trexler was the director.

Power also remained in private hands and became highly centralized. In the 1880's, when electricity was first commercially

used, small companies were necessary because the direct current employed could be transmitted only over short distances (Joint Planning Commission, 1963). With the introduction of alternating current in the 1890's the chief technological obstacle to large-scale operations was removed. Small companies that had formed in most of the urban and industrial areas of the region rapidly merged.

In the central and southern parts of the region, a similar process gave control over electric power to the Pennsylvania Power and Light Company. First, the Bethlehem Electric Light and the Allentown Electric Light and Power companies absorbed or put out of business electrical companies in their respective areas. These companies eventually merged and reorganized into the Lehigh Valley Light and Power Company. Finally, in 1920 the Lehigh Valley Light and Power Company and several other large companies in Pennsylvania were merged to form the Pennsylvania Power and Light Company.

The utility companies helped change the landscape of the valley (Joint Planning Commission, 1963). The companies had office buildings and manufacturing and storage facilities. Gas storage tanks existed in the cities, and reservoirs for water became larger and more numerous. In 1927 Pennsylvania Power and Light completed construction of the 23-story PP&L building at Ninth and Hamilton streets in Allentown, providing the area with its only skyscraper. In addition, the pipes and lines for carrying services to the people and to industry spread over the valley. Gas and water mains and sewer pipes were installed, repaired, and improved. In the several decades before the First World War, masses of telephone and telegraph poles and wires appeared in urban areas. In 1914, Allentown began experimenting with underground conduits. The extension of underground wires, together with improvements in poles and cables and stricter controls over routing, helped to reduce confusion and gradually many poles and wires disappeared from densely populated areas (Joint Planning Commission, 1963).

6. PRESENT DAY ECONOMICS AND DEMOGRAPHICS

At the time of the 1960 census slightly more than 434,000 persons lived in the Lehigh River watershed. Almost 60 percent of them lived in the industrial Allentown-Bethlehem-Easton area. The remainder resided either in small communities centered around coal mining or light industries, in trading centers, or in rural areas. In 1964 population for the same area was estimated at 446,000. Tables 2-1 through 2-6 and Figures 2-1 and 2- 2 summarize present day economic and demographic information for the Lehigh Valley and the Lehigh River watershed.

TABLE 2-1. LARGEST LEHIGH VALLEY EMPLOYERS
(Lehigh Valley Planning Commission, 2000 Lehigh Valley Profiles
& Trends, Lehigh Valley Economic Development Corporation, 2000)

Rank	Company Name	Type of Business
1	Agere Systems	Electronic components manufacturing
2	Lehigh Valley Hospital and Health Network	Acute-care hospital
3	Air Products & Chemicals, Inc.	Industrial gases, chemicals and manufacturing
4	U.S. Government	U.S. Government
5	St. Luke's Hospital	Acute-care hospital
6	Mack Trucks, Inc.	Heavy duty trucks and related components
7	Manpower, Inc.	Employment placement and training
8	County of Lehigh	County Government
9	Pa. State Government	State Government
10	Wood Dining Services	Food Service
11	County of Northampton	County Government
12	Allentown School District	Public School
13	Guardian Life Insurance Co. of America	Life Insurance
14	KidsPeace	Children's Services
15	Bethlehem Area School District	Public School
16	PPL Corporation	Electric Utility
17	Dun & Bradstreet, Inc.	Business credit information
18	Victaulic Co. of America	Pipe couplings, fittings and castings
19	Sacred Heart Hospital of Allentown	Acute-care hospital
20	Easton Hospital	Acute-care hospital
21	Day-Timers	Private planners and organizers
22	B. Braun Medical, Inc.	Disposable surgical and medical supplies
23	First Union Corporation	National bank and banking services
24	Lehigh University	Private university and research institution
25	F.L. Smidth & Co.	Manufacturer of cement industry equipment
26	Rodale, Inc.	Health and Motivational Living Publishing
27	Binney & Smith, Inc.	Manufacturer of crayons, markers, etc.
28	Good Shepherd Home	Church services
29	Aetna, Inc.	Life Insurance
30	Parkland School District Authority	Public School

TABLE 2-2. LARGEST MANUFACTURERS IN THE LEHIGH VALLEY
(Lehigh Valley Planning Commission, 2000 Lehigh Valley Profiles & Trends,
Lehigh Valley Economic Development Corporation, 2000)

Rank	Company Name	Type of Business
1	Agere Systems	Electronic components manufacturing
2	Air Products & Chemicals, Inc.	Industrial gases, chemicals and manufacturing
3	Mack Trucks, Inc.	Heavy duty trucks and related components
4	PPL Corporation	Electric Utility
5	Victaulic Co. of America	Pipe couplings, fittings and castings
6	Day-Timers	Private planners and organizers
7	B. Braun Medical, Inc.	Disposable surgical and medical supplies
8	F.L. Smidth & Co.	Manufacturer of cement industry equipment
9	Rodale, Inc.	Health and Motivational Living Publishing
10	Binney & Smith, Inc.	crayons, markers, etc.
11	Morning Call, Inc.	Newspaper Publishing
12	Kraft Foods, Inc.	Food production and distribution
13	Paris Accessories, Inc.	Women's sportswear and manufacturer
14	Sure Fit, Inc.	Manufacturer of furniture covers
15	C.F. Martin & Co., Inc.	Guitars and String Manufacturer
16	Cadmus Communications Corporation	Printing
17	Scotty's Fashion Cutting, Inc.	Women's skirts, slacks, blouses & jackets
18	A & H Sportswear Co., Inc.	Sportswear manufacturer
19	Mannesmann Rexroth AG	Manufacturer of industrial hydraulic parts & systems
20	Georgia-Pacific Corporation	Manufacturer of paper and building products
21	Pabst Brewing Company	Brewery
22	Lutron Electronics Co., Inc.	Electric and lighting controls
23	Allen Organ Company	Manufacturer of digital organs
24	H.T. Lyons, Inc.	Engineering, construction and maintenance services
25	Just Born, Inc.	Manufacturer of candy; Hot Tamales, Mike & Ikes

TABLE 2-3. NUMBER OF LEHIGH RIVER WATERSHED RESIDENTS EMPLOYED BY INDUSTRY
(Lehigh Valley Planning Commission, 2000 Lehigh Valley Profiles & Trends,
Lehigh Valley Economic Development Corporation, 2000)

Agriculture, Forestry, Fishing	1,011	Mining	160
Contract Construction	15,635	Retail Trade	51,885
Farming	1,465	Services	98,832
Finance, Insurance, Real Estate	22,458	Transportation and Public Utilities	16,712
Government	28,986	Wholesale Trade	12,269
Manufacturing	54,125	Total Employment	305,375

TABLE 2-4. LEHIGH VALLEY RESIDENTS EMPLOYED BY OCCUPATION (Pa. Department of Labor & Industry, Bureau of Research and Statistics, 1990. Lehigh Valley Planning Commission Regional Economic Model, 1998)

Occupation	2000	2020 (est.)
Administrative Support/Clerical	46,040	61,518
Agriculture/Forestry/Fishing	2,480	5,298
Executive/Administrative	19,170	35,256
Marketing/Sales	29,820	36,680
Operators/Fabricators/Labelers	38,390	46,493
Production Product Craft/Repair	27,920	33,939
Professional/Paraprofessional	58,860	58,005
Service	41,290	56,541

TABLE 2-5. LEHIGH RIVER WATERSHED AVERAGE ANNUAL UNEMPLOYMENT RATES (Bureau of Research and Statistics, Pa. Department of Labor and Industry, Lehigh Valley Planning Commission, 2000 Lehigh Valley Profiles & Trends)

Year	Lehigh Valley	Pa.	US
1990	5.6	5.4	5.5
1991	6.9	6.9	6.7
1992	7.8	7.5	7.4
1993	7.1	7	6.8
1994	6.2	6.2	6.1
1995	5.4	5.9	5.6
1996	5.3	5.3	5.4
1997	4.7	5.1	5
1998	4.3	4.5	4.5
1999	3.8	4.3	4.2

FIGURE 2-1. LEHIGH VALLEY UNEMPLOYMENT TRENDS (Bureau of Research and Statistics, Pa. Department of Labor and Industry, Lehigh Valley Planning Commission, 2000 Lehigh Valley Profiles & Trends)

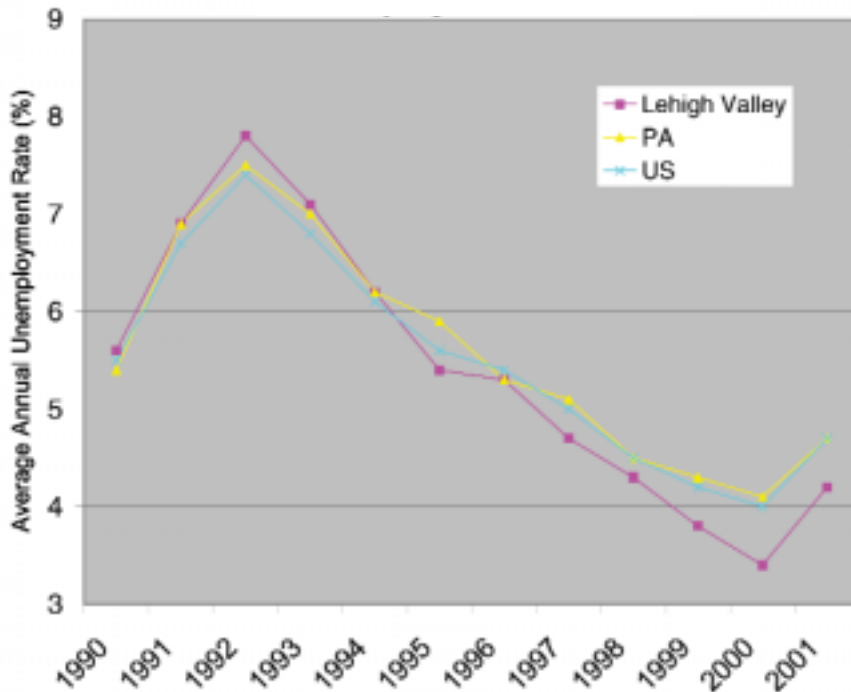


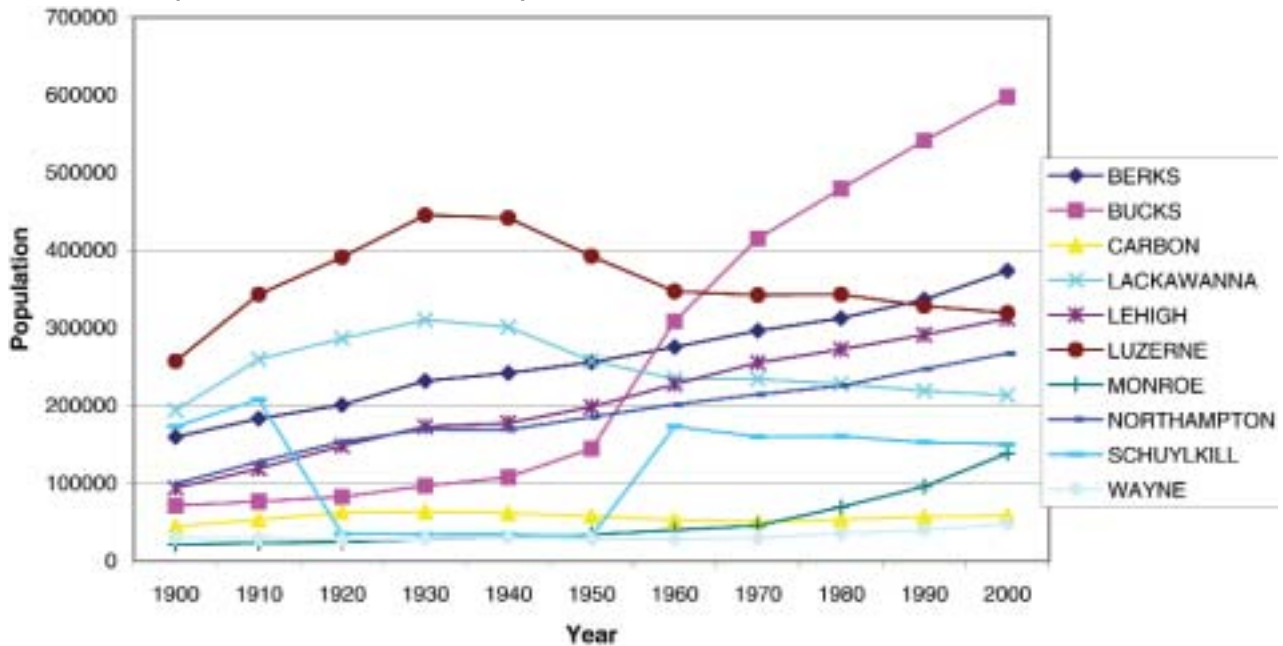
TABLE 2-6. DEMOGRAPHIC AND ECONOMIC DATA BY COUNTY
(US Census Bureau)

	<i>Berks</i>	<i>Bucks</i>	<i>Carbon</i>	<i>Lackawanna</i>	<i>Lehigh</i>	<i>Luzerne</i>	<i>Monroe</i>	<i>Northampton</i>	<i>Schuylkill</i>	<i>Wayne</i>	<i>Pennsylvania</i>
POPULATION											
Population, 2001 estimate	377,679	605,379	59,506	211,829	314,204	315,754	144,676	269,779	149,176	48,392	12,287,150
Population percent change, April 1, 2000- July 1, 2001	1.10%	1.30%	1.20%	-0.70%	0.70%	-1.10%	4.30%	1.00%	-0.80%	1.40%	0.00%
Population, 2000	373,638	597,635	58,802	213,295	312,090	319,250	138,687	267,066	150,336	47,722	12,281,054
Population, percent change, 1990 to 2000	11.00%	10.40%	3.50%	-2.60%	7.20%	-2.70%	44.90%	8.10%	-1.50%	19.50%	3.40%
Persons under 5 years old, percent, 2000	6.20%	6.40%	5.10%	5.30%	6.00%	5.00%	6.00%	5.60%	4.90%	5.60%	5.90%
Persons under 18 years old, percent, 2000	24.60%	25.70%	22.20%	21.80%	23.90%	21.00%	26.80%	23.30%	20.90%	24.00%	23.80%
Persons 65 years old and over, percent, 2000	15.00%	12.40%	18.50%	19.50%	15.80%	19.70%	12.30%	15.70%	19.90%	17.50%	15.60%
TRANSPORTATION											
Mean travel time to work, workers age 16+ (minutes), 2000	22.3	28.6	29.2	19.8	22.1	21.2	36.7	24.2	24.9	26.3	25.2
Percent of workers who carpool	10	8.3	11.9	12.2	9.8	11.1	13	9.6	12.6	10.4	10.4
Percent of workers who walk to work	3.6	1.7	3.2	3.7	3.5	3.2	2.2	4.1	4	3.5	4.1
Percent of workers who use public transportation	1.7	2.8	0.7	0.9	1.6	1	3.4	1.1	0.4	1	5.2
Percent of workers who work at home	2.9	3.6	1.7	2	2.7	2.1	3.3	2.3	2.6	4.2	3
HOUSING											
Housing units, 2000	150,222	225,498	30,492	86,218	128,910	144,686		106,710	67,806	30,593	5,249,750
Persons per household, 2000	2.55	2.69	2.44	2.38	2.48	2.34		2.53	2.36	2.5	2.48
ECONOMY											
Private nonfarm establishments, 1999	8,079	17,582	1,125	5,393	8,127	7,606	3,180	5,631	3,125	1,423	293,491
Private nonfarm employment, 1999	145,991	240,779	13,645	89,771	161,481	122,554	37,512	77,935	43,609	13,029	4,986,591
Private nonfarm employment, percent change 1990-1999	6.40%	16.10%	0.30%	2.00%	14.00%	3.30%	16.30%	-0.20%	3.80%	11.10%	8.40%

TABLE 2-6. DEMOGRAPHIC AND ECONOMIC DATA BY COUNTY (continued)
(US Census Bureau)

	Berks	Bucks	Carbon	Lackawanna	Lehigh	Luzerne	Monroe	Northampton	Schuylkill	Wayne	Pennsylvania
Nonemployer establishments, 1999	17,690	39,189	2,754	9,810	15,338	13,687	8,013	12,281	6,367	3,736	614,594
Manufacturers shipments, 1997 (\$1000)	7,729,356	7,592,956	311,894	2,562,696	7,690,056	4,501,055	812,899	2,638,374	2,625,116	182,347	172,193,216
Retail sales, 1997 (\$1000)	3,330,720	7,217,380	316,742	1,966,284	3,509,237	2,856,425	1,160,638	1,831,841	1,062,524	396,986	109,948,462
Retail sales per capita, 1997	\$9,412	\$12,391	\$5,387	\$9,350	\$11,768	\$8,998	\$9,460	\$7,114	\$7,028	\$8,785	\$9,150
Minority-owned firms, percent of total, 1997	3.60%	4.90%	< 100 firms	2.30%	6.10%	2.90%	7.90%	4.10%	2.80%	5.00%	5.90%
Women-owned firms, percent of total, 1997	24.80%	22.60%	26.30%	20.90%	28.70%	23.50%	24.10%	24.00%	20.60%	21.40%	24.20%
Housing units authorized by building permits, 2000	1,809	2,768	207	520	1,344	603	1,630	1,312	352	253	41,076
Federal funds and grants, 2001 (\$1000)	1,528,382	2,250,647	304,608	1,400,173	1,406,125	2,018,339	625,530	1,314,787	834,324	263,251	79,310,064
Local government employment-full-time equivalent, 1997	11,661	16,563	1,853	5,851	9,388	8,576	3,705	8,154	3,621	1,392	365,556

FIGURE 2-2. POPULATION GROWTH AND DECLINE IN THE COUNTIES OF THE LEHIGH RIVER WATERSHED
(Source: U.S. Census Bureau)



F. The National Register of Historic Places

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.

Included among the nearly 73,000 listings that make up the National Register are:

- All historic areas in the National Park System;
- Over 2,300 National Historic Landmarks, which have been designated by the Secretary of the Interior because of their importance to all Americans;
- Properties across the country that have been nominated by governments, organizations, and individuals because they are significant to the nation, to a state, or to a community.

National Register properties are distinguished by having been documented and evaluated according to uniform standards. These criteria recognize the accomplishments of all peoples who have contributed to the history and heritage of the United States and are designed to help state and local governments, federal agencies, and others identify important historic and archaeological properties worthy of preservation and of consideration in planning and development decisions.

Listing in the National Register contributes to preserving historic properties in a number of ways:

- Recognition that a property is of significance to the Nation, the State, or the community.
- Consideration in the planning for federal or federally-assisted projects.
- Eligibility for federal tax benefits.
- Qualification for federal assistance for historic preservation, when funds are available.

The Lehigh River watershed is replete with historic landmarks, listed below and shown in Map 2-1.

1. CARBON COUNTY

CARBON COUNTY JAIL

128 Broadway St., Jim Thorpe

This jail was built in 1869 on West Broadway. The Molly Maguires were tried, convicted, and hung at this jail. One of the most famous and unusual events happened in cell #17. Tom Fisher was hanged, but before he died, he placed his hand on the wall and said that his handprint shall never leave to show that he was innocent. Allegedly, to this day his handprint still exists, even after many years of washing, painting, and other techniques to try to remove it.

COUNTY SECTION OF THE LEHIGH CANAL*Weissport and vicinity, along Lehigh River*

One of the first sections of the canal to be built, it was used very early to transport the coal from the northern regions to Easton and Philadelphia to be sold in the markets.

CENTRAL RAILROAD OF NEW JERSEY STATION*Susquehanna St., Jim Thorpe*

This building was erected in 1888, two years after its sister station in Easton. It served as a train station until 1954, when it turned into a bunking station for the railroad workers. Today it is a tourist attraction and home to a D&L Corridor Landing.

LITTLE GAP COVERED BRIDGE*South of Little Gap on T 376, Towamensing Township***MAUCH CHUNK AND SUMMIT HILL SWITCHBACK RAILROAD***Between Ludlow St. in Summit Hill and F.A.P. 209, Jim Thorpe*

This gravity railroad was built in 1827 by Josiah White to bring anthracite coal down from the mines at Summit Hill to the Lehigh Canal at Mauch Chunk. By 1870, the railroad had taken over, and the Switchback was more of an amusement/scenic ride for tourists. Some say that it was one of the first roller coasters.

OLD MAUCH CHUNK HISTORIC DISTRICT*Broadway, Susquehanna, Race, and High Streets, Jim Thorpe*

Stone row is one of many famous sites within Jim Thorpe. Stone row is a row of houses that has only a stonewall separating each house. The courthouse, St. Mark's Episcopal Church, the old jail, and many other historic buildings within this area make up this historic district.

ASA PACKER MANSION*Packer Road, Jim Thorpe*

Asa Packer made his fortune through building canal boats, then investing into the Lehigh Valley Railroad. Through all his hard work he ended up helping the community by founding Lehigh University. The mansion was built in 1890, had 20 rooms, and was later given to the borough after the death of his daughter, Mary Packer Cummings.

HARRY PACKER MANSION*Packer Road, Jim Thorpe.*

This mansion was a wedding gift given to Harry Packer and his wife Mary Augusta Lockhart by Asa Packer. This Victorian style mansion had 18 rooms and now serves as a Bed and Breakfast.

This timeline is a snapshot of the people, events, and forces that helped shape, not only the Lehigh River watershed's environment, but also our nation's industrial heritage.

- 10,000 B.C.** The ancestors of the Lenni Lenape develop stable patterns of living, including farming and government in the region.
- 1492** Christopher Columbus sets sail from Spain.
- 1570** The "Five Nations" is established (Onondagas, Cayugas, Senecas, Oneidas, and Mohawks). The French call this confederacy the "Iroquois," while the Lenni Lenape continue to call them the "Mengwe."
- 1620** The Mayflower lands at Plymouth Rock.
- 1681** King Charles II of England grants William Penn a New World colony in payment of a debt owned to Penn's father.
- 1683** William Penn arrives in Philadelphia.
- 1701** William Penn, with the approbation of the General Assembly, grants the Charter of Pennsylvania.
- 1720** The Lenape ("Delawares") become subjects of the Iroquois, a condition that will exist until the end of the French and Indian War.
- 1737** The infamous "Walking Purchase" takes place, beginning the settlement of many of the Lehigh River valley's towns and cities.
- 1741** Count Zinzendorf, leader of the Moravians, arrives in Bethlehem.¹
- 1743** The Moravians in Bethlehem catch over 5,000 American shad in a single day.

1755-1763 Indian uprisings, as well as conflict with the French for control of the New World, interrupt the English settlement of the region.¹

1755 Indians attack the mission house in Lehighon in the winter killing ten people, capturing one person, and burning all of the buildings to the ground.³

1756 Construction of Fort Allen begins in present-day Weissport; the construction is overseen by Benjamin Franklin.¹


1776 The Declaration of Independence is signed in Philadelphia. The Revolution leaves most of the region untouched, but many great revolutionary military leaders spend time in Allentown, Bethlehem, and Easton.

1777 The Liberty Bell is hidden in the Zion's Reformed Church in Allentown while the British occupy Philadelphia.¹

1787 Pennsylvania becomes the second state to ratify the Constitution of the United States, on December 12th.

1791 Phillip Ginter discovers anthracite while hunting in the mountains at present-day Summit Hill.¹

1808 Judge Jesse Fell of Wilkes-Barre experiments with burning the "common stone coal of the valley in a grate, in a common fireplace."²

1818 The Lehigh Navigation Company and the Lehigh Coal Company combined forces to improve navigation on the Lehigh. The companies merge two years later to create the Lehigh Coal & Navigation Company. 

ST. MARK'S EPISCOPAL CHURCH

Race and Susquehanna Streets, Jim Thorpe

Built in 1848, this is the second oldest church in Jim Thorpe. Richard Upjohn, who was a leader in religious architecture at the time, designed the church. The Packer family gave large contributions to the church, which can be seen on the decorated inside. This is one of the only churches to have a wrought iron elevator.

SUMMIT HILL HIGH SCHOOL

124 West Hazard Street, Summit Hill

The Lehigh Coal and Navigation Company constructed a log structure in the west end of Summit Hill only to teach the three R's-Reading, Writing, and Arithmetic. In 1875, the Lincoln Building was constructed but it was not until 1889 that Summit Hill had its first graduates, Margaret Bynon and Lissie Clark.

2. LEHIGH COUNTY

AMERICUS HOTEL

541 Hamilton Street, Allentown

Built in 1926-27 by Allentown businessman Albert "Bert" Gomery. Named for fifteenth-century Italian explorer Amerigo Vespucci. Stylized eagles give it an all-American touch.

BETHLEHEM ARMORY

301 Prospect Street, Bethlehem

This served as the place where they produced weapons for the soldiers of the Revolutionary War. Today it serves as a base for the National Guard.

BIERY'S PORT HISTORIC DISTRICT

Roughly bounded by Pineapple, Front, Race, and Mulberry Streets, Catasauqua

Frederick Biery purchased a piece of land in 1795 and built some small stone houses. Frederick also had Biery's Ferry and in 1824 built a chain bridge. In 1845, Biery's Port was described as post village, with several dwellings, two taverns, a store, a gristmill, a Presbyterian Church and Crane Iron Works.

BOGERT COVERED BRIDGE

LR 39016, Little Lehigh Park, Allentown

Built in 1841, this is the oldest bridge in Lehigh County and one of the oldest in the nation. Used only for foot traffic now, its single span is 145 feet long.

BRIDGE IN HEIDELBERG TOWNSHIP

LR 39110 over branch of Jordan Creek, Germansville

BRIDGE IN LYNN TOWNSHIP

LR 39112 over Ontelaunee Creek, Steinsville

BURNSIDE PLANTATION

Schoenersville Rd., 2 mi. SE of junction with Easton Avenue, Bethlehem

The first single-family Moravian farmhouse and farm, established in 1748 by James and Mary Burnside. Today seven acres are being preserved as a living history museum to interpret farming life between 1748 and 1848, a time of many agricultural advancements.

CATASAUQUA RESIDENTIAL HISTORIC DISTRICT

Roughly bounded by Howertown Rd., Railroad Ave., Oak and Bridge Streets, Catasauqua

Once a thriving town due to its success during the coal and iron industry days, Catasauqua was known as the “Million Dollar Town” because it was the first town to sell one million dollars worth of war bonds. A ten room, brick Lincoln school was built at a cost of \$30,000 to replace the three schoolhouses on Front, Second, and Bridge Streets.

CENTENNIAL BRIDGE

Station Ave. over Saucon Creek, Center Valley

COOPERSBURG HISTORIC DISTRICT

Main St. and Pennsylvania 309, Coopersburg

COPLAY CEMENT COMPANY KILNS

N. 2nd St., Coplay

By 1877, David O. Saylor perfected a method of manufacturing Portland cement, which is both harder and stronger than the previously used hydraulic cement. This is the only historic museum that rewards the hard work of the cement workers in the Lehigh Valley.

DENT HARDWARE COMPANY FACTORY COMPLEX

1101 Third St., Whitehall

DILLINGERSVILLE UNION SCHOOL AND CHURCH

East of Zionsville on Zionsville Rd., Zionsville

The first building was built around 1735 but was very small. In 1799 a larger building was built that would accommodate more people for both school and religious events. Eight grades were taught by one teacher in the typical one room building. German was the language taught extensively. Other buildings were to follow the one built in 1799.

1820 Construction of “bear trap” locks begin on the upper Lehigh River.

1822 The Act of February 13, 1822 gives unlimited rights to the Lehigh Coal & Navigation Company to “improve” the Lehigh River between Stoddartsville and Easton, making it the only privately owned river in the country. (It remains in the company’s hands for 144 years.)¹

1827 Railroads enter the region, including the first coal railroad – the Switchback – located between Summit Hill and Jim Thorpe.

1827 Work begins on the Lehigh Navigation, which includes both canals and lock-and-dam devices.

1829 The Lehigh Navigation begins operation.

1829 Artist John J. Audubon visits the upper Lehigh River to explore the variety of birds and other wildlife.¹

1855 Immigrants from around the world flock to the coal regions to find work in the mines.⁴

1856 The Lehigh Valley Rail Road, owned by Asa Packer, becomes the key link for both freight and passenger service between Pennsylvania and New York.

1859 David Thomas establishes the Thomas Iron Works in Hokendauqua.¹

1862 A disastrous flood wipes out the Upper Grand Section of the Lehigh Navigation.¹

1863 Bethlehem Iron Company produces iron for the first time.

- 1865** Gifford Pinchot (1865-1964), America's first trained forester, is born. Destined to become the governor of Pennsylvania, he is the first to use the term "conservationist."
- 1866** The restoration of American shad populations is the driving force behind the formation of the current-day Pennsylvania Fish & Boat Commission.¹
- 1871** David Saylor begins operation of the first commercially successful cement plant in Coplay.
- 1886** Hotel Wahnetah opens, and boasts 47 rooms, a dance pavilion, tennis courts, fresh air, and hikes to the scenic Glen Onoko Falls near Jim Thorpe. A fire in 1911 closes the hotel.¹
- 1870** Pennsylvania's first statewide mine-safety law covering anthracite mines passes following a fire that suffocates 179 men.
- 1876** The Philadelphia & Reading Railroad facilitates the prosecution of twenty-four "Molly Maguires," a secret organization of miners promoting labor violence in eastern Pennsylvania. Ten are hung for murder, and the others are sentenced to jail terms of two to seven years in Carbon County.
- 1897** The New Jersey Zinc & Iron Company becomes the New Jersey Zinc Company.¹
- 1897** The first state law authorizing state purchase of woodlands for forest preserves passes.



DIME SAVINGS AND TRUST COMPANY

12 N. 7th St., Allentown

Opened in 1929, only to close in the Great Depression. Today it serves as an office building.

DORNEYVILLE CROSSROAD SETTLEMENT

South of Allentown at jct. of U.S. 222 and Pennsylvania 29

FIREMAN'S DRINKING FOUNTAIN

Main St., Slatington

FOUNTAIN HILL HISTORIC DISTRICT

Roughly bounded by Brighton, Wyandotte, W. Fourth and Seminole Sts., and Delaware Ave., Bethlehem

Bought in 1742 by the Moravians, they kept it until 1848. They sold this land to Rudolphus Kent. He, Charles Hacker, and Samuel Shipley developed the area and named the streets after Indians. The first residences were built between 1858 and 1864.

FRANTZ'S BRIDGE

LR 39060 over Jordan Creek, Weidasville

GAUFF-ROTH HOUSE

427--443 Auburn St., Allentown

GEIGER COVERED BRIDGE

Southeast of Schnecksville on T 681, North Whitehall Township, Orefield

Built in 1858, it has stone parapets and a double wood floor. The structure is 120 feet long, single span.

HAINES MILL

Walnut St. and Main Blvd., Allentown

This water driven gristmill was built before the Revolutionary War. After being gutted by fire in 1908 the interior was rebuilt and the mill remained in service until 1956.

HELFRICH'S SPRINGS GRIST MILL

West of Fullerton, 506 Mickley Rd., Whitehall

This gristmill was built in 1807. Today it serves as the home for the Whitehall Historical Society.

HIGH GERMAN EVANGELICAL REFORMED CHURCH

620 Hamilton St., Allentown

The architect for this church was Lewis Jacoby.

HOTEL STERLING

343-345 Hamilton St., Allentown

The lone survivor of the great days of Allentown, The Hotel Sterling still is operating today on Hamilton Street where it once started. Built in 1889 by Henry A. Troxell, who bought it for \$4,000 only to sell it in 1901 for \$30,000 to Louis P. and Charles F. Neuweiler.

KEMMERER HOUSE

3 Iroquois St., Emmaus

Built in 1848, this house contains splendid pieces of art, from early Lehigh Valley scenery paintings to oriental rugs and Bohemian glass. This house is presently used as a museum.

LEHIGH CANAL

Walnutport to Allentown Section, Allentown

This part of the canal was used for shipping the coal from the northern parts of the state to Easton and further from there. The canal was a major contributor to the Allentown area, bringing in goods from both the north and south.

LINDEN GROVE PAVILION

Linden and S. Main Sts, Coopersburg

Built by Tilghman S. Cooper in 1900, the pavilion was used as an auction house for cattle during bad weather. The two and one-half story rectangular building, consisting of a wooden shell over a horizontally engineered frame, has no internal support, thereby providing a clear span area for exhibiting cattle.

LOCK RIDGE FURNACE COMPLEX

Franklin and Church Streets, Alburtis

The Thomas Iron Company built two anthracite coal-burning iron furnaces in Alburtis in 1868. Immigrants from Great Britain helped turn Alburtis from a sleepy town into an industrial powerhouse and company town. This town was another contributor to America's Industrial Revolution.

MANASSES GUTH COVERED BRIDGE

West of Greenawalds on T 602, Orefield, South Whitehall Township

Built in 1858, the bridge has characteristic stone parapets and a roadbed made of double planks of wood. Its single span is 140 feet.

ALBERTUS L. MEYERS BRIDGE

Eighth St. over Little Lehigh and Railroad Streets, Allentown

This was the largest concrete-and-steel span in the world when it was built in 1913. It is 2,650 feet long. It was named after Albertus Meyers who was the Allentown Band conductor for 50 years.

1898 Jerome I. Rodale (1898-1971) is born. He is to become a publisher, and the first American advocate for composting and organic agriculture.

1900 The Lehigh Valley becomes the world's leading manufacturer of cement, supplying high-quality Portland cement for the Panama Canal.⁵

1904 Under the leadership of Charles M. Schwab, Bethlehem Iron Company becomes Bethlehem Steel Corporation.⁶

1905 In order to protect public health, the Purity of Waters Act passes. It is the first act to set standards for domestic sewage disposal.

1905 The Mack Brothers Motor Car Company, formed in New York, outgrows its Brooklyn facility and moves its main manufacturing facility to Allentown.⁷

1906 The Lehigh Coal & Navigation Company completes the construction of a mine-drainage tunnel – the Lausanne Tunnel – near Nesquehoning.

1910 Pennsylvania's urban population (4,631,000) is larger than its rural population (3,034,000) for the first time.

1914 The Smith Lever Act provides technical and economic assistance to Lehigh River valley farmers.

1917 The United States becomes involved in the Great War.

1921 The 16-year construction of the Appalachian National Scenic Trail begins with volunteers. Extending from Maine to Georgia, the 2,158-mile trail crosses the Lehigh River at Lehigh Gap.

- 1921** The Dixie Plant in Easton – where the Dixie Cup is manufactured – is completed employing 78 people.⁸
- 1927** Pennsylvania Power & Light Company builds the Lehigh Valley's first skyscraper, in Allentown.
- 1929** The Great Depression begins.
- 1937** Legislators sign the country's Clean Streams Law, establishing Pennsylvania's basic authority to protect streams from pollution, and from the effects of surface coal mining. Industries start building facilities to treat and dispose of industrial wastes.
- 1939** World War II begins in Europe.
- 1941** The United States enters World War II.
- 1944** Bethlehem Steel reaches peak its production year producing 13 million tons of steel.⁶
- 1945** Pennsylvania Historical & Museum Commission is established to help protect Pennsylvania's historic resources.
- 1945** The Surface Mining Conservation and Reclamation Act passes. It is the first comprehensive attempt to prevent pollution from surface coal mining. Today, it remains the basic law regulating this activity.
- 1947** The transistor is invented at American Telephone & Telegraph's Bell Laboratories in Allentown.⁹
- 1954** Famous athlete Jim Thorpe is buried in a mausoleum in Mauch Chunk, which is then renamed Jim Thorpe in his honor.¹



MOUNT AIRY HISTORIC DISTRICT

Roughly Prospect Ave. between Fifteenth and Eighth Aves, Bethlehem

NEUWEILER BREWERY

401 N. Front St., Allentown

OLD LEHIGH COUNTY COURTHOUSE

5th and Hamilton Streets, Allentown

Built between 1814 and 1817, this courthouse was the first to be built in Lehigh County. It still is in use for certain trials today, but mainly acts as a museum for the county's historical culture.

REX COVERED BRIDGE

South of Schnecksville on T 593, Orefield, North Whitehall Township

Built in 1858, this is the longest bridge in Lehigh County stretching 150 feet. It has a stone parapets and a double wood floor.

RODALE ORGANIC GARDENING EXPERIMENTAL FARM

Minesite Rd., Lower Macungie Township

J.I. and Robert Rodale were the pioneers in the Rodale Organic Gardening Experimental Farm. They based their life around finding a way to make human and environmental health work together in farming.

SCHLICHER COVERED BRIDGE

LR 39058, North Whitehall Township, Allentown

Located near the Trexler-Lehigh County Game Preserve, this is the shortest covered bridge in Lehigh County, only stretching 108 feet. It also is the newest, built in 1882.

GEORGE F. SCHLICHER HOTEL

105--107 S. Main St., Alburtis

SHELTER HOUSE

S. 4th St., Emmaus

Built in 1734, this log structure was used as a stopover for travelers on a trail that connected the Great Swamp with Macungie. The building is currently maintained by the Shelter House Society.

GEORGE TAYLOR HOUSE

Front St., Catasauqua

This house was built in 1763, home to George Taylor, a local governmental official, industrialist and signer of the Declaration of Independence. Today it is a historical house museum.

TROUT HALL

414 Walnut St., Allentown

Built in 1770 as a summer residence by James Allen, Allentown's oldest residence, today it is furnished from that period.

TROXELL-STECKEL HOUSE

4229 Reliance St., Whitehall Township

This building dates back to 1755.

VALENTINE-WEAVER HOUSE

146 S. Church St., Macungie

WEHR COVERED BRIDGE

West of Greenawalds on T 597, South Whitehall Township, Orefield

Built in 1841, it is also called Sieger's Bridge. It is 120 feet long, single span, with stone parapets and a double wood floor.

ZOLLINGER-HARNED COMPANY BUILDING

605--613 Hamilton Mall and 14016 N. 6th St., Allentown

This used to serve as the downtown campus for Lehigh County Community College (LCCC). Before and after it served as a campus, it was a department store.

3. LUZERNE COUNTY

BEAR CREEK VILLAGE HISTORIC DISTRICT

Pennsylvania 115 at Bear Creek Dam, Bear Creek Township

The first log cabin was built in 1786 on the Sullivan military road. The first sawmill was built in 1800. This is also the largest township within the boundaries of Luzerne County.

ISRAEL PLATT PARDEE MANSION

235 N. Laurel St. and 28 Aspen St., Hazleton

STODDARTSVILLE HISTORIC DISTRICT

South side of Pennsylvania 115 at Lehigh River, Buck Township

John Stoddart was the founder of Stoddartsville. He started a milling company that brought grain from the Wyoming Valley in Pennsylvania and shipped it down the river to Philadelphia. The Easton-Wilkes Barre Turnpike Company had made its way through the town of Stoddartsville, since Stoddart himself was one of the original investors. After the coal industries had fallen, Stoddartsville, like many other coal towns, lost their financial income.

1955 Hurricane Diane devastates the region.

1955 The Lehigh River Restoration Association is established.

1961 Francis E. Walter Reservoir is constructed to prevent flooding in the Lehigh River valley.

1962 Rachel Carson (1907-1964) helps start the modern environmental movement when she writes *The Silent Spring*, which warns of the effects of pesticides on the environment.

1966 Pennsylvania State Representative Samuel Frank is instrumental in returning the ownership of the Lehigh River to the Commonwealth after 144 years of ownership by the Lehigh Coal & Navigation Company.¹


1965 The Open Space Act (Act 515) passes authorizing counties to establish preferential property-tax assessments to preserve farmland and open space.

1968 The Pennsylvania Fish Commission studies the Lehigh and Delaware rivers determining that the American shad could not survive in their polluted waters.

1970 Grassroots organizations and concerned citizens celebrate the first national Earth Day on April 22nd.

1972 The use of the pesticide DDT is outlawed in the United States.

1972 U. S. legislators enact the Federal Water Pollution Control Act Amendments, commonly known as the Clean Water Act.

- 1972** The Beltsville Reservoir is constructed.
- 1973** Many grass-roots conservation organizations are formed throughout the county, including Lehigh Valley Conservancy, which eventually becomes Wildlands Conservancy.
- 1975** The Pool Wildlife Sanctuary is established through a bequest to Lehigh Valley Conservancy (Wildlands Conservancy) from Leonard Parker Pool, founder of Air Products and Chemicals, Inc.
- 1976** The Pennsylvania Department of Environmental Resources, the Pennsylvania Department of Health, and the Pennsylvania Fish Commission begin fish-tissue studies, and issue fish-consumption advisories to warn anglers of the dangers of eating fish from certain streams and rivers contaminated with pollutants like PCBs.
- 1980** Lehigh Gorge State Park is created.
- 1980** Water extractions from the Lehigh River reach 450 million gallons per day.
- 1981** Treichlers Dam – a stone-and-log crib dam from the canal days – is breached by ice.
- 1982** The Lehigh River Scenic Rivers Act adds a portion of the Lehigh River to the state Scenic Rivers System.
- 1983** Improved water-quality conditions enable programs to reintroduce breeding populations of bald eagle, osprey, and river otter in Pennsylvania. 

4. MONROE COUNTY

CHRIST HAMILTON UNITED LUTHERAN CHURCH

Bossardsville Rd., Hamilton Township

POCONO MANOR HISTORIC DISTRICT

This historic structure is roughly bounded by Pennsylvania 314, Lake and Cliff Roads, and Summit Ave., Pocono and Tobyhanna Townships, Mount Pocono

5. NORTHAMPTON COUNTY

CENTRAL BETHLEHEM HISTORIC DISTRICT

Bounded by Main, Nevada, and E. Broad Sts., and the river, Bethlehem

This part of Bethlehem is one of the oldest parts in the Lehigh Valley. The Moravians moved into this area after trying to build a settlement in Savannah, Georgia. They left many of their architectural buildings and the cobble stone roads. Today, this is the site where Musikfest is now held.

CHAIN BRIDGE

SW of Glendon on Hugh Moore Pkwy. across the Lehigh River, Easton

Only the remains of the Chain Bridge can be seen today, but it still is an important landmark in American technology. Constructed in 1857 as a wire rope cable suspension bridge, it was to replace an unreliable chain apparatus that shifted the boats from the north shore to the south shore of the Lehigh River. The bridge stretches from Island Park to the south shore of the Lehigh River.

COLD SPRING BRIDGE

Second St. over Spring Creek, Northampton

EASTON HISTORIC DISTRICT

Roughly bounded by Riverside and Bushkill Drs., Ferry and 7th Sts., Easton

Many of the buildings in this district are from the Revolutionary War era. Many well-respected people of that time visited and lived in this area of the Lehigh Valley. The Northampton County Courthouse also sits within this district. It was built in 1860-1861 and overlooks the city at Seventh and Walnut Streets.

EASTON HOUSE TAVERN

167-169 Northampton St., Easton

Benjamin Franklin and other well-known figures visited this 1754 stucco-covered stone building, which served as a social center. George Taylor lived here for many years and owned the property from 1761 until 1779.

EHRHART'S MILL HISTORIC DISTRICT

Mill Rd., Hellertown

ELMWOOD PARK HISTORIC DISTRICT

Roughly bounded by Goepf Circle, Woodruff St., Park Pl., and Carson St., Bethlehem

GEMEINHAUS-LEWIS DAVID DE SCHWEINITZ RESIDENCE

W. Church St., Bethlehem

This five-story log building is Bethlehem's second structure and oldest extant today. Built in 1741 by the Moravians, and the Saal on the second floor is the earliest place of worship in America. This structure is probably the oldest, log building in use in America today.

GRISTMILLER'S HOUSE

459 Old York Rd., Bethlehem

The Moravians were the first to build the Miller house in 1782. They also built three gristmills. The first was built in 1745, which was later torn down. A larger gristmill was built in 1751, which had burnt to the ground sometime later. The last and still-standing gristmill was built in 1869.

WILLIAM JACOB HELLER HOUSE

501 Mixsell St., Easton

KREIDERSVILLE COVERED BRIDGE

North of Northampton on LR 48061, Kreidersville

Built in 1839, it is the only remaining covered bridge in Northampton County.

LEHIGH CANAL: EASTERN SECTION GLENDON AND ABBOTT STREET INDUSTRIAL SITES

Lehigh River from Hopeville to confluence of Lehigh and Delaware Rivers, Easton

Used for shipping the anthracite coal to New York and Philadelphia, this was one of the last canals to use animal power for pulling the boats. The canal was in use until 1942.

LEHIGH VALLEY RAILROAD HEADQUARTERS BUILDING

425 Brighton St., Bethlehem

LEHIGH VALLEY SILK MILLS

Jct. of Seneca and Clewell Sts., Fountain hill borough

The Adelaide Silk Mill was the first of many silk mills in the Lehigh Valley. By 1920, the Lehigh Valley had become the second most important silk producing region in America. There were mills in almost every town in the region.

1988 The Delaware & Lehigh Navigation Canal National Heritage Corridor Commission is established by the federal government.

1988 The Lehigh River Foundation is established.

1990 Bethlehem Steel Corporation discontinues steel production in the Lehigh Valley.⁶

1990 Peregrine falcons return to Pennsylvania nesting on the Rachael Carson State Office Building in Harrisburg.

1990 The protection of 4,000 acres of the headwaters of the Lehigh River is accomplished by a partnership of Wildlands Conservancy, The Nature Conservancy, and the Pennsylvania Game Commission.

1991 May 27th is established in Pennsylvania as Rachel Carson Day.

1991 Concerned fisherman and environmentalists found the Lehigh River Stocking Association, a non-profit organization dedicated to the restoration of the Lehigh River.

1991 Trout stocking begins in the upper Lehigh River.

1994 A passageway for migratory fish is built on the Lehigh River at the Glendon Dam near Easton.

1994 The Pennsylvania Fish & Boat Commission documents that an adult American shad has used the new fish-passage facility on the Lehigh River.

- 1997** The first Lehigh River Sojourn – a canoe/raft trip down the length of the river – is completed in July. It is lead by Wildlands Conservancy with the help of many partners.
- 1997** Governor Tom Ridge celebrates the preservation of 100,000 acres of Pennsylvania farmland at a ceremony at the Willard Setzer farm in Lower Nazareth Township, Northampton County.
- 1998** Over 150 acres of land – and one and one-half miles of Lehigh River shoreline in Salisbury Township, Lehigh County – is acquired from Bethlehem Steel Corporation by Wildlands Conservancy for a partnership of municipalities. Added to an adjacent 250 acres owned by the same partnership, Walking Purchase Park is created.
- 1998** Water withdrawals in the Lehigh River reach 108 million gallons per day.
- 1999** The first Lehigh River Watershed Conference is held in Bethlehem sponsored by Wildlands Conservancy and partners.
- 1998** Wildlands Conservancy's Bike & Boat education/recreation program is established on the Lehigh River between Allentown and Bethlehem.
- 2000** The Lehigh County Agricultural Lands Preservation Board now holds protective easements on 150 farms in Lehigh County totaling 13,721 acres.



JACOB MIXSELL HOUSE

101 S. 4th St., Easton

MORAVIAN SUN INN

564 Main St., Bethlehem

Built in 1758 by the Moravians for travelers. George Washington, Alexander Hamilton, John Jay, John Hancock, and John Adams all visited and all said, "The best inn I ever saw".

JACOB NICHOLAS HOUSE

458 Ferry St., Easton

This little stone house is one of Easton's few remaining Revolutionary War stone buildings. Jacob Nicholas was a local Durham boat captain.

OLD WATERWORKS

Within Historic Subdistrict near Monocacy Creek, Bethlehem

Built in 1762, this small limestone structure housed the first pumped municipal water system in the American colonies, an event not matched in American technology for the next 35 years.

PACKER MEMORIAL CHAPEL

Packer Avenue, Lehigh University, Bethlehem

Located in Lehigh University, it is the site of the annual Bach Festival. It also is used as one of the University's churches.

PARSONS-TAYLOR HOUSE

4th and Ferry Streets, Easton

Two of Easton's signers of the Declaration of Independence, William Parsons, and George Taylor were both occupants of this stone colonial house that was built in 1757.

PEMBROKE VILLAGE HISTORIC DISTRICT

Roughly bounded by Radclyffe St., Carlisle St., Stefko Blvd., Arcadia St. and Minsi Trail, Bethlehem

SEIPSVILLE HOTEL

2912 Old Nazareth Rd., Easton

Built in 1790, it still is operating as a hotel, although some of the accommodations may have changed. The colonial architecture can still be seen inside the hotel.

HERMAN SIMON HOUSE

41 N. 3rd St., Easton

Herman Simon, a wealthy silk manufacturer of the early 1900s, carved pillars on the exterior of his house which resembled his wife and daughter.

STATE THEATRE

454 Northampton St., Easton

This Beaux-Arts theatre, a former vaudeville palace built in 1926, was designed by Philadelphia architect William H. Lee.

DANIEL STECKEL HOUSE

207 W. Northampton St., Bath

The exact construction date is not known, but estimates are around the early 1800's. The front of the home is made from native limestone and the back is rubble stone.

THE TANNERY

Within Bethlehem Historic Subdistrict A near Monocacy Creek, Bethlehem

Built in 1761, this was one of the first tanneries in America. The Moravians annually processed over 3,000 animal hides into leather for shoes, harnesses, clothing and machinery parts.

2003 The Lehigh River Water Trail established.

2004 Lehigh River is placed on the Pennsylvania River's Registry.

- 1 "Life Along the Lehigh" Dr. Buscemi & Wilcox, 2003)
- 2 Jesse Fell memorandum, Pennsylvania Department of Environmental Protection
- 3 lehighon.cpals.com/history.htm
- 4 www.pacoalhistory.com, 2003
- 5 Lehigh Earth Observatory, 2000
- 6 Bethlehem Works, 2003
- 7 Mack Truck History, Page Wise, Inc., 2002
- 8 Lafayette College Libraries, Easton, Pennsylvania, 2003
- 9 IEEE History Center, www.ieee.org

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