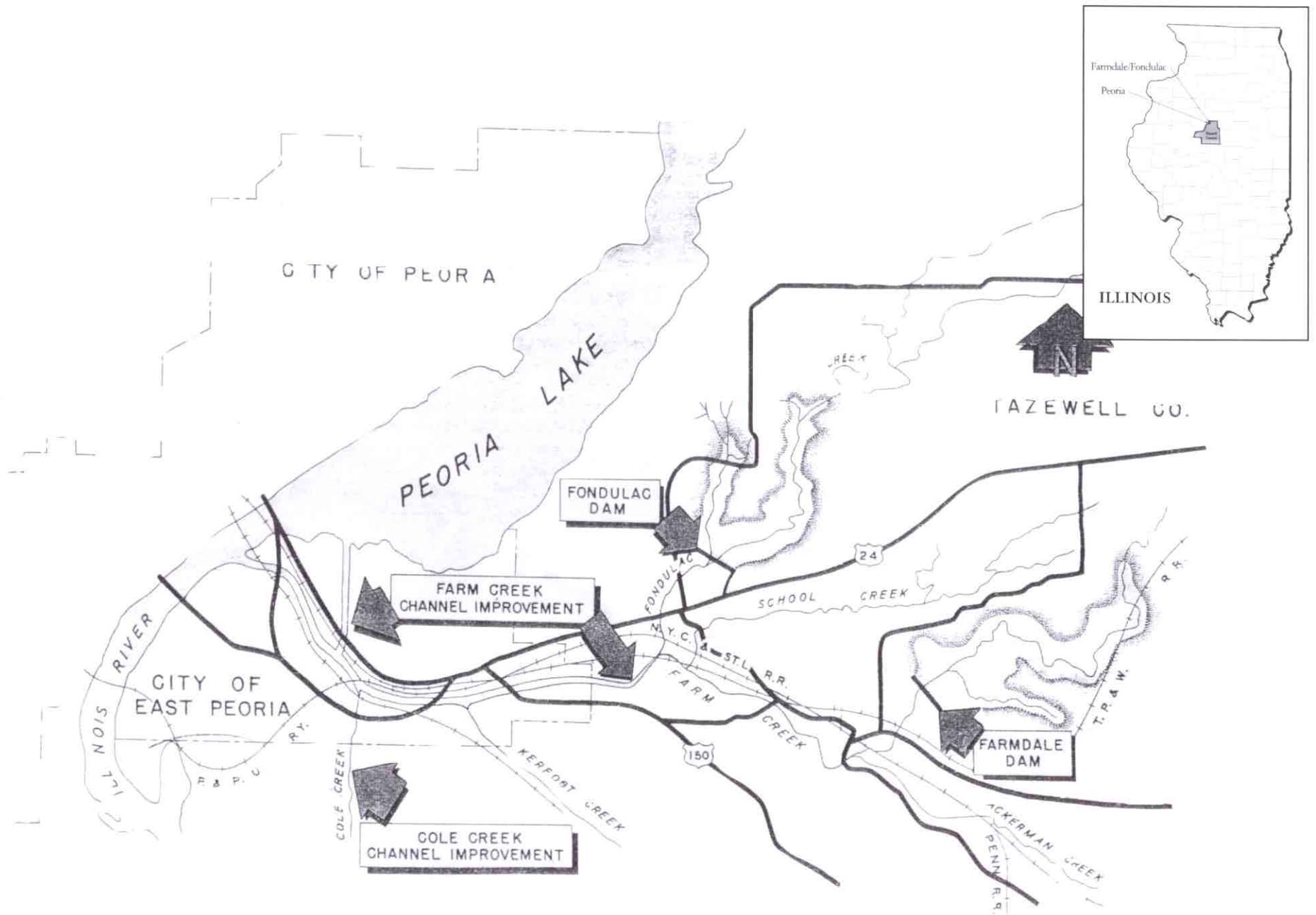


THE GEOLOGICAL AND REGIONAL
CULTURAL HERITAGE OF THE
FARMDALE AND FONDULAC RESERVOIRS



UNITED STATES ARMY CORPS OF ENGINEERS
Rock Island District, Rock Island, Illinois



A 1949 illustration of the Farm Creek Flood Control Project.

The Farmdale and Fondulac Reservoirs

IT IS THE CONTINUING POLICY OF THE UNITED STATES ARMY CORPS OF ENGINEERS (CORPS) TO MAKE SCIENTIFIC AND TECHNICAL INFORMATION AVAILABLE IN A POPULAR FORMAT TO CORPS' EMPLOYEES AND THE PUBLIC. THE INFORMATION PRESENTED HERE IS THE RESULT OF SEVERAL YEARS OF REGULATORY COMPLIANCE RESEARCH WORK AS AUTHORIZED BY SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED).

The central Illinois River valley has a long history of human occupation. Beginning around 12000 B.C., prehistoric populations have taken advantage of the abundant and varied natural resources available. These resources include aquatic life for food, trees for fuel and shelter, and animals for food and clothing.

These same natural resources attracted the early French explorers to the area. In 1680 Robert Cavelier, Sieur de La Salle, visited Lake Peoria and established trading relations with Illinois Confederacy tribes. La Salle then built Fort Crèvecoeur on the east bank of the lake in hopes of establishing a central collection center for a fur trade route spanning from the Gulf of Mexico to Canada. When Euro-american settlers arrived in the area 140 years later, the landscape had changed little. The same resources that attracted La Salle, attracted the Euroamericans as well.

As the Euroamerican settlers built homes, roads, and bridges, the landscape changed dramatically. The industrial expansion of East Peoria aggravated a flooding problem on Farm Creek. By the 1940s, it became apparent that large-scale flood control measures were needed. Between 1945 and 1954, the Corps built two reservoirs, in addition to many other improvements, to control the flooding. Today, portions of Farmdale Reservoir have been converted into an outdoor recreation park. Due to the original purpose of the flood-control facility, much of the area has been under conservation, which supports hiking, camping, and horseback riding activities.

The conservation of the land within Farmdale Reservoir is beneficial not only for the public, but for the natural features of the land itself. Farmdale Reservoir is the site of the geologically important Farm Creek Section. Located above the dam, the exposure reveals glacial stratigraphy ranging in time from 9,000 to 75,000 years ago.

Courtesy of Paul Mellon Collection, Photograph © Board of Trustees, National Gallery of Art, Washington



A George Catlin painting (1847/1848) titled La Salle's Party Feasted in the Illinois Village. January 2, 1680.



Courtesy of Emory Sary and Fondulac District Library

On May 18, 1927, the worst flash flood on record destroyed numerous residences and businesses, including the East Peoria City Hall.

The Geological Past

In 1897 Frank Leverett, employed by the United States Geological Survey as an assistant geologist, conducted a geological survey in the Peoria area. It was along Farm Creek in northwestern Tazewell County that Leverett discovered a 100 ft. high, 225 ft. long moraine. Subjected to a large amount of erosion, portions of the north side of the moraine had been cut away over time. An intense study of the exposed soils led Leverett to conclude that the exposure provided evidence that central Illinois had been covered by glaciers on several different occasions and between these glaciation periods were prolonged periods with significantly warmer climates.

Frank Leverett, described as being not only the greatest American glacial geologist of his time but as one of the greatest of all time and in all countries, was born in Iowa in 1859. He graduated from Iowa State University with a Bachelor of Science degree in 1885. In 1890 he was given a permanent appointment as an assistant geologist with the United States Geological Survey. Eleven years later he was promoted to geologist, and in 1928 he was promoted to senior geologist. In 1929 he retired at the age of 70. In 1930 he was granted the honorary degree of Doctor of Science from the University of Michigan, where he had been a staff lecturer in glacial geology since 1909. Leverett's research and writing did not end with his retirement, as he continued his studies up until his death in 1943 at the age of 84. During his tenure at the U.S. Geological Survey, Leverett authored a greater volume of Survey publications than any other member since its founding. Among these was his classic monograph on Illinois glacial geology, *The Illinois Glacial Lobe*, published in 1899. It was in this text that the Farm Creek Section was first described.

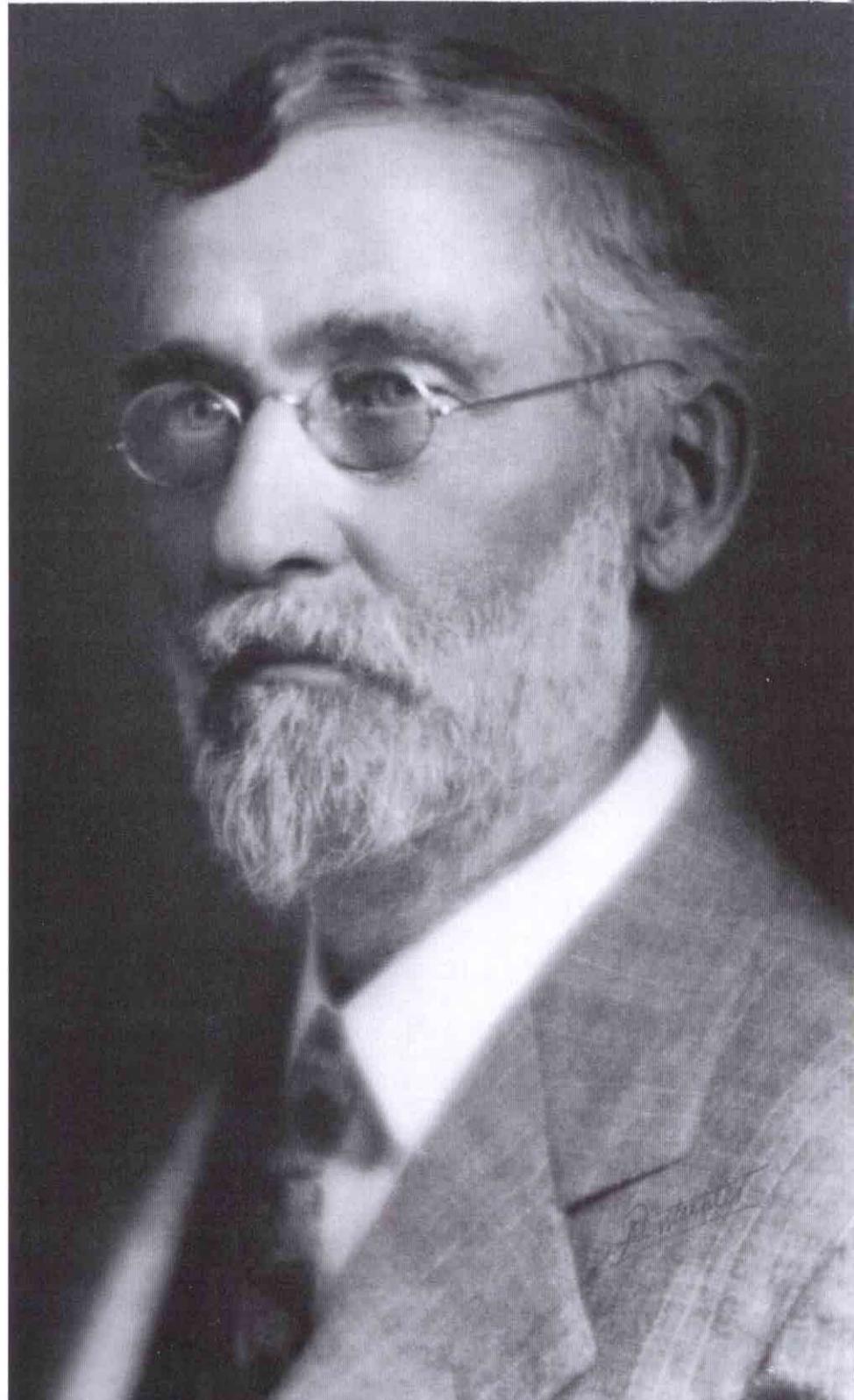
The Farm Creek Section exposes sediments deposited from 75,000 to 9,000 years ago. Scientific analysis of these sediments has provided a wealth of information about the advance and retreat of glaciers in the Midwest. The Ice Age (scientifically referred to as the Pleistocene Epoch) began about 2.5 million years ago. Over the course of the past 2.5 million years, numerous periods of glacial advancement (known as glacial ages) occurred. A brief interglacial age, with a climate similar to the present,

RIGHT: The Farm Creek Section is a moraine that exposes sediments deposited from 75,000 to 9,000 years ago.



FAR RIGHT: Frank Leverett, a noted American glacial geologist, discovered the Farm Creek Section in 1897.

Courtesy of University of Michigan



Courtesy of American Resources Group, Ltd.

separated each glacial age. During the glacial ages, the climate was sufficiently cold year round for glaciers to form and advance into lower latitudes. Glaciers are large masses of ice that originated as snow. As the climate was cold all year, the snow gradually built up and slowly compressed and crystallized into ice. The great pressure at the base of the glacier allowed the ice to actually flow from its center in Canada south into the Midwest, picking up and grinding debris as it moved.

The Pleistocene is divided into numerous ages. The Farm Creek Section exposes sediments deposited during the later part of the Pleistocene that includes, from oldest to youngest: the Illinoian, Sangamonian, and Wisconsinan Ages. The Illinoian and Wisconsinan were periods of time when glaciers were forming in North America. The Sangamonian is an interglacial age which had a climate perhaps even warmer than that of the present time.

Scientific analysis of the sediments at the Farm Creek Section has provided a wealth of information about the advance and retreat of glaciers in the Midwest. The oldest sediments were deposited during the Illinoian Age by a glacier that ultimately covered all of Illinois except the southern tip. When the climate began to warm at the end of the Illinoian, the glaciers retreated (or melted). The mixture of gravel, small rocks, sand, and mud that remains, known as the Radnor Member of the Glasford Formation, forms the base of the Farm Creek Section.

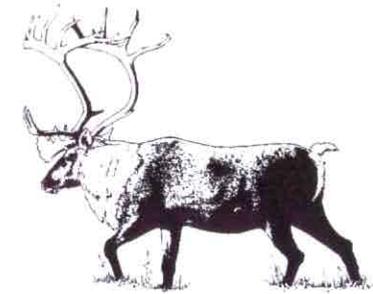
During the Sangamonian, plants and animals reclaimed the area and a new soil formed on the ground surface. The soil (known as the Sangamon Soil) can be seen in the Farm Creek Section. Vegetation, at least during a portion of the Sangamonian, was similar to that of today. Mammals that lived in the region during both the glacial and interglacial ages included horse, camel, llama, giant beaver, caribou, reindeer, musk-ox, giant ground sloth, elk, and bison. Two of the better-known large mammals were the mastodon and woolly mammoth. Small mammals included fox, hare, vole, shrew, and lemming. Fossils of all of these animals have been found in the Midwest.

The climate eventually grew cold again as the Wisconsinan Age began. As the glacier moved south from Canada, the wind blew persistently and deposited pulverized glacial debris (known as loess) on the landscape, burying the Sangamon Soil. Geologists have extracted microscopic samples of pollen from the top of the Sangamon Soil. An analysis of the pollen documents that pine and spruce forests dominated the Peoria area in the early part of the Wisconsinan and that the

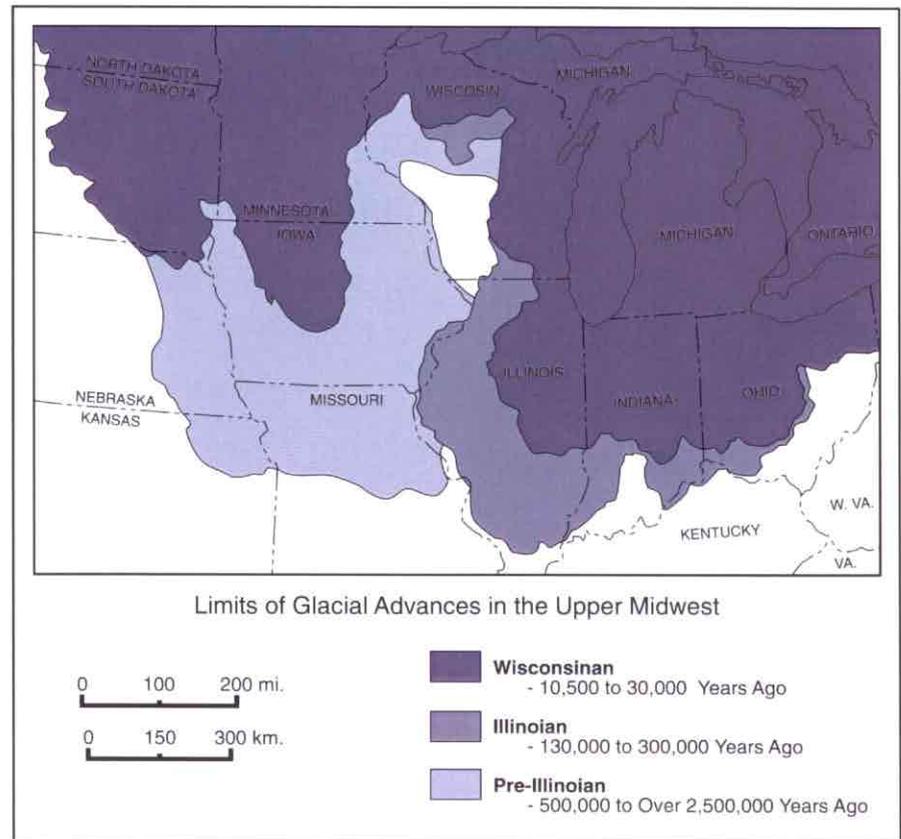


Courtesy of Illinois State Museum

Example of a magnified spruce pollen grain similar to those found within the Sangamonian sediments at the Farm Creek Section.



Caribou were one of the many mammal species that lived in Illinois between 30,000 and 130,000 years ago.



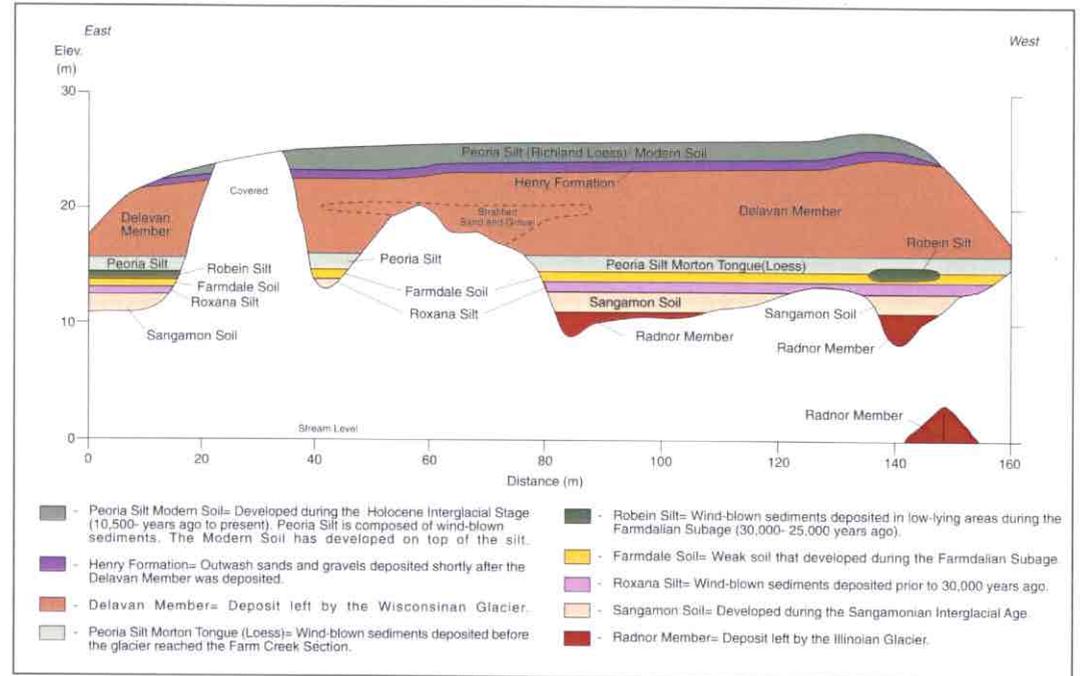
Landforms of Iowa, Prior 1991

climate was similar to that of the present climate in parts of Canada.

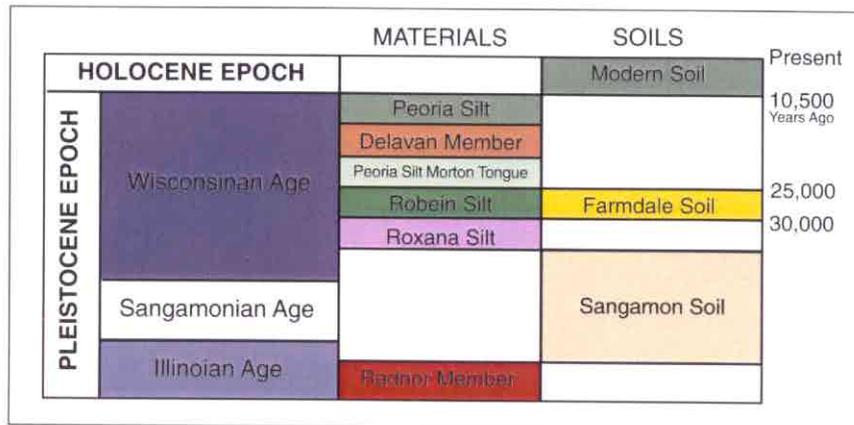
The loess deposited early in the Wisconsinan up to about 30,000 years ago is known as the Roxana Silt. A weak soil (named the Farmdale Soil) then developed on stable surfaces, and the organic rich Robein Silt collected in low-lying areas. This period of soil formation, known as the Farmdalian Subage, ended about 25,000 years ago when the Farmdale Soil was buried by loess (known as the Morton Tongue of the Peoria Silt). The deposition of the loess meant that a glacier was again advancing into the Midwest. This glacier ultimately occupied a portion of central and northeastern Illinois, including the area of the Farm Creek Section. This was the last glacier to occupy Illinois. The sediment deposited by the glacier is known as the Delavan Member of the Tiskilwa Formation. The Farm Creek Section documents that sands and gravels (the Henry Formation), originating from meltwater, buried the Delavan Member as the glacier retreated. Loess, also part of the Peoria Silt, blankets the Henry Formation. Loess deposition ended in this part of Illinois about 10,500 years ago.

Currently, we are living in an interglacial time known as the Holocene Epoch. Plants and animals again reclaimed the area during this period and a modern soil developed on the ground. It was also during this period that humans spread into North America. The earliest Midwestern human occupation is known as the Paleoindian period (12000 to 8000 B.C.). These hunters entered the area in search of large mammals, such as mastodons.

The Farm Creek Section was listed on the National Register of Historic Places in 1992 and was designated a National Historic Landmark in 1997. The Farm Creek Section has changed little since Frank Leverett discovered it a hundred years ago. Since that time, numerous geologists have studied the exposure and refined Leverett's theories on Midwestern glacial geology. The terminology associated with soils and glacial deposits has been revised many times as a result. Geologists today are still studying the exposure, and as new advancements in technology are made, the exposure may provide more valuable information in the future.



Stratigraphic Profile of the Farm Creek Section.



Stratigraphic Key to the Farm Creek Section.

The Prehistoric Residents

The prehistoric record of west-central Illinois spans the Paleoindian through the Oneota periods. This long prehistoric era can be characterized by an increase in cultural complexity, beginning with small hunting and gathering societies and ending with more complex, agricultural societies. The Paleoindian period (12000-8000 B.C.) is best known for its association with late Pleistocene megafauna. Clovis and Folsom projectile points have been found in association with extinct mammoth and bison, respectively. These points have been discovered in west-central Illinois.

The Archaic period (8000-1000 B.C.) includes the hunter/gatherer populations that occupied the Midwest after the Pleistocene, but before the introduction of ceramics. By the end of the Pleistocene, the withdrawal of the ice sheets brought about warmer temperatures and hardwood forests. Today's mammalian species also appeared during this period. Archaic sites are characterized by a variety of notched and stemmed projectile point/hafted knife forms and a number of groundstone tools often associated with plant food processing or woodworking. Archaic artifacts have been recorded throughout west-central Illinois.

The Woodland period (1000 B.C.-A.D. 1000) is characterized by the introduction of pottery and the expansion of horticultural activities. Other trends include the development of exchange networks that extended over much of the mid-continent and the elaboration of ceremonial/mortuary activity. Associated with these developments was the construction of earthen burial mounds and other kinds of earthworks believed to have had ceremonial functions. Woodland pottery was most often grit-tempered, but grog (clay) or limestone was sometimes used as well.

The Mississippian period (A.D. 1000-1400) represents the culmination of social, economic, political, and technological trends of the prehistoric population. The Mississippian period is characterized by an increased dependency upon maize agriculture as a subsistence base and increased social stratification and complexity. Settlements consisted of large fortified towns containing substructure mounds, unfortified villages, hamlets, and individual households. At the top of the social pyramid were the large ceremonial centers, such as the Cahokia site near East St. Louis and Dickson Mounds in the Illinois River valley, which contained flat-topped mounds, plazas, and fortifications. The Mississippian period is also characterized by thin-walled, finely made, shell-tempered pottery. Lithic tools associated with the period include small, well-made triangular projectile points that were true arrowheads.

Beginning about A.D. 900 and persisting until after French contact during the late 1600s, a complex culture, known as Oneota, flourished in the Midwest. Its distribution coincides generally with the tall grass prairies. Oneota is in part contemporaneous with Mississippian and shares several cultural traits. There are known sites in the central Illinois River valley containing Oneota components.



TOP LEFT: An Early Archaic Harden Barbed projectile point/hafted knife.

TOP RIGHT: A Late Woodland/ Mississippian Klunk Side Notched projectile point/hafted knife.

BOTTOM RIGHT: An Early Archaic Thebes projectile point/hafted knife.

ACTUAL SIZE

Artifacts found within the Farmdale Reservoir area.
Courtesy of Illinois State Museum



Map drawn by Marco Vincenzo Comelli; Courtesy of Ayer Collection, Newberry Library



Courtesy of National Museum of American Art, Smithsonian Institution. Gift of Mrs. Joseph Harrison, Jr.

The Native Americans and Early French Settlement

When the French first reached the interior of Illinois, they discovered members of the Illinois Confederacy living on the banks of Lake Pimetoui (Lake Peoria). The loosely structured confederacy included Peoria, Kaskaskia, Cahokia, and Maroa tribes. Other Native American tribes in the region included the Fox, Kickapoo, Potawatomi, and Sauk. During the late 1600s, the Native Americans became dependent on French trade goods such as weapons, gunpowder, cloth, and alcohol. In order to procure these items from the French, they trapped beavers and other game and used the pelts as a medium of exchange.

The first known French exploration of the area was in 1673, when Father Jacques Marquette and Louis Jolliet canoed down the Mississippi River and returned via the Illinois River. In January of 1680 Robert Cavalier, Sieur de La Salle, found an Illinois Confederacy village at Lake Pimetoui. La Salle and his men then built Fort Crèvecoeur on the east bank of the lake (present-day Tazewell County). La Salle envisioned this spot as being a central collection

ABOVE: No English, a Dandy. A Peoria tribal member painted by George Catlin.
LEFT: A 1688 map showing the location of Fort Crèvecoeur on the banks of Lake Pimetoui. The map was based upon La Salle's 1682 expedition.

center for a fur trade route spanning from the Gulf of Mexico to Canada. However, within four months, the fort was abandoned. After its abandonment, the French traders established their settlements and forts on the west bank of Lake Pimetoui, and the east bank was periodically occupied by various Native American tribes.

In 1763 governmental control of the region transferred from the French to the British, and in 1778 it became a county of Virginia. By 1818 Illinois was a state, but some Native Americans, particularly Kickapoos and Potawatomis, still lived in the area. Louis Buisson, a French trader employed by the American Fur Company, established the Trading House at Wesley City (present-day Pekin in Tazewell County) by 1818. About 60 French and Native Americans occupied this settlement for about 25 years. When new Euroamerican settlers moved into the area, however, the Trading House settlement declined and the French and Native Americans scattered and moved west.

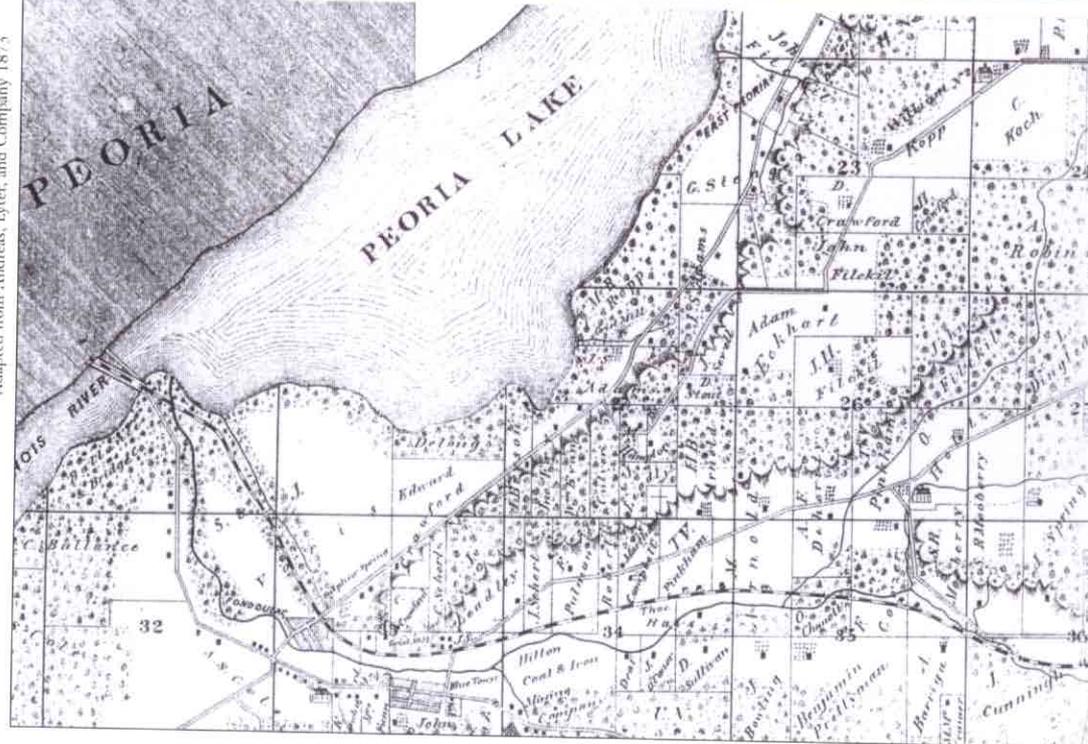
Early American Settlement

Farmdale and Fondulac Reservoirs are located on Farm and Fondulac creeks in northwestern Tazewell County. This region was first settled by Americans in 1822. The land within Farmdale and Fondulac Reservoirs was initially purchased from the federal government by settlers between 1835 and 1839. Two main villages developed in northwestern Tazewell County: Fondulac and Bluetown. Fondulac was platted in 1855. The town comprised a two-block area along the Peoria and Oquawka Railroad, which was completed by 1857. Bluetown was laid out in 1864 in the Schertz settlement. The Schertz family had settled along Farm Creek in 1832 and had established a mill there in 1840. Due to the marshy and flood-prone environment along Farm Creek, these villages grew slowly at first. It was not until the 1870s and 1880s, with the boom in industry, that the two villages experienced a tremendous growth spurt. In 1884 the villages were incorporated together under the name of Hilton. This name was changed to East Peoria in 1889.

The Industrial Revolution

The industrial boom in East Peoria centered primarily along the Illinois River southwest of the reservoirs. The boom was spurred by several factors: an ample supply of local coal, lower taxes, and easy access to both water and rail transportation. One of the many manufacturing companies that took advantage of these factors was the Colean Manufacturing

Adapted from Andreas, Lyter, and Company 1873



An 1873 atlas of the East Peoria region.

Company, which was organized in 1902. In 1910 the company was purchased and renamed the Holt Caterpillar Company, and they filled domestic and international orders for a revolutionary gasoline-powered crawler tractor. In 1925 the company name was changed to the Caterpillar Tractor Company, and East Peoria became the new company's administrative and manufacturing headquarters. By 1945 more than 19,600 people were employed there.



Courtesy of Caterpillar and Fondulac District Library

Holt track-type tractors building a road outside of East Peoria around 1917.

Farm Creek Flood Control Project

Much of East Peoria's industrial expansion took place on the delta area where Farm Creek enters the river. Heavy rains often caused the creek to flood the area. In 1895 a diversion channel was built along Farm Creek to increase its capacity. Despite this and subsequent efforts, the area was devastated by the worst flash flood on record on May 18, 1927. Hundreds of homes and many factories, including Caterpillar, were inundated.

More improvements were made, but on May 20, 1943, Farm Creek overflowed its banks and the Illinois River levee showed signs of weakening. Although minor seepage and leaks occurred, the rising water was fended off. However, Caterpillar experienced a loss of \$2.6 million in war production.

In 1944 the federal government agreed to oversee and pay for the majority of a large-scale flood control project. The Farm Creek Flood Control Project included the building of new levees, channels, bridges, and two major flood retention dams. Fondulac Dam, situated across Fondulac Creek, was started in 1948. The dam, which measures 1,000 ft. long and 67 ft. high, controls 5.4 square miles of drainage area. It was completed in September of 1949. Farmdale Dam, located across Farm Creek, measures 1,275 ft. long and 80 ft. high. Slightly larger and with four times the reservoir area as Fondulac, it controls 26.5 square miles of drainage area. It was completed in 1951. The reservoirs allow ample space for water to build up during heavy rains. When full, they will cover a total of 482 acres and have a capacity of 13,580 acre-feet (one acre-foot equals 325,875 gallons of water). The water is then released gradually through outlet tunnels. It would take eight days to empty Farmdale Reservoir and four and a half days to empty Fondulac Reservoir. Emergency spillways were also constructed. In addition, between 1951 and 1954, new levees were constructed; creeks and channels were deepened, widened, and paved; and several single-span bridges were built.

Since the 1950's the two reservoirs have successfully protected East Peoria from flood waters. Today, portions of Farmdale Reservoir are operated as an outdoor recreation park—featuring hiking, camping, and horseback riding activities.

The flood waters from Farm Creek showed this East Peoria residence off of its foundation in May of 1927.



Courtesy of Emery Sary and Fondulac District Library



Courtesy of Emery Sary and Fondulac District Library

A 1927 postcard illustrating structural damage from the flood. East Peoria City Hall can be seen in the background.

The Fondulac Dam shortly after it was built in 1949.



Photograph courtesy of Peoria Journal Star and Fondulac District Library

AS INDUSTRIAL, COMMERCIAL, AND RESIDENTIAL GROWTH CONTINUES TO ACCELERATE AND THREATEN THE STATE'S AND NATION'S NATURAL AND CULTURAL LEGACY, IT IS IMPORTANT FOR FEDERAL AGENCIES SUCH AS THE UNITED STATES ARMY CORPS OF ENGINEERS TO PRESERVE IMPORTANT NATURAL AND CULTURAL AREAS FOR THE CONTINUED STUDY AND ENJOYMENT OF BOTH SCIENTISTS AND THE PUBLIC. THIS BOOKLET WILL HELP INFORM AND EDUCATE PEOPLE ABOUT THE HISTORY OF THE FARMDALE AND FONDULAC RESERVOIRS AND THE CORPS' EFFORTS TO PRESERVE VALUABLE NATURAL AND CULTURAL RESOURCES.

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