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**GUIDEBOOK NO. 19** 

# GUIDETO THE BUILDING STONES AND CULTURAL GEOLOGY OF AKRON

by

Joseph T. Hannibal
The Cleveland Museum of Natural History

Prepared for the 2006 North-Central Section meeting of the Geological Society of America in Akron, Ohio





Composition and layout by Lisa Van Doren

The views, terminology, interpretations, and stratigraphic nomenclature expressed are those of the author. The Division of Geological Survey disclaims any responsibility for interpretations and conclusions.

Cover photo: Detail of lion statue at Summit County Courthouse. February 2005 photo.

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# **GUIDE TO THE BUILDING STONES AND CULTURAL GEOLOGY OF AKRON**

by Joseph T. Hannibal

# INTRODUCTION

The new village was named "Akron" at the suggestion of Charles Olcott, Esq., of Medina, from a Greek word signifying "high," this being the highest point of land on the line of the canal between Lake Erie and the Ohio River. . . . No other point in Ohio, probably, can boast of a location that, through the fresh and living waters gushing from its summit, daily replenishes the Atlantic ocean at two separate points more than two thousand miles apart.

Samuel A. Lane (1892, p. 35)

There is a very close relationship between the geologic and geographic setting (fig. 1) of Akron and its development as a city. Much of this is due to its location along a major watershed divide underlain chiefly by the Sharon Formation, a Pennsylvanian-age rock unit. This guidebook will provide an introduction to the geographic and geologic setting of Akron and the various types of building stone, especially dimension stone, that have been used over time in constructing the city. Individual localities have been chosen on the basis of their geological as well as cultural and historical importance.

Most localities in this guidebook are within 2 miles (3.2 km) of the center of the city of Akron. Except for Stop 1, all of the stops in this guidebook are located on the U.S. Geological Survey Akron West, Ohio, 7.5-minute topographic map. Stop 1, located at the north end of the Portage Path, is on the Peninsula, Ohio, 7.5-minute topographic map. Portions of these maps are used to show the location, and topography, of various stops in this guidebook.

Because the terrain covered is substantial, the stops included are organized thematically into five sections: (1) places along the Portage Path, (2) Glendale Cemetery and vicinity, (3) canal and railway sites, (4) downtown buildings and statuary, and (5) The University of Akron. Users of this guidebook may wish to visit the sites in each of these sections at separate times.

To make the guidebook more accessible to a broad range of readers, terms that may not be familiar to all readers are included in a glossary at the end of this guidebook. Such terms are printed in **boldface** the first time that they are used. Rock layers are referred to by their formal geologic names whenever possible. Formal geologic names consist of two parts, the name of a place (e.g., the town of Sharon) and either the name of a rock type (e.g., sandstone or shale) or a word signifying its ranking as a rock unit (for instance the word formation or the word **member** or the word **group**). Both words in formal names begin with capital letters. Informal geologic names are indicated by the second part of the name not beginning with a capital letter. Trade names, or names used commercially for stone types, are placed in italics in this guidebook in order to differentiate them from rock-unit names.

A simplified geologic time scale for building stones used in Akron (table 1), a summary of uses or occurrences, sources or locations, and ages of major types of building stone used in Akron (table 2), and a list of trade names and rock-unit names of stones and buildings and other structures in Akron (table 3) follow the text of this guidebook.

## AKRON'S GEOGRAPHIC SETTING AND GROWTH

Akron's geographic and geologic setting on a bedrock highland and major continental divide was the major determinant in its early growth. Two towns, Akron (founded in 1825 as a town) and Middlebury (founded in 1807), were originally located on the divide. Middlebury was located about 2 miles (3.2 km) to the east of Akron. Akron and Middlebury are shown on Newberry's geologic map of Summit County (Newberry, 1873b, page before p. 201). Another town, Cascade, was located just to the north of Akron. Cascade became known as North Akron, and the "original" Akron became known as South Akron. These two Akrons amalgamated in 1836. Eventually additional territory was added, including the town of Middlebury, which became a part of Akron in 1872. Akron grew to prosperity with the construction of the Ohio Canal, which is now known as the Ohio & Erie Canal. The canal ran through the center of Akron. Later, the Pennsylvania & Ohio Canal connected with the Ohio Canal in Akron. Railways and, eventually, freeways followed. Early industries, including grain milling, plow and reaper manufacturing, match making, and rubber making, grew up along these transportation corridors. Akron became the center of the nation's rubber industry by the 1940s.

# AKRON'S GLACIAL DEPOSITS

The present river system, and the dissection of the Sharon Formation highland into its present hilly configuration in the Akron area, is the end result of preglacial erosion of bedrock during much of the **Neogene**, glacial erosion and deposition during the **Pleistocene Epoch**, and postglacial erosion and deposition.

During most of the Neogene Period, rivers coursed northward through Akron, continuing north along the route of today's Cuyahoga River to Cleveland. Then, during the Pleistocene Epoch, glaciers blocked the northern route at times, causing drainage to run off in the opposite direction, to the south. Edward W. Claypole (1835-1901), a fondly remembered scientist on the faculty of Buchtel College (today's University of Akron) from 1884 through 1897 (Knepper, 1970, p. 57, 59), mapped a glacial lake, Cuyahoga Lake (fig. 2), that formed from water ponding in the lowlands south of the ice margin (Claypole, 1887). Highland areas of resistant Sharon Formation formed the sides of Cuyahoga Lake. The lake drained southward, via a prehistoric river that Claypole called the Akron River, into the Tuscarawas River drainage.

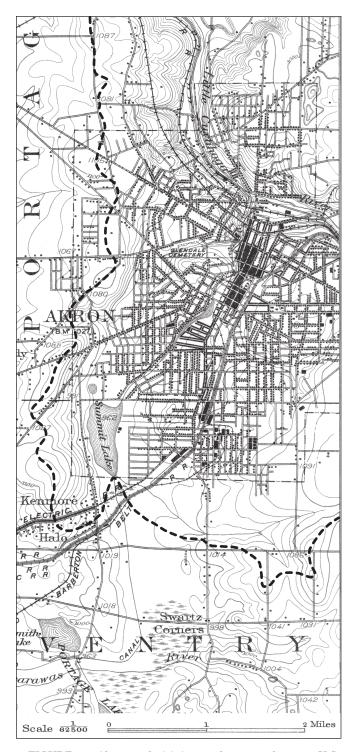


FIGURE 1.—Akron and vicinity as shown on the 1902 U.S. Geological Survey 15-minute topographic map. Contour interval is 20 feet (6 meters). Dashed line indicates the watershed divide between the Cuyahoga River drainage basin and the Tuscarawas River drainage basin. The east-west part of the divide as delineated here was artificially modified during construction of the Ohio & Erie Canal.

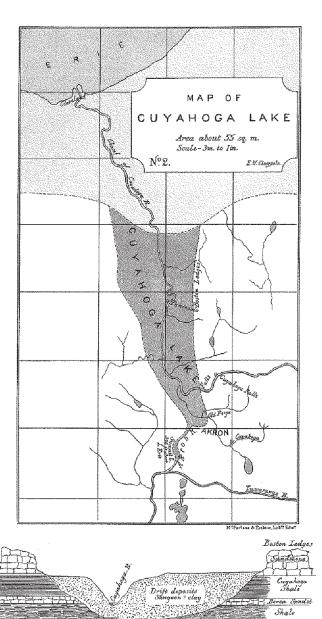
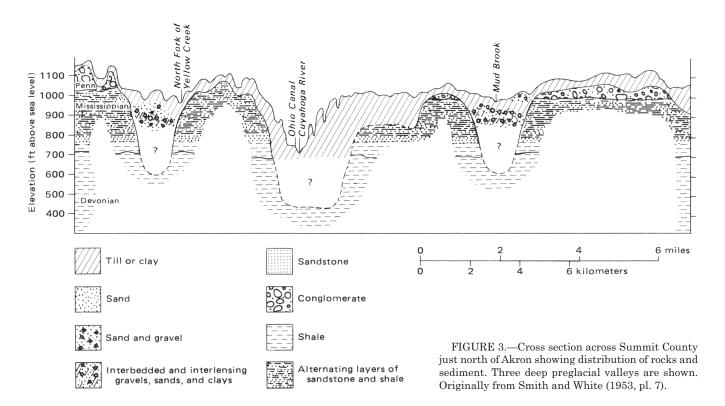


FIGURE 2.—Cuyahoga Lake (top) and a cross section along the Cuyahoga Valley (bottom), as depicted by E. W. Claypole (1887).

The former river valleys through Akron were filled by glacial **sediment** during the Pleistocene. Glaciers filled in the old, deep (up to several hundred feet/100 m or more), preglacial valleys with sand, gravel, and other deposits. One of the widest (up to about 1 mile/1.6 km) of these preglacial **buried valleys** cuts through the bedrock of what is now downtown Akron in a northeast-southwest direction.

The present Little Cuyahoga River, "a tiny stream in a wide valley" (Writers' Program of the Work Projects Administration, 1940, p. 168), cuts through one of these large, mostly filled-in, preglacial valleys, as does the Tuscarawas River to the south, and other streams in the area (fig. 3).

The last glacial advances covered the Akron area with a veneer of sand, gravel, and glacial till. Some of this is re-



flected in hummocky deposits of stratified glacial material, producing a **kamelike** topography. These deposits, including some in the middle of the city (Smith and White, 1953, p. 19), are seen in old woodcuts (fig. 4) of Akron. They are nowadays best seen outside of the city (White, 1984, p. 7).

## AKRON'S BEDROCK

The large buried valley that cuts through downtown Akron is flanked by highland areas underlain principally by Sharon Formation bedrock. Underlying Mississippian rocks of the Cuyahoga Formation also are exposed in the area. There is a small outcrop of the Meadville Member of the Cuyahoga Formation along the Ohio & Erie Canal in the staircase of locks south of Mustill Store, and Cuyahoga Formation rocks also are exposed in places in Sand Run Metro Park on the north side of Akron. The Massillon sandstone, an overlying rock unit, crops out to the south and on the east side of Akron, as do some other, younger Pennsylvanian rocks. Coal Hill, now best known as Chapel Hill, located on the Akron/Tallmadge border, is a historically important coal-mining area containing Pennsylvanian rocks that are stratigraphically above the Sharon Formation sandstone. The terminology used to describe the bedrock layers in the Akron area is indicated on figure 5.

Historical reports on the geology of Summit County, including John Newberry's classic 1873 paper (Newberry, 1873b) use somewhat different terminology, including the term Cuyahoga Shale for the Cuyahoga Formation, and the term Conglomerate for what is called the Sharon Formation in this guidebook.

Major cliff-forming outcrops of the Sharon Formation in

northeastern Ohio have traditionally been called "ledges." Typical ledges are conglomeritic, at least in part, cut by vertical fractures, and bordered by huge disarticulated blocks of the ledgestone. The ledges have long been known as the most romantic and picturesque of the natural features of northeastern Ohio (Hannibal and Foos, 2003, p. 42). Many of the most scenic of these ledges are now preserved within parks in the region, but several ledges are found within the city of Akron itself. The ledges within the city are at least partly, and even entirely, obscured by development, and have been somewhat forgotten. This includes the once well known Wolf Ledge in the downtown area, now known mostly because of the road named for it. Rolling Acres Mall in the southwestern corner of the city is perched on the southern end of Wintergreen Ledges. The hill located immediately to the west of Summit Lake (Stop 9) is a high area underlain by the Sharon Formation, but the rock outcrops are covered, with some exceptions. Part of the downtown area, especially near the appropriately named High Street, between Bowery Street and University Avenue, is underlain by a Sharon Formation high. The rock here is now completely obscured. Outcrops of the Sharon Formation can still be seen around Wintergreen Ledges and at Perkins Park near and within the Akron Zoo (Stop 4).

# HYDROGEOLOGY

The hydrogeology of the Sharon Formation has been of great importance (Foos and others, 2003) and has long been recognized. An anonymous writer in 1837 (quoted in Perrin, 1881, p. 471) noted that "Within the space of about fifteen miles north and south, and ten miles east and west,

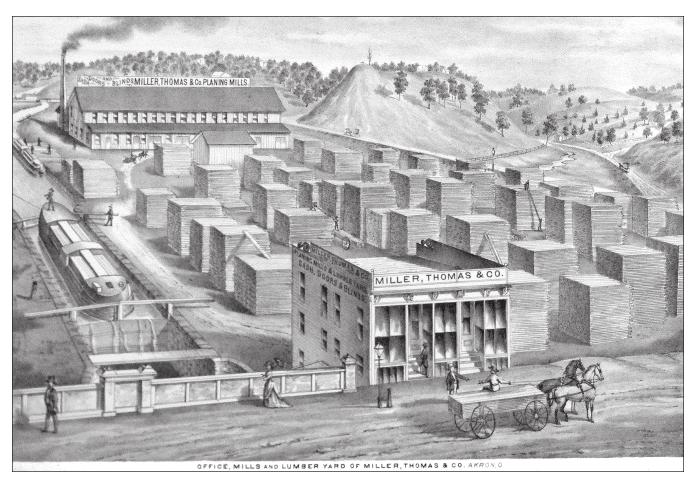


FIGURE 4.—Illustration from the 1874 Summit County atlas (Tackabury, Mead, & Moffett, 1874, p. 72, courtesy of The University of Akron Archives) showing hilly topography of downtown Akron. The street in the foreground is Market Street and the view is to the south. A canal freighter is shown in Lock 8 to the left.

System	Series	Rock unit
Pennsylvanian	Morrowan	Massillon sandstone
Tomisyrvaman	Ivioriowan	Sharon Formation
Mississippian	Osagean	
	Kinderhookian	Cuyahoga Formation (including the Meadville Member)
		Orangeville Member
Devonian	Famennian	Berea Sandstone

FIGURE 5.—Generalized column of bedrock units in the Akron area. The shading between the Cuyahoga Formation and the Sharon Formation indicates a major time gap between the deposition of those two formations.

it contains an extent of waterpower (so rarely to be found in abundance in the State) which is known to be equaled by any west of the [Appalachian] mountains . . . ."

As the city of Akron grew, however, the demand for water increased greatly, and supply of water became more problematic. Readily available drinking water became in short supply (Reese, 1880, p. 64). Lane (1892, p. 451) wrote:

Though eminently a water town—with the never-failing living waters of Summit Lake, a short distance south of the city limits, and the pellucid Little Cuyahoga river traversing its entire breadth from east to west, upon the north and through a large number of springs of the very purest water were found gushing spontaneously from its innumerable hills and bluffs, Akron cannot be said to have been well-watered until a comparatively recent date.

Most water was derived from Summit Lake and other small lakes, the Ohio & Erie Canal, springs, and wells in the nineteenth century and into the twentieth century (Foulk, 1925, p. 224-228). Eventually the city utilized the Portage Lakes as a reservoir, both for canal water and for other purposes, including drinking water.

Too much water has also proved to be a problem at times. The Sharon Formation, a very permeable rock unit, is noted for springs and seeps that emanate from its outcrops (see Foos and others, 2003). This posed a problem during the construction of the 1966 Akron Public Library Building (at the location of the present, expanded building on Main Street) (McGovern, 1996, p. 73), and has proved to be a challenge in developing exhibits at the Akron Zoo (Stop 4).

## PORTAGE PATH

The Portage Path was a trail system (or, technically, systems) that crossed the north-south continental divide within what is now Akron in Summit County. The path connected the Cuyahoga River with the Tuscarawas River where the two rivers approached each other. This path was extremely important to the Native Americans and to the early Euro-American trappers and settlers, as the path allowed access between the Great Lakes and the Ohio and Mississippi Rivers.

Through the 1785 Treaty of Fort MacIntosh, the Cuyahoga River, Portage Path, and Tuscarawas River delineated the western boundary of Euro-American settlement. Indian nations were located to the west. The Portage Path also was noted in two subsequent treaties.

## **CANALS**

In the first half of the nineteenth century, the greatest stimulus to the growth of Akron was the construction of the Ohio & Erie Canal, which connected Cleveland in the north with Portsmouth, Ohio, in the south. The completion of the Cleveland-to-Akron segment of the canal was celebrated on July 4, 1827. The celebration was deemed important enough that the governor of Ohio, Allen Trimble, traveled on a canal boat, the State of Ohio, from Akron to Cleveland for the event (Anonymous, 2002). There were 21 locks along the Ohio & Erie Canal in the Akron area, and 16 of these were within the city limits in 1890. It took a long time for a boat to lock through all of these locks, even if canal traffic was light. Thus the canals stimulated the growth of shops and other service industries. Millers and manufacturers also located along the canal because of available water power and for ease of shipment. Even in the early 1890s, in the twilight of the canals's economic lifetime, one could see paper mills, a match factory, rubber works, and lumber yards along the canal just north of Summit Lake (Reese, 1880, p. 82; Dustin, 1890, p. 282). There are many remnants of the Ohio & Erie Canal in Ohio, including a number of locks, and, in parts of the canal, water still flows.

The Pennsylvania & Ohio Canal, a tributary canal that was completed in 1840, joined with the Ohio & Erie Canal in Akron and provided a water link from Akron to Pittsburgh. This canal was not very successful, however. The remains of the Pennsylvania & Ohio Canal within the city of Akron are mostly or entirely buried.

#### COAL AND CLAY

The Akron area had an abundance of natural resources.

These included nearby coal and clay deposits. The first coal beds to be extensively exploited in northeastern Ohio were mined from Coal Hill (now topped by a commercial mall known as Chapel Hill) on the border of Akron and Tallmadge (Crowell, 1995, p. 123-126). These deposits (the Sharon No. 1 coal) were near the route of the Ohio & Erie and Pennsylvania & Ohio Canals. Subsequently, coal mines were opened just south of the city. Some of these old mines are now within the city boundaries.

Clay and shale deposits in the Akron area were utilized for a number of products. One of the chief sources for clay was in old Middlebury, to the north and south of East Exchange Street east of Beaver Street (east of the present Ohio Route 8; see map in the inside of back cover of Allen, 1949, showing location of clay beds and potteries of old Middlebury). Middlebury was a pioneering center of the sewer pipe industry. At first, material found in Middlebury itself was used; a clay pit was opened in Middlebury in 1851 (Stout, 1923, p. 36). These "clays" may have been the Sharon shale (Tom Hite, personal communication, 2005). The Sharon shale was indeed utilized for the sewer pipe in the Akron area by the later part of the nineteenth century (Orton, 1893, p. 60). Clay found in north Springfield, southeast of Akron (Howe, 1888, p. 634-35; Stout, 1923, p. 36-37) also was used early on. The clay in Springfield was found beneath one of the coal beds (Newberry, 1873b, p. 220-221). This clay, known as a fireclay, could be subjected to high temperatures, and was used in the manufacture of stoneware. Other clays underlying coal beds were used in Summit County as well (Read, 1891). Later, Canton, south of Akron in Stark County, became the regional center for clay products. The Pennsylvanian-age rocks of Stark County contain many beds of shale and clay that have been used for production of brick and other clay products. Indeed, Canton was known as the paving-brick capitol of the world in the 1920s (McCollam, 1976).

# USE OF BUILDING STONE IN AKRON

The Akron region had so much readily available building stone that an 1825 newspaper report (Anonymous, 1825) on the ongoing construction of the Ohio & Erie Canal could note that, "Even the most experienced Lock builders have been deceived in the ease with which stone can be procured and fitted for building locks. They are procured and wrought much more easily than any one anticipated."

Akron was in a favorable location for obtaining building stone, so much so that the *Report on building stone* of the U.S. Census (Hawes and others, 1884, p. 280) could state that:

Akron has ready access to the celebrated quarries at Amherst, Berea, and other localities. The greater part of its stone construction is of the sandstone quarried from local quarries, while Berea sandstone is also largely used; for foundations and underpinnings the local sandstone is exclusively used. The Akron Sandstone [Sharon Formation], when carefully bedded, makes a very durable building stone . . .

# USE OF STONE FROM THE SHARON FORMATION IN AKRON

The Sharon Formation was the first major stone to be used for buildings and other structures in the Akron area (Hannibal and Foos, 2003). This was logical, as natural outcrops of the stone were abundant, especially along streams and ledges. Some downtown buildings, located on the flanks of the great buried valley, were built on, or very near Sharon Formation bedrock, and Sharon Formation bedrock had to be excavated for the basement or lower levels of some buildings.

Stone from the Sharon Formation was used for canal locks, the exterior of buildings, stone walls, foundations, building trim, railway bridges, and other items. The Sharon Formation, known historically as the "Carboniferous Conglomerate" (e.g., Newberry, 1873b), and also known as the Sharon conglomerate, is named for Sharon, Pennsylvania, where the same rock layer crops out. The Sharon Formation was deposited as stream-laid sediments during the Pennsylvanian Period (Foos and others, 2003). Many small quarries were developed in the Sharon, but in Summit County large-scale quarrying of the rock unit was restricted to Akron and to Twinsburg Township (Orton, 1884, p. 603).

In Akron, at least one quarry (fig. 49) was located in the heart of today's downtown area south of Bowery Street (once known as Quarry Street) (McGovern, 1996, p. 141-143) and just east of Main Street. The rock quarried here must have been from the Sharon Formation. The west end of Quarry Street once abutted the Akron canals. (The Ohio & Erie Canal and the Pennsylvania & Ohio Canal ran parallel to each other here, and the street ended at the Pennsylvania & Ohio Canal when that canal was operational, as that canal was east of the Ohio & Erie Canal.) This must have facilitated the transport of stone from the quarry area. According to an advertisement of Tressel & Schneider, Akron builders and contractors and dealers of flagstone and building stone (Burch Directory Co., 1879, Akron, p. 151), their quarry was located at the corner of Main and Quarry Streets, the site of this quarry. Sanborn fire insurance maps (Sanborn Map Company, 1886) show stone-quarry walls forming an "L" shape, extending from the northeast corner of what today are Bowery Street and Maiden Lane (an alley), then running southward parallel to Maiden Lane, and then turning west along Church Street to its intersection with Main Street. The multistory Key Building (formerly the Society Building) and before that the Second National Bank Building) appears to reflect the form of the old quarry. Indeed, this building, completed in 1911, extends several levels below the sidewalk in places along its Bowery Street and Church Street sides. No evidence of the Sharon Formation bedrock here can be seen, however; it is all covered.

Stone was also quarried along the valley of the Little Cuyahoga River just north of Bluff Street at the Hugill quarry (Hawes and others, 1884, table 4; Prosser, 1912, p. 493). Orton (1884, p. 603) noted that the 40 feet (12.2 m) of the Sharon Formation quarried here was "a coarse-grained sandstone free from **pebbles**." Hugill's ad in the 1879-80 *Akron city directory* (Burch Directory Co., 1879, p. 35) notes that heavy stone work was the company's specialty. (They were not the only company to claim this, however.) Hugill

is known to have constructed the stone buttresses of the West Market Street Bridge in Akron (Lane, 1892, addenda, p. 7), and Joseph Hugill's name is carved into the railroad bridge on Howard Street (Stop 12). Not all of Hugill's stone was from Akron, however. He also guarried stone (likely the Sharon) in Franklin Township (ad in Burch Directory Co., 1893, p. 239). Sharon Formation was also guarried at Wolf Ledge and Wilhelm's (also known as the Wilhelm and Schroeder) quarry on the south side of Akron, located near Grant and South Streets (Prosser, 1912, p. 494; Quine, 1958, p. 14). Wolf's quarry was one of several quarries located along Wolf Run, a tributary of the Little Cuyahoga River (now culverted) from Kling Street in the east to the railway in the west, a distance of a little more than a half mile (0.8) km). A desirable reddish-purple variety of sandstone was quarried at Wolf's quarry (Newberry, 1873b, p. 212; Read, 1891) and exported outside of Akron. This stone was used for a number of structures, including the imposing mansion of Randall Wade on Euclid Avenue's "Millionaire's Row" in Cleveland, most of which no longer are standing. The Wade mansion was razed in 1934 (Cigliano, 1991). Today the most obvious reminder of the once well exposed Wolf Ledge is Wolf Ledges Parkway, a street that runs perpendicular to, not along, the old ledges. Wilhelm and Schroeder's ad in the 1879-80 Akron city directory (Burch Directory Co., 1879, p. 143) indicates that they could supply "the finest read [sic] and white stone for building."

The hillside located on the west side of Summit Lake (fig. 39) was also quarried. In the 1890s J. H. Derhammer operated a quarry here (ad in the *Akron city directory*, Burch Directory Co., 1893).

Stone from the Sharon Formation quarried from other Summit County locations may also have been used in Akron. U.S. Census (1880) records show that Twinsburg's Parmelee quarry (fig. 6) was shipping sandstone (from the Sharon Formation) to markets in Ohio.

While an important building stone in the nineteenth century in Summit County, use of the Sharon Formation for structures declined during the latter part of that century. Bownocker, in his *Building stones of Ohio* (1915), makes no mention of Summit County quarries. Still, the Sharon Formation was quarried to some extent in the twentieth century in Akron. The Work Projects Administration (WPA) utilized stone from eastern Akron for an elegant stone stairway (Stop 7), and WPA workers are said to have reused old Sharon Formation blocks for the low wall around the John Brown Monument (Stop 5). More recently, the Akron Zoo (Stop 4) has "quarried" stone from its hillside location for decorative material.

A number of stone structures built in Akron's early years using Sharon Formation sandstone and conglomerate no longer remain. These include the old stone jailhouse completed in 1843. The stone of this jail was rather soft, and prisoners made several attempts to escape by quarrying their way out (Lane, 1892, p. 106-107). They were unsuccessful in this, but successful escapes were effected by prying out one of the huge stone blocks of the jail, as well as by other means. The Sharon, when freshly quarried, is soft, and hardens after a time. Like some other sandstones, the Sharon was said to harden due to the loss of "quarry water." Some of

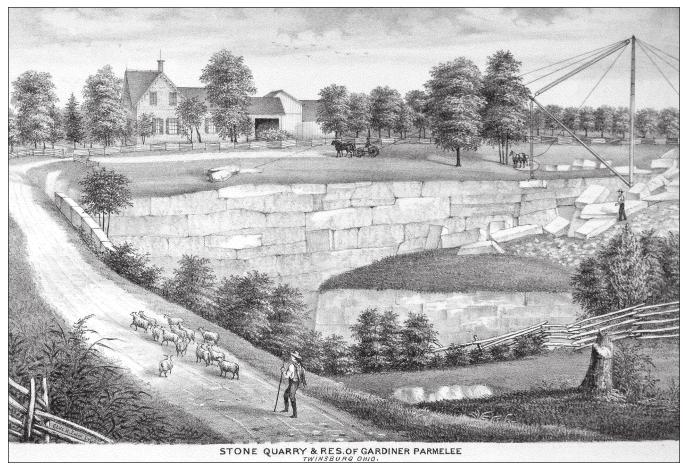


FIGURE 6.—Parmelee quarry in Twinsburg, Summit County. From Tackabury, Mead & Moffett (1874, p. 31), courtesy of The University of Akron Archives.

this hardening, however, is probably due to **case hardening**. The old (1837) stone Unitarian Universalist Church (Stop 24) was made of stone blocks, most probably from the Sharon Formation.

Several good examples of the Sharon Formation as a building stone do, however, remain. These include stone fences and walls, including those at Stan Hywet Hall & Gardens (Stop 2); Perkins Stone Mansion (Stop 3); the great stone stairway leading into Glendale Park (Stop 7); St. Vincent de Paul Church (Stop 8); old railway bridges (Stop 12); and Akron's Old Stone Schoolhouse (Stop 13). The Sharon Formation was also extensively used for foundations in the nineteenth century (Hawes and others, 1884, p. 280). The Formation can be identified by the large pebbles that are commonly (but not in all cases) found in it.

Stone from the Sharon Formation also was crushed and used for a variety of purposes. A method of producing high-silica fire brick made from the Sharon Formation was invented by J. P. Alexander around 1870 (Butterfield, 1881, p. 362-63). These high-silica bricks were produced by the Diamond Fire Brick Works from the Sharon Formation quarried on the west side of Akron (see Stop 2, Stan Hywet Hall & Gardens).

# USE OF BEREA SANDSTONE IN AKRON

With the completion of the Akron-to-Cleveland segment of the Ohio & Erie Canal in 1827, Berea Sandstone became available in Akron. The Berea Sandstone was named for the town of Berea in Cuyahoga County by John Strong Newberry (1822-1892), Ohio's most prominent nineteenth-century geologist. Newberry came to Summit County as a small child and spent his formative years in the county, but he later resided in Cleveland in Cuyahoga County. Quarries in Berea and other sites produced great amounts of sandstone in the 1800s for grindstones, building stone, and other purposes, making the unit famous (Newberry, 1870, p. 21; 1873a, p. 186-187). The Berea Sandstone is composed primarily of grains of quartz sand cemented mostly by silica. It also has a small component of iron and magnesium. The Berea Sandstone has classically been interpreted as being deposited during the early part of the Mississippian Period, but recent analyses have indicated that this rock unit was laid down in the waning part of the **Devonian** Period (Pashin and Ettensohn, 1995).

Berea Sandstone was the most important building stone quarried in Ohio in the second half of the nineteenth cen-

tury and first half of the twentieth century. It has been used for structures throughout much of the eastern part of North America including Cleveland (Hannibal and Schmidt, 1992), Columbus (Melvin and McKenzie, 1992), Cincinnati (Hannibal and Davis, 1992), and Toronto (Fouts and others, 1991). Bownocker devoted more space in his Building stones of Ohio (1915) to Berea Sandstone than any other building stone. Various other, commercial names have been given to the Berea Sandstone, but these have not been used consistently. The Berea Sandstone has sometimes been known as Ohio sandstone, a name that reflects its importance as a building stone, but does not differentiate it from other Ohio sandstones that have been used as building stones. Berea Sandstone quarried in or near specific towns and cities has been known by the names of those places, for instance Amherst stone or Birmingham stone.

Berea Sandstone was used for various buildings in Akron, including St. Bernard's Church (Stop 14), the Akron Municipal Building (Stop 18), and the Carnegie Building (Stop 26). Berea Sandstone was used for curbing in Akron, as well as many other cities in the midwest at the end of the nineteenth century (Cleveland Stone Company, c. 1890, p. 18) and later. The sandstone also was used to pave sidewalks (Hawes and others, 1884, p. 280; Orton, 1884, p. 588). Wilhelm & Sons, Akron contractors and builders, noted that they were dealers of Berea Sandstone flagstone in their ad in the 1893-94 Akron city directory (Burch Directory Co., 1893). Berea Sandstone flagstone sidewalks remain in parts of Akron, as do some curbstones made of the stone.

Early on, a number of Berea Sandstone quarries were developed in Peninsula in Summit County. In the early 1880s, Goodspeed (1881, p. 542) wrote, "Stone, at the rate of about a canal-boat load per day, is being taken out of these [Peninsula] quarries, which are situated on the summit of steep bluffs which border the river and canal. A large amount of labor is thus avoided in loading the stone on boats." There were several quarrying areas in Peninsula, including Deep Lock quarry (fig. 7) and the nearby State quarry, the swim-



FIGURE 7.—Deep Lock quarry in Peninsula, Ohio, where Berea Sandstone was quarried. April 2005 photo.

ming area quarry (the old Independent quarry) south of Ohio Route 303 on the west side of town, the quarry along Slipper Run, and the quarry along Salt Run (now on Boy Scout property). It is said that the State quarry provided stone for Ohio & Erie Canal locks (Bishop, 2000, p. 23).

Stone from the Peninsula quarries had an excellent reputation in the nineteenth and early twentieth century. It was shipped to Cleveland and Akron via canal (U.S. Census, 1880). This was the preferred stone when replacement stone was needed for the northern section of the Ohio & Erie Canal. Specifications for any new stone used for locks and other structures as part of rehabilitation of the northern part of the Ohio & Erie Canal in the early 1900s (Anonymous, 1905a) called for stone "equal to the best quality of Peninsula stone."

The most famous of these Berea Sandstone quarries in Summit County is Deep Lock quarry (fig. 7), also known as the South quarry, the Old South quarry, and the Schumacher quarry (Blower, 1943, p. 11; Bishop, 2000, p. 23). Deep Lock quarry is just above the Ohio & Erie Canal along Riverview Road in Peninsula, Ohio. Deep Lock is sometimes confused with the State quarry, located to the north of Deep Lock (Bishop, 2000, p. 23; Randy Bergdorf, personal communication, 2004).

Ferdinand Schumacher purchased Deep Lock quarry in 1879, when it became known as the Schumacher quarry. Milling stones, also known as hulling stones, were among the items produced here, and some of these can still be seen along the trails near the quarry (fig. 8; see Stop 27, Quaker Square, for more information). Later still, the quarry became part of the Cleveland Quarries Company holdings. According to the Cleveland Stone Company Register (1914-1917) for Deep Lock quarry (handwritten register in the collections of the Peninsula Library & Historical Society), the stone pro-



FIGURE 8.—Unfinished millstones (hulling stones) along the trail in Deep Lock Quarry Metro Park. The millstones, made of Berea Sandstone, are 55 inches (40 cm) in diameter. April 2005 photo.

duced here included, in order of predominance, grindstone, flagstone, riprap, and pulpstone. This stone was shipped to Cleveland, New York City, San Francisco, Montreal, and other cities. A small amount of stone was sent to Akron. Deep Lock quarry closed in 1917. It was the largest, best known, and the last of the Peninsula quarries to close. The Civilian Conservation Corps subsequently used stone from Deep Lock quarry to provide building stone for structures in Virginia Kendall and other parks in the region. Berea Sandstone continues to be quarried in the South Amherst area and in Birmingham, Ohio, but to a much lesser extent than in the past.

By the end of the nineteenth century, use of the Sharon Formation was eclipsed by use of the Berea Sandstone. The replacement of stone from the Sharon Formation by the Berea Sandstone was so total that the use of the Sharon Formation for structures was almost forgotten. Structures made with the Sharon Formation have even been identified as being made with Berea Sandstone (e.g., McGovern, 1996, p. 10).

# DISTINGUISHING STONE FROM THE SHARON FORMATION FROM THE BEREA SANDSTONE

Distinguishing Berea Sandstone from the Sharon Formation is usually straightforward, as the Sharon Formation tends to have at least some quartz pebbles, and less commonly, cobbles. The Berea Sandstone of northeastern Ohio generally does not have pebbles. To complicate matters, however, one of the chief sources of Berea Sandstone in Akron was Peninsula, Ohio, one of the few quarry areas in the region where the Berea Sandstone does have pebbles (Bownocker, 1915, p. 75; Hannibal and Feldmann, 1987, fig. 4). Pashin (1990, p. 265) noted that the Berea Sandstone here has pebbles composed of quartz, bluish-black chert, and greenstone, a green-colored rock. The pebbles in the Berea Sandstone at Deep Lock quarry tend to be 0.4 inch (1 cm) or less in maximum diameter, but some reach at least 0.8 inch (2 cm). Most are white quartz. Pebbles in the Sharon are mostly white or pink shades of quartz or quartzite, and are generally larger than those found in the Berea Sandstone. Quartz cobbles are a definite indicator of the Sharon, as cobble-sized quartz is not found in the Berea Sandstone quarried in the region.

For some uses, however, the less conglomeritic layers of the Sharon were preferred. These can be more easily confused with Berea Sandstone. In this case, the irregular iron banding, and strong **cross-stratification**, including overturned cross-stratification, found in the Sharon Formation may help distinguish it from the Berea Sandstone. The Berea Sandstone can sometimes be distinguished by fine horizontal bedding and evenly dispersed iron blebs, but not all Berea Sandstone has these characteristics. Again, distinguishing the two rock units is not simple as the Berea Sandstone at Deep Lock quarry has a fair amount of cross-stratification.

The general coloration of both the Berea Sandstone and the Sharon Formation can be shades of beige, but the Sharon Formation may be deep shades of reddish-purple. Both rock units also may contain oblong iron concretions or **clasts**.

## USE OF MASSILLON SANDSTONE IN AKRON

The Massillon sandstone is another important Ohio building stone that has been used to some extent in Akron. This stone was named for the nearby Stark County city of Massillon. The name was first used by John Strong Newberry (1874, p. 131; see also DeLong and White, 1963, p. 25-26). The Massillon is mainly sandstone, but includes some conglomerate as well. It is slightly younger than the Sharon Formation, as it overlies the Sharon Formation stratigraphically. Massillon sandstone is, like the Sharon Formation, part of the Pottsville Group. According to Schmidley (1987), a **fluvial** mode of deposition is most likely for the rock unit. Historically, the Massillon sandstone is known as excellent building material (Blue, 1928, p. 31). It was quarried for dimension stone in the Massillon area at the time of Newberry (Newberry, 1878, p. 166). During the later 1800s it could be said that "Its stone quarries within and just outside the city limits are a great source of revenue, and furnish employment to all who want work" (Folger, 1881, p. 401-402). According to DeLong and White (1963, p. 185), Massillon sandstone also was quarried in southernmost Summit County. The quarries in Massillon have been long abandoned (DeLong and White, 1963, p. 184-85).

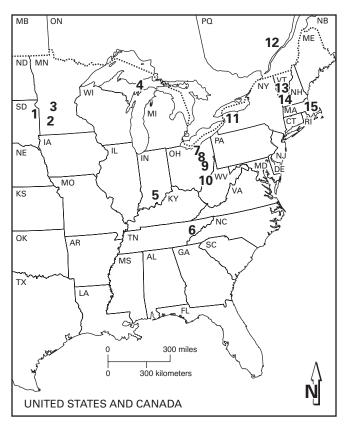
Historically, Massillon sandstone quarried in Chippewa Township, Wayne County, has been noted as being used in Akron (Orton, 1884, p. 591). The Massillon sandstone is presently quarried in Holmes, Knox, and Coshocton Counties, Ohio, by the Briar Hill Stone Company, headquartered in Glenmont, Holmes County. It has been quarried in this tricounty area since at least 1857 (Briar Hill Stone Company staff, 1991). Additional information on quarrying can be found in Bownocker (1915, p. 118-129), Anonymous (1959, 1971), and Briar Hill Stone Company staff (1991).

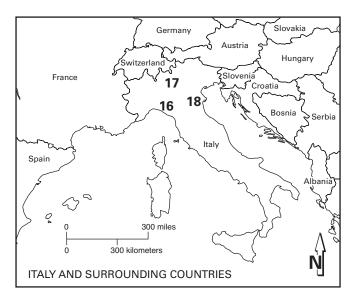
It is possible to confuse the Massillon sandstone with other sandstones, especially the Sharon Formation, that have been used as building stones. The Massillon sandstone is similar to the Sharon Formation in grain size, but tends to contain more, and fairly obvious, **mica**.

## USE OF OTHER BUILDING STONES IN AKRON

Beginning at least by the late 1800s, other stones, some from outside the area (fig. 9), were also used in Akron. A small amount of fine-grained sandstone from the Cuyahoga Formation was utilized in Akron. The chief source seems to have been Trumbull County (Read, 1892, p. 617). It is also probable that some of the "blue-stone" quarried in neighboring Northhampton Township by Hovey and Brown (Hawes and others, 1884, table IV) was used in Akron. This latter stone was reported in the 1880 census as "gray rock" (U.S. Census, 1880).

Medina sandstone was once extensively used for street paving (Hawes and others, 1884, p. 280) and for curbstones in Akron. The formal rock-unit name for the stone is the Grimsby Sandstone. This Silurian-age stone was quarried in western New York and in Pennsylvania. Uses of this red-and-white stone can still be seen today in scattered places about Akron. Paving made of Medina sandstone is exposed, for example, in Bluff Street, above its intersection with North Summit Street, as well as at the Perkins Stone





- 1) Milbank Granite, Milbank, South Dakota
- 2) Morton Gneiss (Rainbow granite), Morton, Minnesota
- B) Rockville Granite, Rockville, Minnesota
- banded iron formation (BIF), probably Upper Peninsula of Michigan
- 5) Salem Limestone (*Indiana limestone*), Bloomington-Bedford, Indiana
- 6) Holston Formation (Tennessee marble), eastern Tennessee
- 7) Berea Sandstone, Amherst area and Peninsula, Ohio
- 8) Sharon Formation and Cuyahoga Formation, Akron area
- 9) Massillon sandstone, Coshocton County, Ohio

- 10) Marietta sandstone (Constitution stone), near Constitution, Ohio
- Grimsby Sandstone (Medina sandstone), northwestern New York
- 12) Caledonia granite, Rivière-à-Pierre region, Quebec
- 13) Barre Granite, Barre, Vermont
- 14) marble, Vermont
- 15) Quincy Granite, Blue Hills area, Massachusetts
- Carrara marble, Red Levanto marble, Black and Gold (Portoro) marble, La Spezia region, Italy
- 17) Botticino marble, northern Italy
- 18) Verona marble, Verona, Italy

FIGURE 9.—Sources of some of the building stones used in downtown Akron.

Mansion (Stop 3). This stone was one of the most widely used paving-stone materials in northeastern Ohio in the second half of the nineteenth century (see Tillson, 1903, p. 31-32). The stone was quarried in New York State and in Pennsylvania. Readily accessible outcrops of the Grimsby can be seen in the Niagara Falls area of New York. Some red *Medina sandstone* curbstones and paving stones can still be seen in the downtown area of Akron; some have been reused for retaining walls.

Indiana limestone (Salem Limestone) was used for a number of Akron buildings in the twentieth century, including the SBC Building (Stop 19) built circa 1930, the First National Tower, completed in 1931 (Stop 21), and various structures on The University of Akron campus (Stop 28). Indiana limestone is a Mississippian-age rock. (See Stop 19, SBC Building, for more information on Salem Limestone.)

Marble was brought to Akron in the nineteenth and twen-

tieth centuries for a number of uses. The first extensive use was for gravestones (See Stop 6, Glendale Cemetery, for a discussion of this use).

Granite and other granitic rocks also have been used in the Akron area. In the latter part of the nineteenth century, granitic rocks were being used for pavers and gravestones. Bates Hill (also known in recent times as Cadillac Hill, McGovern, 1996, p. 88), located just to the east of the Glendale Steps (Stop 7), still has some exposed pink granitic pavers along its lower, steeper, slope, with every fourth row elevated to create a purchase for vehicles climbing this steep hill. Quincy Granite was brought from Massachusetts for gravestones and statue bases. More recently, Rockville Granite from Minnesota has been utilized in a number of Akron structures (see, for example, Cascade Plaza, Stop 20) and granite from Canada has been used for cladding of the Oliver R. Ocasek Government Office Building (Stop 17).

## CEMENT AND CONCRETE

The stone blocks of the original locks along the Ohio & Erie Canal were joined by a layer of cement derived from local sources. This early type of cement, known as hydraulic or "natural cement," was first used in the United States for the Erie Canal (Eno. 1904; Hahn and Kemp, 1994). Producing the cement was relatively simple. The key to production was heating a limestone containing an appropriate amount of silica to the proper temperature. The most widely cited local source of such hydraulic limestone in the 1800s was along the section of locks descending from Akron to the north (Anonymous, 1825). The source was certainly a layer of the Cuyahoga Formation. Read (1891) noted that a "bed of impure limestone, making a fair cement" found in the Cuyahoga shale below Cuyahoga Falls was quarried for construction of the canal (see also Hannibal, 1998, p. 8).

The locks of the northern section of the Ohio & Erie Canal were redone in concrete using portland cement circa 1906 (see Stops 10 and 11). Portland cement was more complex to make than hydraulic cement as it required a mix of materi-

als and more sophisticated methods (Hahn and Kemp, 1994, table 3). The use of concrete for locks in the United States had been pioneered by the engineers of the Hennepin Canal in Illinois in the 1890s, and it was portland cement that was used for the concrete at Hennepin. Specifications prepared in 1905 for the concrete to be used in the reconstruction of the locks along the northern section of the Ohio & Erie Canal (Anonymous, 1905a) specified one part portland cement, three parts screened "clean, sharp lake sand" [sand with angular, versus rounded, grains], three parts screened "clean, hard gravel free from slate, shale or dirt," and two parts hard crushed stone. Pieces of stone and gravel were to be between 0.5 and 2.5 inches/1.3 and 6.3 cm in diameter. On the basis of the content of the concrete visible today, it seems that the specifications were not strictly followed (see Stop 11, Mustill Store and locks).

Concrete, advertised as "artificial stone," also was being promoted for other construction uses during the mid-1900s in Akron. As advertisements (Burch Directory Co., 1904, p. 179) indicate, concrete sidewalks were being installed by the early 1900s, and most sandstone sidewalks have now been replaced with concrete.

# PLACES ALONG THE PORTAGE PATH

There were two major versions of the Portage Path. The longer (circa 8 miles, 13 km) path connected the Tuscarawas River directly with the Cuyahoga River. The shorter path utilized smaller water bodies en route between these two major rivers and involved only about 1 mile (1.6 km) of actual portaging. The shorter trail, of course, was better for smaller canoes with shallow drafts, as it included some relatively shallow waterways; large watercraft had to use the

longer trail. The sites described in this section are along the longer trail. This trail is marked by 3-foot (1-m) tall bronze replicas of Native American projectile points and statuary. Portage County, which Akron was once part of, was named for this portage. But the portage was "taken out of" Portage County with the creation of Summit County in 1840. Thus the portage for which Portage County was named is no longer in that county!

# STOP 1. NORTHERN TERMINUS OF THE PORTAGE PATH

The main northern terminus of the Portage Path entered the Cuyahoga River where North Portage Path Road now begins to cross the river (fig. 10). This intersection is commemorated by a bronze plaque attached to a granite boulder on its southwest side, and by a large sculpture of a Native American carrying a canoe (fig. 11) on its northeast side. The granite boulder, almost certainly a glacial erratic, was emplaced here in 1925. A locally famous bronze plaque attached to the front of the boulder depicts Native Americans at the Portage. Another plaque on the side of the boulder provides additional historical information. The sculpture of the Native American is located across the intersection from the boulder. The bronze replica of a projectile point here is mounted on a Berea Sandstone base. A set of Berea Sandstone flagstones marks the route of Portage Path as

determined by a 1797 survey.

A railway at this location utilizes several different kinds of ballast, including diabase (a dark **igneous** rock), **dolostone**, and slag. The Ohio & Erie Canal towpath trail passes through here just below the railway and sculpture. At the time that this guidebook was written there was no official parking area for this location.

Sand Run Metro Park, one of the parks in the park system officially known as Metro Parks, Serving Summit County, is located to the south and west of this location. The park contains bedrock (the Cuyahoga Formation, mostly shales, but with some **siltstones**) and glacial deposits. Because this material is relatively easy to erode, the terrain in the park is deeply dissected and great lengths have been taken to stabilize the roadbed and park paths here.

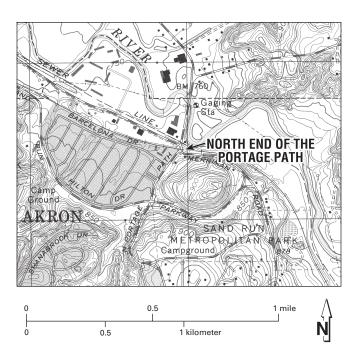
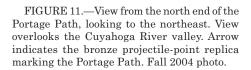


FIGURE 10.—Portion of the 1994 U.S. Geological Survey Peninsula, Ohio, 7.5-minute quadrangle showing location of the north end of the Portage Path. Contour interval is 10 feet (3 meters).





## STOP 2. STAN HYWET HALL & GARDENS

This large, Tudor-style "manor house" and estate (fig. 12) is located at 714 North Portage Path. The entrance to the estate (fig. 13) is at the intersection of North Portage Path and Garman Road. Like the Perkins Stone Mansion (Stop 3), this estate is located on an isolated **knob** of the Sharon Formation along the Old Portage Path. This knob is on the continental divide separating the watersheds of the Cuyahoga and Tuscarawas Rivers. The Portage Path, and the street with that name, more or less follow the divide southward for about 2.5 miles (4 km) from Portage Path's intersection with Garman Road.

The Stan Hywet estate was once the location of a Sharon Formation stone quarry. Indeed, the name Stan Hywet (or stanhywet, pronounced stan hee-wit) is Anglo-Saxon for stone quarry. The Akron White Sand and Stone Co. quarried and crushed Sharon Formation stone here in the 1890s (Quine, 1953, p. 28). Their ad in the 1893-94 Akron city directory (Burch Directory Co., 1893) claimed that their "pure silica sand" was useful for a multitude of purposes. These included plate, flint, and other glass; iron and steel works; pottery and sewer pipe; fire brick; cement; and lithography. Their ad also noted that they quarried white building stone. A stone mill once was on the property (Mark Gilles, personal communication, 2004).

There is an admission fee to tour the house and grounds of Stan Hywet Hall & Gardens. Call 330-836-5533 for more information.

The manor was the home of Frank and Gertrude Seiberling and their children from 1915 until 1957 (Love, 2000). Frank Seiberling, one of the great "rubber barons" of Akron, built—and lost—a fortune in the rubber industry only to start over and build another, if much smaller rubber corporation. He and his family have been among the greatest philanthropists of Akron, having donated Stan Hywet to public use and having donated much of the land for Sand Run Metro Park to the Akron area's metropolitan park system. Sand Run Metro Park is located to the north of Stan Hywet, but is separated from it by housing and other structures. The creation of today's Cuyahoga Valley National Park also was partially due to the efforts of Congressman John Seiberling, one of the offspring of the family.

Frank Seiberling chose this area with its old stone quarry for the site of his manor (Love, 2000, p. 6), which was constructed in 1915. Whereas it has been said that stone for the mansion was brought from England, "stone by stone" (Nichols, 1976, p. 66), this is not true. (The same untrue tale is sometimes told about the brick.) Most of the stone used on the estate is from the Sharon Formation. Sharon Formation sandstone and conglomerate is used for an assortment of structures, including fences and buildings throughout the complex.

The manor and the greenhouse conservatory (constructed in 1915) have foundations cut into the Sharon bedrock. The permeability of the Sharon Formation, and probably also its fractures, have proved to be a problem over time, especially when the original clay-tile drainage system installed around the manor degraded. Recently (2003-2004), the drainage system was redone.

The manor house is built mostly of brick with some fine-

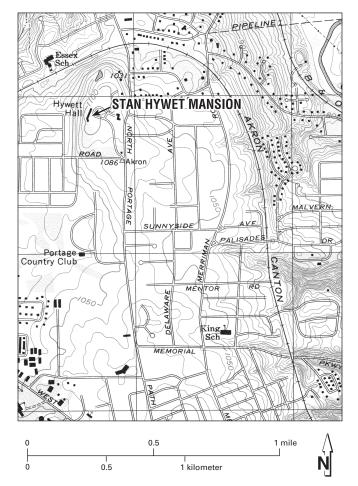


FIGURE 12.—Portion of the 1994 U.S. Geological Survey Akron West, Ohio, 7.5-minute quadrangle showing location of Stan Hywet Hall & Gardens. The arrow points to the mansion. Contour interval is 10 feet (3 meters).

grained sandstone trim. The exquisite brickwork of the manor and some other structures echoes the rock that occurs at the estate. The brick contains pebbles, most of which appear to be from the Sharon Formation and which probably were derived from the old quarries on the property. Likewise, the mortar used between the brick contains pebbles and sand grains probably derived from the Sharon. Recent restoration work has attempted to duplicate the composition of this brick and mortar. Sand from Nelson in Portage County, Ohio, has been used in the mortar mix. This sand includes small pebbles.

The sandstone used for the trim of the manor is a bit finer grained than the Sharon Formation stone used on the grounds of the estate and the Sharon Formation bedrock at the site. The trim stone is very fine to fine grained. Sharon Formation stone excavated in 2004 next to the foundations of the conservatory is fine to medium in grain size. The stone used for the trim lacks pebbles. It does contain minute iron blebs, and cross-stratification can be seen in

places. Whatever this stone is, it has held up well over the years, except in some window frames and doorways, typical areas where sandstone would be expected to spall over a long period of time.

The quarry remnants on the north and west sides of the estate were integrated into the landscape architecture of the grounds by landscape architect Warren Manning (1860-1938). The North Overlook is perched above old quarry walls, and the lagoons and terrace below it are on old quarry floors. Exposures of the Sharon Formation can be seen at the edge of the lagoons from the overlook (figs. 14, 15), and most of the overlook structures, including the two "tea houses," are fashioned from blocks of the Sharon Formation. Some of the Sharon is very pebbly.

A great amount of Sharon Formation stone is used throughout the grounds. The stone fences that extend along North Portage Path and along Garman Road are made of pieces and blocks of the Sharon Formation armoring a soil core. Pebbles can be seen in some of this rock. Cross-stratification also is evident in many of the stone blocks. The fences are truncated pyramids in cross section, with the bases much wider than the tops. These fences, patterned in an Arts and Crafts movement design, were made so as to allow herbs to grow from the wall itself. This design is not as stable as a wall made entirely of dry-laid stone, and so the fences require extensive rebuilding (Dorell, 1998). Concrete has been used to fill in some of the open areas of the fence subsequent to the original construction.

The gateposts (fig. 13) are fashioned using mostly Sharon Formation stone. Note the quartz pebbles and cross-stratification. Salem limestone (*Indiana limestone*) is used for some of the trim and for the stone finials (carvings that surmount the gateposts). (See Stop 19, SBC Building, for more information on Salem Limestone.) The gateposts embrace a beautiful wrought-iron gate.

The manor is at an 1,100-foot elevation, providing an exquisite view, especially to the north looking over the Cuyahoga Valley. The view is similar to that seen from other ledge-top sites in northeastern Ohio. The estate's northern and western rims are composed of old quarry floors and walls as well as ledges composed of Sharon sandstone and conglomerate. Much of the original ledges here have been quarried away, but portions of naturally eroded ledge material remain near the north and west edges of the property. Tens of vertical yards (tens of meters) of the Sharon are exposed. A veneer of Mogadore Till (White, 1984, pl. 1) and soil cover the upper portions of the estate.

Sharon Formation outcrops on the grounds provide excellent examples of sedimentary structures such as cross-stratification, pebbly layers, and honeycomb weathering (fig. 16). The Sharon Formation here also is cleft with parallel vertical or subvertical fracture systems; the major system trends roughly north-south.

Natural springs were present here in the early 1900s (the Sharon Formation is noted for springs and seeps). However, the ponds on the estate were created by flooding portions of the old quarry area. Because of the permeability of the Sharon and its fractures, the water supply to the ponds, known as lagoons, must be constantly replenished. This is done by recirculating water from the duck ponds, which are

located at a lower elevation. This system, an original feature of the estate, was restored in 2001-2002.

While the Sharon Formation is certainly the lord of the estate, several other stone types are used for the manor and grounds. Some of the steps of the manor, including those on the south side, are made of bluestone, almost certainly from northeastern Ohio. The bluestone is a compact, very fine grained, gray sandstone. Some trim of the café porch is Berea Sandstone. Marble urns from Italy, most likely from Carrara, and a well curb fashioned from *Verona marble* (actually not marble, but a Jurassic-age limestone quarried in the Verona region of Italy) are located on the west porch of the manor house.

The interior of the house (accessible only on guided tours) contains various types of stone, mostly sandstones and limestones. Much of the stonework is finished to make

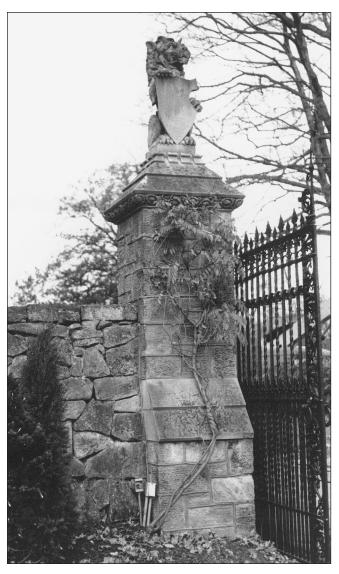


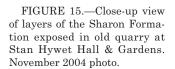
FIGURE 13.—Gatepost at the main entrance of Stan Hywet Hall & Gardens, located at the intersection of North Portage Path and Garman Road. November 2004 photo.

it look old; footsteps have even been artificially carved into stone blocks used for flooring in the hallways and in the Great Hall. The solarium has flooring tiles of *Red Levanto marble*, and a limestone rich in **sea-lily** fragments is used for a portion of the walls. Small tables have a surface made

of *Black and Gold marble*, also known as *Portoro marble*. This dark stone is a limestone, probably quarried in the La Spezia area of Italy (see Hannibal and Davis, 1992, p. 30, for more on this stone). White marble is used for trim and for a number of objects in the house.



FIGURE 14.—Lagoons (foreground) and old quarry walls (midground to the left) at Stan Hywet Hall & Gardens. November 2004 photo.





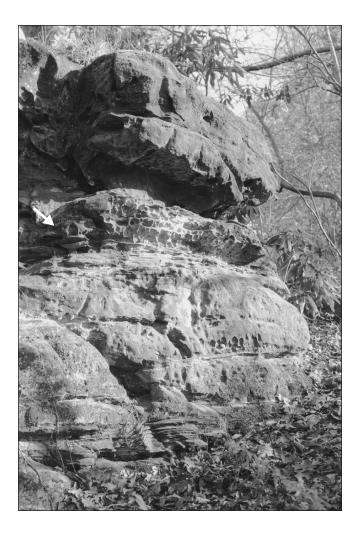


FIGURE 16.—Sharon Formation outcrop at Stan Hywet Hall & Gardens. Note honeycomb weathering (arrow). November 2004 photo.

# STOP 3. OUTCROPS OF THE SHARON FORMATION, THE PORTAGE PATH, AND THE PERKINS STONE MANSION

The intersection of Copley Road with Portage Path-Diagonal Road (Portage Path becomes Diagonal Road south of its intersection with Copley Road) contains a number of significant geological and historical sites that together form one of the key elements of the cultural geology of Akron (fig. 17). The historical buildings on this site, including the Perkins Stone Mansion and the John Brown House, are owned by the Summit County Historical Society. More information on visiting the sites can be obtained from the Society (330-535-1120).

The intersection itself is on the Portage Path, as is the road named Portage Path. A historical marker discussing the Path is located at the corner of Diagonal and Copley Roads on the grounds of the John Brown House. Close-by on Diagonal Road is one of a number of markers, in the form of a giant Native American projectile point, that punctuate the path of the trail through Akron (see fig. 11).

The Sharon Formation crops out along both sides of Copley Road just southeast of the Perkins Mansion and east of the intersection of Portage Path with Copley Road. The

Sharon here consists mostly of fine-grained quartz sandstone. Some of the beds exposed here are pebbly, some are massive without evident bedding, and others have distinct cross-stratification. The cross-stratified beds range at least up to 20 inches/50 cm in thickness.

The Perkins Stone Mansion, located at 550 Copley Road, is a fine old stone structure built for Simon Perkins, Jr. (1805-1887) between 1835 and 1837. The mansion is on the crest of what is known as Perkins Hill. Simon Perkins, Jr. was the son of Simon Perkins (1771-1844), an influential early developer who is known as the founder of Akron. Simon, Jr. was a property manager, businessman, state senator, and benefactor to the city. Perkins referred to the house, completed in 1837, as the stone house (Knepper, 1981, p. 34).

As the outcrop on Copley Road indicates, the Perkins Stone Mansion is on the flank of a Sharon Formation bedrock high. The mansion is constructed of Sharon Formation (Hannibal and Foos, 2003, p. 40), not brick as noted in a recent biography of John Brown (Reynolds, 2005, p. 79). The stone is said to be from right across the road (website of the Sum-

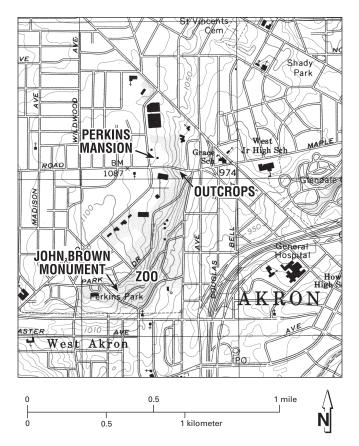


FIGURE 17.—Portion of 1994 U.S. Geological Survey Akron West, Ohio, 7.5-minute quadrangle showing location of the Perkins Stone Mansion and nearby outcrops along Copley Road, the Akron Zoo, and the John Brown Monument. Contour interval is 10 feet (3 meters).

mit County Historical Society, October 2005). While most of the stone is nonpebbly sandstone, various sedimentological features typical of the Sharon Formation can be seen in the stone used for the building. These include quartz pebbles and cross-stratification. Examples of overturned cross-stratification (a characteristic, complex, and controversial aspect of the unit; see Wells and others, 2003, p. 65) can be seen in some of the stone, including one of the steps on the southeast corner of the mansion's porch (fig. 18).

The stone blocks used for the structure are set in courses. Most blocks are rather crudely worked, with simple pecked surfaces. **Quoins** (fig. 19), window sills, and capstones, however, are more finely worked. Quoins and window caps have nicely **drafted margins**, and window sills are marked with perpendicular **drove work**. The stonework on the north side of the building is much more irregular than that of the other sides. The stone of the mansion was cleaned in 2003 using water and chemicals (Schleis, 2003).

As in a number of other North American Greek Revival structures, the tall exterior columns of the building are faux marble, that is, wood painted to resemble marble. Architecturally, they can be termed colossal columns, as they span two stories. The columns are composed of wooden planks fitted around a metal post.

Stone fences around parts of the mansion grounds and other sites near the intersection of Portage Path-Diagonal and Copley Roads are mostly composed of dry-laid blocks and large pieces (probably **field stone**) of sandstone and conglomerate from the Sharon Formation. Other stone, including **glacial boulders**, also is used. To make these New England-style fences (Dorell, 1998) more stable, the fences are much thicker at their base than at their tops, and they have inwardly leaning outer stones covering a core of smaller stones. Some stone pavers near the gift shop are made of Berea Sandstone.

Two old grindstones are located along the fence surrounding the Perkins Stone Mansion. The larger one (54 inches/137 cm in diameter) is Sharon Formation stone; the smaller one (36 inches/91 cm in diameter) is a light-colored metaconglomerate (a conglomerate that has been metamorphosed). The large (55 inches/140 cm in diameter), discoidal sign advertising George J. Smith's improved millstone staff is made of fine-grained marble. The driveway leading from the Perkins Stone Mansion grounds south to Copley Road is paved with *Medina sandstone* paving blocks. Across the street from the driveway are a pair of unusual Romanesque cross-vaulted gateposts made of sandstone.

The John Brown House (built circa 1825), across the intersection from the Perkins Stone Mansion, was the Akron home of the famous abolitionist John Brown (1800-1859) from 1844 to 1846. It contains exhibits related to John Brown, as well as a reconstruction of the quarters of a canal-boat captain during the middle 1800s. Akron's and the Western Reserve's connections to John Brown were numerous and strong (Villard, 1910; Peterson, 2002; Reynolds, 2005). Brown lived in Hudson, Richfield, Franklin Mills (today's Kent), and Akron. John Brown and Simon Perkins, Jr. raised sheep to produce wool on the Perkins holdings in the 1840s. This was during a time when the sheep industry in Ohio was rapidly expanding. By 1850, Ohio had the most sheep of any state (Falconer, 1918, p. 107) and was number one among the states in wool production. The sheep numbers in the northeastern quadrant of Ohio were especially high in 1850 (Falconer, 1918, map on p. 108). On the basis of port receipts, the Western Reserve (Scheiber, 1987, p. 216, tables 9.2-9.4) was the state leader in wool production at this time. Geologist M. C. Read (1873, p. 528) noted the perception that the Sharon Formation bedrock would have been advantageous for pasturage. According to Read, this porous rock unit would both drain excess water and retain enough water during time of drought to support vegetation. Sheep are also able to graze on stony, steep-sloped areas (Peattie, 1923, p. 45). There may have been some association of sheep and the Sharon. Indeed, sheep are shown along a road passing a Sharon Formation quarry in Twinsburg in the 1874 atlas of Summit County (fig. 6).

The wool business of Perkins and Brown was not successful, however. A number of his contemporaries blamed this on John Brown's lack of business acumen (Reynolds, 2005, p. 82-84). Soon Brown became known for his radical antislavery actions, culminating in the famous attack on the Federal Arsenal in Harpers Ferry, Virginia, in October 1859. Citizens of Akron were among his staunchest radical Republican backers. Flags in Akron stood at half mast

the day of John Brown's execution (Olin, 1917, p. 106) on December 2, 1859. Common Pleas Court was adjourned for the day, businesses were closed at noon, church bells rang out for an hour, and a large public meeting was held that evening (Anonymous, 1859). Prominent Akronites took ownership of Brown and his cause. Lane (1892, p. 584) called the abolitionist "our John Brown." A stone monument was

erected to the famous abolitionist's memory (see Stop 4, Akron Zoological Park). One or more glacial boulders were removed from the John Brown/Perkins homesite in the late 1800s and transported to the grounds of Buchtel College, now The University of Akron (see Stop 28A, Crouse Hall). Brown's son, Jason Brown, was buried in Akron's Glendale Cemetery (Stop 6) in 1912 (Colopy, 1991, p. 56).

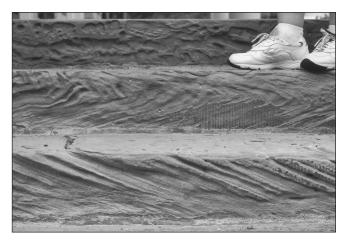


FIGURE 18.—Cross-stratification in stone from the Sharon Formation used for the entrance stairs of the Perkins Stone Mansion. The cross-stratification in the stair that the person is standing on is overturned. July 2003 photo.

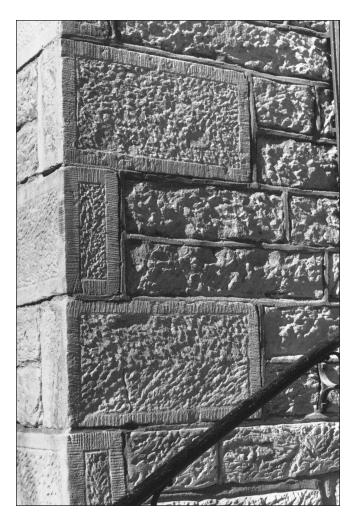


FIGURE 19.—Detail of stonework of Perkins Stone Mansion. Photo is taken under grazing light to accentuate stone mason's finish on quoins. October 2004 photo.

# STOP 4. AKRON ZOOLOGICAL PARK

Akron's Zoological Park is located in Perkins Park (fig. 17) on the flank of a Sharon Formation high. Exposures of the Sharon Formation can be found just above the zoo along Perkins Park Drive as well as within the zoo itself. The exposure in Perkins Park is one of the best known of the urban outcrops in Akron (it was noted, for instance, by Frye, 1925). Stone from the Sharon Formation is used for the wall and ornamental stone outside the zoo's welcome center (fig. 20), and several outcrops (fig. 21) in the zoo provide a naturalistic background for the zoo animals and a good look at various aspects of the Sharon Formation. The position of the zoo alongside the Sharon outcrop, however, has necessitated special drainage and other changes to zoo exhibits because of the proclivity of

springs and seeps to issue forth from the Sharon.

Sharon Formation stone consisting of both smaller, reused blocks and large, irregular boulders can be seen at the entrance to the welcome center of the zoo (fig. 20). The large boulders were pried off from the Sharon outcrop (the stone is fairly soft when fresh and unweathered) using trackhoes for use in landscaping (Brad Haben, Akron Zoological Park, 2004, personal communication). The hillside immediately to the west of the parking lot consists of Sharon Formation rock covered by a veneer of soil. The welcome center itself is faced with sandstone ashlar. This stone may be the Massillon sandstone.

Within and alongside the zoo exhibits, there are also out-

crops (fig. 21) and boulders from the Sharon Formation, as well as reused cut blocks of the Sharon. The color ranges from beige to shades of red and brown. Typical Sharon features, including large, pebble-filled scours and distinct cross-stratification can be seen in the outcrops. The zoo soil also contains quartz pebbles (known as "lucky stones") that have weathered from the Sharon Formation. Outcrops in the zoo have been used as the settings for a variety of animal habitats and gardens. The Andean condor exhibit has purposely utilized a natural outcrop of the Sharon in order to provide a

more natural habitat for these South American birds in the hope that this may stimulate breeding. The outcrop has nice examples of cross-stratification. Large blocks of the Sharon can be seen near the lion exhibit.

Siltstone from the Cuyahoga Formation is also used in the zoo. In addition, a great deal of faux stone has been used, including faux stone that is fashioned to resemble the Sharon. The duck-pond area is along a natural outcrop, but faux stone has been added. The real stone here can be identified by its strong cross-stratification.

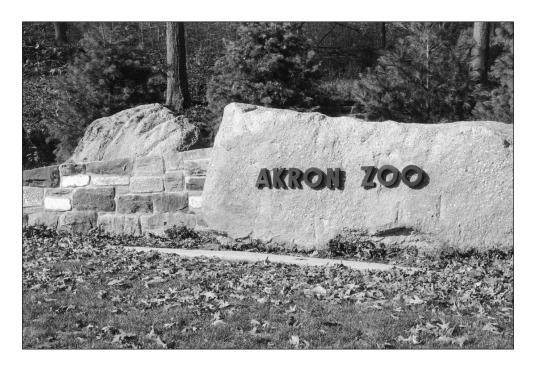
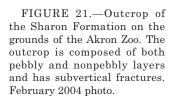


FIGURE 20.—Stone, most or all belonging to the Sharon Formation, near the entrance to the Akron Zoo's welcome center. The rectangular blocks are older reused stones; the larger, more irregular blocks were more recently pried from the natural outcrop of the Sharon Formation at the Zoo. October 2004 photo.





## STOP 5. JOHN BROWN MONUMENT

At the time that this guide was being written, the John Brown Monument (fig. 22, back cover) was located at its original site in Perkins Park (fig. 17), within the upper part of the Akron Zoo grounds, on a natural, pebbly outcrop of the Sharon Formation. The site is not far from the John Brown home, and on land that Brown is said to have grazed sheep on. There were plans, however, to move the monument to the intersection of Exchange and Maple Streets in Akron.

The monument was erected by the German-American Alliance in 1910. It consists of a 6-foot (1.8-m) tall stepped sandstone base with a bronze plaque, and a tall, reused, more-or-less Tuscan-style sandstone column (fig. 22) made up of column drums of varying heights. The column is topped with a sandstone ball. A bronze eagle once was attached atop the ball (Olin, 1917, p. 107). Various sources generally agree that the monument is fashioned from a portico column of Akron's first (stone) courthouse (Writers' Program of the Work Projects Administration, 1940, p. 178; Marzulli, c. 1982, p. 59; Murphey, 1998; Ayers and Musarra, 2000, p. 86). An old illustration of the courthouse (fig. 23) shows two rounded Tuscan columns at its entrance. The columns more or less match the present column. Details that differ probably are due to the nature of the illustration. The woodcut does not show, for instance, that the column is made up of column drums. Another very similar, but older illustration (Tackabury, Mead & Moffett, 1874, p. 80) shows drums, but more than are in the actual column. The column, however,



FIGURE 22.—The John Brown Monument in its original position in Perkins Park (the Akron Zoo area). February 2005 photo.

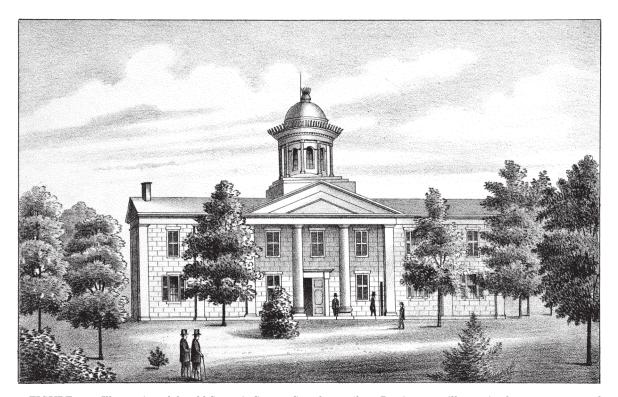


FIGURE 23.—Illustration of the old Summit County Courthouse (from Perrin, 1881, illustration between p. 181 and 182). One of the two rounded columns at the entranceway was probably reused for the John Brown Monument.

does appear to match those seen in a circa 1892 photo of the courthouse (Knepper, 1981, p. 35; see also back cover).

The column appears to be made of stone from the Sharon Formation. Thus it is likely that the entire courthouse was made using the Sharon, which is also probable as the Sharon was the first quarry stone used in Akron. The courthouse site also was very near the old Sharon Formation quarry located at the intersection of Bowery Street (old Quarry Street) and Main Street. The eagle once atop the monument is no longer present, and the monument has been heavily vandalized over the years (Vradenburg, 2000). The monument was cleaned in 2000.

The stone used for the base of the column is a mediumgrained sandstone with some pebbles, mainly between 2 and 4 mm in diameter. The stone used for the column drums contains larger pebbles. Somewhat irregular, subhorizontal iron banding also can be seen on the upper column drums (lower parts of the monument and the base have been coated with paint). Cross-stratification can be seen on the column, and parts of the column have weathered considerably. As older images of the column attest (e.g., Ayers and Musarra, 2000, p. 86; back cover), much of the weathering occurred in the nineteenth and early twentieth centuries.

The column is surrounded by a low, octagonal stone wall with benches, a once-functional fountain, and an accompanying stone marker with a bronze image of Brown. This structure was dedicated in 1938 by the Negro 25 Year Club of Akron. Stone for this structure is reused foundation stone from a mansion that once stood on East Exchange Street in Akron and which was torn down in 1938 (Vradenburg, 2000, p. A5). The octagonal wall is made of stone from the Sharon Formation, some of it quite pebbly, further attesting to the use of pebbly Sharon Formation stone for early Akron structures. The structure around the column was built by WPA stone masons, who also built the Glendale Steps (Stop 7) out of Sharon Formation stone.

# GLENDALE CEMETERY AND VICINITY

Akron's Glendale Cemetery is located just west of the heart of downtown, along one of the traces of the Portage Path. Glendale Park, with its elegant stone Glendale Steps, is located adjacent to, and just east of the cemetery. The neighborhood to the north of the cemetery includes examples of historic stone use, including the Romanesque St. Vincent de Paul Church, built mainly of stone from the Sharon Formation. All of these localities are near each other (fig. 24), but visiting them all requires some hill climbing.

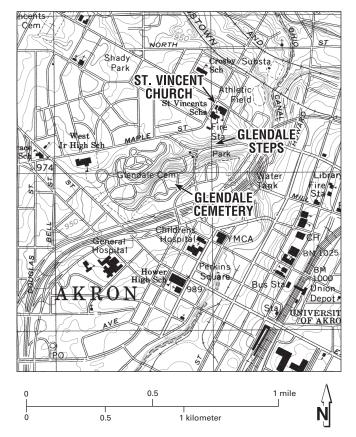


FIGURE 24.—Portion of the 1994 U.S. Geological Survey Akron West, Ohio, 7.5-minute quadrangle showing location of Glendale Cemetery, the Glendale Steps, and St. Vincent de Paul Church. Contour interval is 10 feet (3 meters).

# STOP 6. GLENDALE CEMETERY (AKRON RURAL CEMETERY)

Glendale Cemetery (figs. 24-36) is a beautiful garden-style cemetery of which Reese (1880, p. 68) wrote, "No visitor should leave the city without visiting this cemetery." Glendale Cemetery's main entrance is at 150 Glendale Avenue, at its intersection with Locust Street (fig. 25). One version of the Portage Path passed through what is now the cemetery, utilizing Willow Brook (also known as Willow Creek). The stream now runs through a culvert. The Ohio & Erie Canal (fig. 4) once passed near the eastern boundary of the cemetery.

Glendale Cemetery was founded as the Akron Rural Cemetery in 1839. It was patterned after Mt. Auburn Cemetery in Cambridge, Massachusetts (just outside of Boston), the first great rural, or garden-style, cemetery in the United States. Mt. Auburn had been founded in 1831 (Linden-Ward, 1989). Jedediah Commins (1790-1867), an Akron resident, visited Mt. Auburn in 1838, and shortly thereafter helped to organize the Akron Rural Cemetery. Like Mt. Auburn, Glendale Cemetery has beautiful topography, scenic horticultural elements, and a splendid assemblage of nineteenth- and twentieth-century monuments and headstones. Based on its date of establishment, Glendale Cemetery is the earliest example of a grand

garden-style cemetery in Ohio. Later in the nineteenth century, Glendale also was influenced by developments at Cincinnati's slightly younger (1845) Spring Grove Cemetery.

The first superintendent of Glendale Cemetery was John M. Martin, whom Lane (1892, p. 239-40) notes was "Akron's pioneer tombstone manufacturer." The grand old names (Buchtel, Schumacher, Perkins, Seiberling, and so on) of Akron are represented by monuments, but there are also many modest gravestones that bear silent testimony to the lives of the less famous.

Like Mt. Auburn and some other garden-style cemeteries, including Lake View Cemetery in Cleveland (founded in 1869), Glendale once had a stream and ponds. The waterways of Glendale, however, are no longer present. Willow Brook, a tributary of the Little Cuyahoga River, ran lengthwise through the center of the cemetery. Two large ponds known as Willow Lake (the upper lake) and Swan Lake (the lower lake), are no longer in existence. Old drawings published in Lane's history of Akron (1892, p. 247-251; fig. 26) and maps (Akron Map & Atlas Co., 1891, p. 154-155; Hopkins Co., 1921, map 3) show these water bodies.

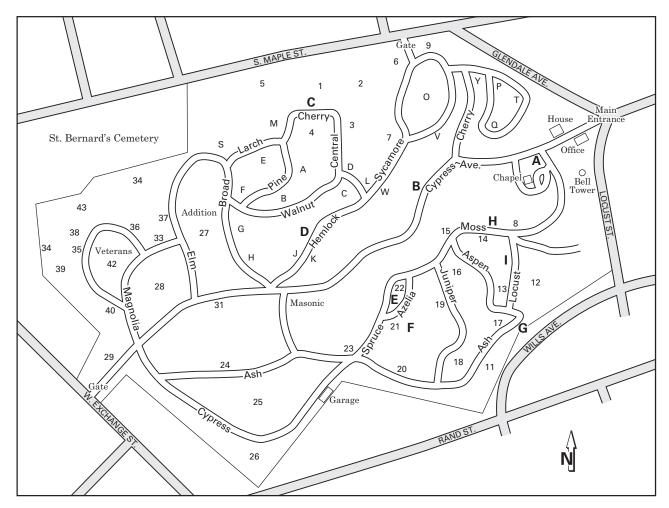


FIGURE 25.—Map of Glendale Cemetery showing cemetery section numbers and Stops 6A-I.

These ponds must have been created by damming Willow Brook (Reese, 1880, p. 68). The stream, but no ponds, can be seen on the 1905 U.S. Geological Survey 15-minute Akron quadrangle topographical map (fig. 1), crossing the cemetery from west to east, eventually entering the Ohio & Erie Canal.

The city of Akron transformed the watershed of Willow Brook beginning in 1908 (Colopy, 1991, p. 56), eventually changing a meandering brook into an underground sewer. At that time, and until very recently, such transformations were considered to be progress.

The change of the stream to an underground storm sewer facilitated the 1977 explosion caused by malicious upstream dumping of chemicals into the system. The explosion excavated a 25-foot-wide (7.6-m-wide) trench along the section of the culverted stream by the caretaker's house and office structure near the entranceway to the cemetery and caused other damage as well (Colopy, 1991, p. 29-32).

Glendale was not the first cemetery in Akron. The Middlebury Cemetery, located about 1½ miles (2.4 km) east of Glendale Cemetery, was founded in 1809. Bodies formerly buried here and elsewhere, including Spicer Hill Cemetery, once located in the heart of what is now The University of Akron,

have been moved to Glendale Cemetery. Thus a number of graves, and gravestones, predate the cemetery itself. This is not an unusual situation in northeastern Ohio.

The hilly setting is similar to that of Cleveland's Lake View Cemetery (founded in 1869) and Dayton's Woodland Cemetery and Arboretum (founded in 1841). Glendale Cemetery also is located on top of buried-valley sediments, and, in this respect, is similar to Woodland Cemetery (see Sandy, 1992, fig. 2).

Because Glendale Cemetery is sitting on a well-drained hilly area, it is festooned with magnificent black oaks, probably part of an original chestnut-oak forest. Part of the cemetery along Maple Street was once known as Oak Openings (Olin, 1917, p. 332).

A gas well drilled on the cemetery property in 2003 has produced gas and oil from the "Clinton" sandstone, a rock layer located about 4,100 feet below the surface. Drillers call this rock layer the "Clinton" sand. It is a porous, very fine-grained sandstone that has long been a prime target of drilling in northeastern Ohio (Pepper and others, 1953). The "Clinton" sand is early Silurian in age. The well here was directionally drilled (drilled at an angle) so as not to disturb sensitive parts of the cemetery.



FIGURE 26.—Memorial Chapel in Glendale Cemetery, 1891 (from Lane, 1892, p. 251). Note the stream and the bridge alongside the road. Only the upper part of the bridge is visible anymore; the stream is no longer visible.

# Stop 6A. Entrance buildings

The entranceway of the cemetery is marked by three very substantial rock pillars composed of Sharon Formation stone and Salem Limestone (*Indiana limestone*). The grayer color and the composition of small **fossils** and fossil fragments distinguish the *Indiana limestone* parts of the pillars from those made of Sharon Formation stone. (See Stop 19, SBC Building, for more information on Salem Limestone.) Located near the entrance are four large stone structures: a caretaker's residence (1869), the recently restored Memorial Chapel (1875-76), a bell tower (1883), and an office building (1903).

The caretaker's residence (1869) is constructed of sandstone blocks set as **random ashlar** that is **rock faced**. The sandstone includes pebbles, cross-stratification, and iron banding.

The cemetery's most outstanding structure is the Memorial Chapel (figs. 26, 27) constructed in 1875-76 in late Gothic Revival style, also known as High Victorian style (note the use of Gothic arches for window frames and other features). It has also been known as the Akron Soldiers' Memorial Chapel, as it was built to memorialize veterans of the Civil War. This building is the only Ohio structure listed in Merrill's (1891, appendix III) "List of some of the more important stone structures of the United States."

Along the road just in front of the Memorial Chapel are two bridge railings, probably made from Sharon Formation stone (note the small pebbles). The rest of the bridge was buried when Willow Brook was turned into an underground storm sewer in the early 1900s. Additional bridges can be seen farther into the cemetery (see Stop 6B). Willow Brook and other water bodies were big attractions. Lane (1892, p. 239) wrote that the cemetery was "beautifully laid out into

romantic drives and walks.... the whole centrally bi-sected by meandering and sparkling Willow Brook, with its cascades, ponds, bridges, etc." The stream is no longer anywhere to be seen, but, especially in summer, it can be smelled as one passes by the storm sewer drains along Cypress Avenue. These drains lead to the culverted stream.

Records (Grand Army of the Republic, 1876, p. 30) indicate that the exterior of the Memorial Chapel is composed of Berea Sandstone from the Peninsula quarries. This sandstone has prominent bedding, defined by brown iron staining; some small pebbles (most less than 0.4 inch/1 cm) can be seen in places. The stone is set as rock-faced, random (or broken) ashlar. The sandstone used for the porch contains several large concretions.

Exterior trim is made of Constitution stone, a Permian-age sandstone quarried in the Marietta, Ohio, area (Grand Army of the Republic, 1876, p. 30; Reese, 1880, p. 68). This sandstone was quarried along the Ohio River (Grand Army of the Republic, 1876, p. 30) in Washington County, Ohio, near the town of Constitution. Constitution stone was quarried from the Dunkard Group and probably is from the rock unit known as the lower Marietta sandstone (see Collins and Smith, 1977, p. 37). The town of Constitution was probably named for the Ohio state constitution. Constitution stone's primary market was in Marietta and other Ohio River locales (Merrill, 1889, p. 458; 1891, p. 278); its use in northern Ohio, where other sandstones were more easily available, is very unusual. It was probably the Ohio River Stone Company that supplied the stone (Brad Bond, personal communication, 2005). The company was owned by William Cutler, the son of Ephrain Cutler. Ephrain was a stone quarrier, an abolitionist, and a member of the Ohio constitutional convention who helped to pass the 1802 Ohio constitution in which Ohio became a slave-free state. William Cutler leased stone rights to the Ohio River Stone Company

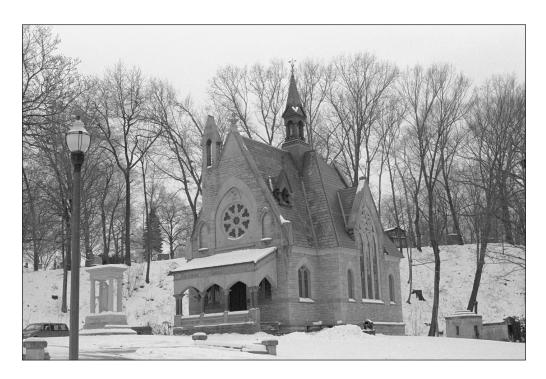


FIGURE 27.—Memorial Chapel in Glendale Cemetery. A monument to unknown dead of the Civil War is to the left. January 2005 photo.

in 1873, and building stone from this quarry was sent as far as Chicago (Bond, 2003, p. 47-48).

The Constitution stone of the Memorial Chapel is blue to greenish gray, but much of it has weathered to brown. It is composed of grains of quartz, with a small but noticeable (with a hand lens) component of mica. The blue coloration can best be seen where parts of the trim have exfoliated (the Constitution stone has not held up as well over time as has the Berea Sandstone). Six porch columns of reddish-orange granite add additional color to the chapel. Some of the Constitution stone used for the exterior has been replaced with other stone.

The newer entranceway on the side of the chapel opposite the porch is *Indiana limestone*. The steeply pitched roof is slate; the present slate was installed in 1993.

The walls of the interior (not ordinarily open to the public) also are made of *Constitution stone* (Grand Army of the Republic, 1876, p. 30; Reese, 1880, p. 68). Trim around the room is made of *White Amherst stone* (Grand Army of the Republic, 1876, p. 31), that is, Berea Sandstone quarried in Amherst. The *Amherst stone* contains prominent cross-stratification and ripple marks as seen in side view. There are some **pyrite**-stained areas in the *Amherst stone* used for the trim on the top of the first double set of marble plaques to the left of the door.

The sedimentary features of the *Constitution stone* are generally more subtle than are those in the Berea Sandstone. Various sedimentary features, including flattish concretionary bodies, can be seen in places. Over time, the color of these stones has changed some, even though they have been protected from the harshest effects of weathering: the *Constitution stone* has turned brown in places, and much of the "white" *Amherst stone* has darkened to a yellowish gray. The color change, exfoliation, and degradation of the interior stone is probably due to changing moisture conditions.

A number of marble slabs along the walls record the names of Akronites who died in the Civil War and veterans of that war as well as the Revolutionary War, the War of 1812, and the war with Mexico. The larger marble panels higher on the walls are made of a white marble. The lower slabs are also white marble, framed with a gray, mottled marble.

Directly in front of the Memorial Chapel is a large, gray monument to unknown dead of the Civil War. This monument (see fig. 27) is made of a light-colored granite rich in small crystals of **biotite**.

The 1883 bell tower (fig. 28), 60 feet (18 m) high, is made of sandstone blocks set in courses. The blocks are rock faced; some protrude a great amount. The stone contains cross-stratification, iron banding, and concretionary structures. A few layers of the sandstone are purplish. The stone has been termed a **brownstone** (Egan, 1935), but it is not brownstone in the classic sense.

# Stop 6B. The trace of Willow Brook, old footbridges, and mausoleums

Three short footbridges that once crossed Willow Brook are located along Cypress Avenue not far from the main cemetery entrance (the stream meandered through the cemetery from west to east more-or-less along Cypress Avenue). Each bridge

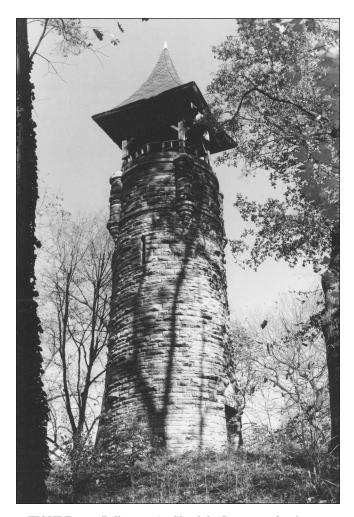


FIGURE 28.—Bell tower in Glendale Cemetery. October 2004 photo.

has a different form that matches the mausoleum it accompanies. The most distinctive mausoleum and bridge set (fig. 29) is that of Walter A. Franklin (1868-1943), a general contractor in Akron. The mausoleum is dated 1910. A multicolored mix of rocks, mostly igneous rocks such as granite, but also the metamorphic rocks quartzite and marble, among other rock types are used for the mausoleum and bridge. The rocks are rounded to polygonal in shape; some appear to be sculpted to a degree. Most of the rock types used are typical of glacial deposits found in the region. Walter, with his brother, C. F. Franklin, once owned the North Hill "sand banks" located across the Little Cuyahoga River valley from downtown Akron (Doyle, 1908, p. 553-554). The Franklin Brothers screened the sand, and probably gravel, from this deposit and delivered it to their customers. It is likely that at least some of the stone used for the mausoleum is from this or other glacial deposits utilized by the Franklin Brothers. A small amount of the stone used for the mausoleum, including the marble, is probably not glacial in origin, however. Two groupings of stone lions carved of granodiorite stand as sentinels in front of the mausoleum.

Willow Brook originally bisected the cemetery. Swan Lake

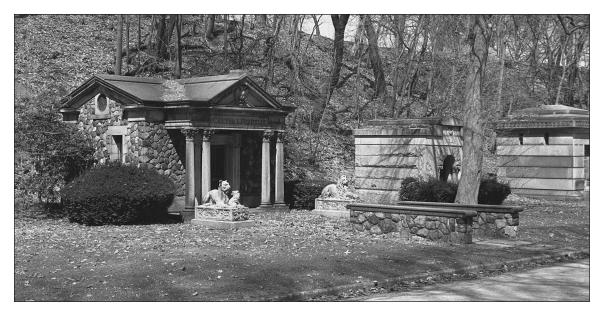


FIGURE 29.—Walter A. Franklin mausoleum and bridge along Willow Brook in Glendale Cemetery. April 2005 photo.

(the lower lake) was located to the east, just north of Cypress Avenue, and west of the Franklin mausoleum. Willow Lake (the upper lake) was located to the west, just south of, and along, Cypress Avenue.

# Stop 6C. Sandstone, marble, and granite gravestones in Sections 1 and 2

Sections 1 and 2 and adjacent portions of the cemetery contain some of the oldest gravestones in the cemetery, as well as a good selection of the various gravestone styles and stone types used over time in the cemetery, including sandstone, limestone, marble, and granite. The cemetery contains a few metallic markers as well, notably bluish-gray markers made of zinc ("white bronze"; see Rotundo, 1992, for more information on this type of gravestone). As various studies of cemeteries in western Pennsylvania (Moore and Davies, 1975) and northeastern Ohio (Hosler, 1982; Bauer and others, 2002) have shown, the stone types used were introduced in a time sequence, starting with sandstone, a local material, and then marble from Vermont and Italy, finally followed by granite from a variety of places, mainly in the United States.

Sandstone gravestones are not common, but can be easily identified, as these gravestones appear dark because they have acquired a dark patina over time. Limestone gravestones are even scarcer than sandstone gravestones. The limestone gravestones, mostly from the Holston Formation, quarried in Tennessee, are light pink in color, highly weathered, and resemble weathered marble (except that the limestone gravestones contain fossils). Indeed, limestone from the Holston Formation is known as *Tennessee marble* (Dale, 1924).

Marble gravestones are typically white in color. Most are moderately to highly weathered. Marble is the second most common type of stone used in the cemetery. Marble monuments were preferred from the founding of this cemetery through much of the nineteenth century. The use of marble is documented both by monuments in the cemetery and by advertisements and mentions in nineteenth century publications. The 1859 *Akron city directory* (Williams, 1859) lists David Lebcher as a marble dealer. The advertisement of the marble works of D. Lebkicher [sic] in the Akron newspaper *Summit Beacon* (e.g., July 8, 1857, p. 3) indicates that this marble works always had "American and foreign" marble on hand.

Martin H. Crumrine, another marble gravestone manufacturer, was prominent enough to be noted in two later 1800s histories. Lane (1892, p. 459) included a biography and portrait of Crumrine in his history of Akron. According to Lane, Crumrine learned marble cutting in Cadiz, Harrison County, Ohio, and traveled to Massillon, Ohio, in 1851 to work for Uhl, Myers, and Company. After work in several other states, Crumrine established marble and granite works in Akron in 1863. Butterfield's (1881, p. 351) account of Crumrine gives an abbreviated version of his career. Census information (U.S. Census, 1870) records Crumrine's Akron marble works as utilizing marble and miscellaneous material using the canal as motive power. Butterfield (1881, p. 351) noted that Crumrine dealt in American and Italian marble as well as American and Scottish granite.

Some of Crumrine's signed marble stones can be seen here in Glendale Cemetery (Colopy, 1991, photos 21, & 22). The most likely sources of the marble used in the cemetery are Vermont and Carrara, Italy (see Bauer and others, 2002, p. 90, 92-93), with much or most of it shipped to Akron from Cleveland on the Ohio & Erie Canal. (See Stop 14, St. Bernard's Church, for more on *Carrara marble*.)

The predominant stone type in the cemetery, however, is "granite," used in the general sense of a granitic rock such as granite, granodiorite, and **gabbro**. The changeover from marble to granite happened over a period of years (see Bauer

and others, 2002, p. 90, 92-93), but both stone types were being used by the end of the nineteenth century in northeastern Ohio. In the 1893-94 Akron city directory (Burch Directory Co., 1893), M. H. Crumrine advertised his Akron Granite and Marble Works (p. 143) and Charles Schuler advertised his West Hill Marble and Granite Works. The 1903 and 1904 Akron city directories contain advertisements for Crumrine's Akron Marble and Granite Works (Burch Directory Co., 1903, p. 317; 1904, p. 312) and for F. Rogers & Co., "dealers in granite and marble monuments."

The granite used in the cemetery is typically gray, red, reddish-orange, or black. Two common granitic stones are Quincy Granite (used in the nineteenth and twentieth centuries) from Massachusetts and Barre Granite (which is still used today) from Vermont. The coarse-grained Quincy Granite is composed of blue-gray feldspar, very dark colored hornblende and pyroxene, and smoky quartz. Thus, this stone tends to be dark in overall coloration. (See Stop 15, Simon Perkins Monument, for more on Quincy Granite.) Barre Granite is a widely used, light-colored, medium-grained granodiorite quarried in Barre, Vermont. It is Devonian in age. This stone was quarried in the Barre area at least as early as the 1820s, but it was only after the post-Civil War development of the railways that the industry really took off (Clarke, 1989). The stone has been widely used in northeastern Ohio for gravestones, monuments, and mausoleums, and examples of its use in Akron outside of this cemetery include sculptural pieces at the U.S. Courthouse and Federal Office Building (Stop 22) and the Buchtel statue (Stop 28B).

Because they were noted in advertisements, Scottish granite tombstones must have had an excellent reputation at this time, and they were an important export from the Aberdeen area of Scotland to America in 1880 (Anonymous, 1884, p. 5; Donnelly, 1994, p. 40). It is difficult to identify the Scottish granites, as the granites quarried in Aberdeenshire varied from "the dourest grey to the gayest pinks and reds" (Grant, 1955, p. 134-56).

The marble in the cemetery has been weathered over time owing in great part to the industrial pollutants that result in acid rain (McGee, 1995). This weathering has resulted in gravestones whose inscriptions are no longer clearly legible or even visible, and marble statues with badly eroded or even missing parts. Granite gravestones have fared better.

Bases of gravestone may be the same, or different from, the gravestone itself. Some older monuments are white marble on sandstone bases. The sandstone used for most bases is from the Sharon Formation. Some have cross-stratification (and so the cross-stratification can be seen in three dimensions) and some contain pebbles. This is a typical nineteenth century combination of materials: imported marble for the gravestone and local (cheaper) stone for the base. In recent years, the cemetery has allowed only granite monuments and either granite or bronze markers, with an exception made for monuments and markers that are being duplicated.

This area of the cemetery contains stones fashioned in a variety of styles, including tablets, obelisks, and blocks, popular during the nineteenth and twentieth centuries. The monuments also vary in size, with those dating to Victorian times (roughly 1870-1910) being generally larger than those before and after (Hosler, 1982, p. 122).

The predominant style of gravestones in Summit County at the time the cemetery was established was the upright tablet (Hosler, 1982, table 1). Examples include an upright sandstone tablet (fig. 30) erected for Revolutionary War veteran Gurdon Geer (d. 1828 at 72). This stone tablet has a roughly tooled back surface (typical of the time it was made) and a smooth front surface with an urn and willow motif (also typical of the era). It is typical of Federal (complex) style sandstone tablets that Bauer and others (2002, figs. 2a, 3) found in cemeteries in Cuyahoga and Lorain Counties, north of Akron. Like the earlier sandstone gravestones in Erie Street Cemetery in Cuyahoga County, this slab is composed of very fine grained sandstone. This slab predates the cemetery itself and is an example of a gravestone from elsewhere that was moved to this cemetery when former cemeteries were closed. (Lane, 1892, p. 322-235).

A number of the gravestones in this area are signed by their carvers. For example, two marble tablets erected for members of the Woodruff family are signed. The signatures are on the bottom of the stone. Emil Feige's name appears on a number of sandstone monuments (Colopy, 1991, photo



FIGURE 30.—Cemetery tablet for Revolutionary War veteran Gurdon Geer (d. 1828 at 72). The style is typical of Federal (complex) style sandstone tablets. October 2004 photo.

19). Several of his tall sandstone monuments topped by urns can be seen in this section. The exterior of the monuments has darkened over time, due at least in part to pollutants (sandstone surfaces are, on a micro level, irregular, so they can trap particles), but also due to natural factors, akin to desert varnish.

# Stop 6D. Lane monument

The Lane family monument (fig. 31), located along Hemlock Street in Section J, is composed of a large piece of red-and-gray banded rock on a base of polished Quincy Granite (see Stop 15, Simon Perkins Monument, for more on this stone). Samuel A. Lane (1815-1905) was an important citizen of Akron and the author of one of its most respected histories (Lane, 1892). He included a very colorful (if far from unbiased) autobiography in his history (Lane, 1892, p. 1-30), and a frontispiece containing seven images of himself!

There is a local urban legend that the red-and-gray rock is a meteorite (Colopy, 1991, photo 39; Price, 2005). However befitting the legend is to the memory of one of Akron's most colorful historic figures, the rock is actually a piece of banded iron formation. While perhaps not as exotic as a meteorite, this rock has indeed traveled a long way to get to Glendale Cemetery, as the closest deposits of banded iron are located in the iron ranges of Minnesota and Michigan. The rock may have been transported to Akron by people or may have possibly been brought to the area by the glaciers.

Banded iron formations, known colloquially as "BIFs" by those who study them, are **Precambrian** iron deposits composed of alternating layers of reddish jasper-rich material

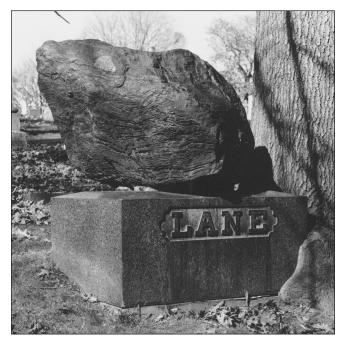


FIGURE 31.—Lane monument, composed of a rough block of banded iron formation (BIF) set upon a base of dark Quincy Granite, Glendale Cemetery. The base of a black walnut tree has grown around the base of the monument. October 2004 photo.

and gray layers that are rich in **hematite** and **magnetite**. They were formed at a time when the gaseous composition of the atmosphere and sea water was probably different from that of today. This difference allowed vast deposits of iron to accumulate in layers as seen here. Iron ore from the Upper Peninsula of Michigan, as well as northern Wisconsin and northern Minnesota, has been widely used in the Great Lakes states for production of steel. Such ore has been shipped to northeastern Ohio since the mid-1800s. Similar BIFs have been found, and utilized as iron ore, in the Precambrian of other parts of the world as well.

The block of banded iron formation used for the Lane monument exhibits interesting structural and weathering features (David Saja, personal communication, 2005). The structural features are quite complex, including microfolding (small bends in the rock layers), microfaulting (small faults, quite visible with the naked eye), and brecciation (rock layers that naturally have been broken into angular fragments and then naturally been recemented). The rock is highly weathered, indicating long exposure to the elements. In some more weathered places, the dark-gray iron-rich layers are more deeply weathered than are the red jasper layers.

# Stop 6E. Buchtel monument

The monument (fig. 32) for John R. Buchtel (1820-1892) is located in Section 22, a little island surrounded by Spruce, Azelia, and Moss Roads. This monument consists of a statue of Buchtel carved from a light-colored granite atop a base of a darker granite (probably Quincy Granite; see Stop 15, Simon Perkins monument, for more on Quincy Granite).

Buchtel was a farmer, salesman, and, as a principal in the Akron Iron Company, a developer of the coal and iron industry in the Hocking Valley of southeastern Ohio (Knepper, 1970, p. 24). Buchtel, a town in Athens County, Ohio, is named for him. Today John Buchtel is noted primarily for his largess: he was the prime donor for the college that was named for him. That college is now The University of Akron (see Stop 28).

## Stop 6F. Norris monument

The Norris monument (fig. 33), located in Section 21 near one of the highest points of the cemetery, consists of a 3.7foot (1.1-m) high Sharon Formation boulder standing on a base composed of similar stone. The name Norris is spelled out in bronze. Large pebbles and cobbles (up to at least 2 inches/5 cm in diameter) are exposed in the boulder. The pebbles protrude from the front of the monument, but on some other parts are planed off, indicating that this boulder was probably once part of an outcrop that had been planed off by glacial ice. The monument is for the family of Charles E. Norris (1858-1915), a prominent medical doctor in Akron. Norris practiced medicine in Akron for 30 years and was an active member of the Summit County Medical Society. McCormick's (1946, p. 29) history of medicine in Akron tells how, as a young man just graduated from the University of Michigan, Norris rediagnosed supposed cases of malaria in Akron as typhoid. On a lighter note, McCormick (1946, p. 52) noted that, in Norris's last year of life, he established the

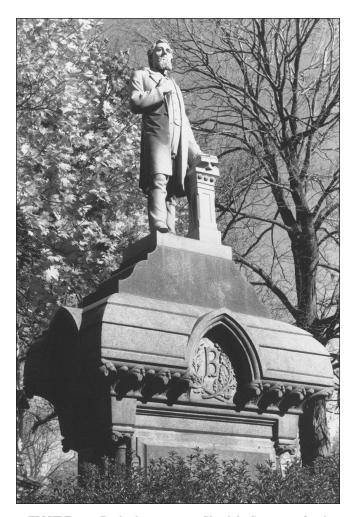


FIGURE 32.—Buchtel monument, Glendale Cemetery. October 2004 photo.

custom of bringing cocoa and biscuits to the meeting of the Summit County Medical Society. Norris's front-page obituary also noted his generosity and his study of anaesthetics (Anonymous, 1915).

## Stop 6G. David Swanson gravestone

A modestly sized, but poignant, monument (fig. 34), located near the junction of Sections 11 and 12, where Ash Road comes close to the fence on the southeast boundary of the cemetery, honors a young stonecutter who died in August 1906 at the age of 28. According to the notice of his death in the Akron Beacon Journal (Aug. 13, 1906, p. 3), Swanson came from Scotland and had been boarding at the Clarendon Hotel in Akron. He died of uraemia, a kidney ailment. His story, save for his tragic early death, mirrors that of other immigrant stone carvers from Scotland in the nineteenth and early twentieth centuries. Carvers from Scotland, because of their expertise in working with granite, were especially in demand beginning in the second half of the nineteenth century, coming to Ohio because of its stone industry (Don-

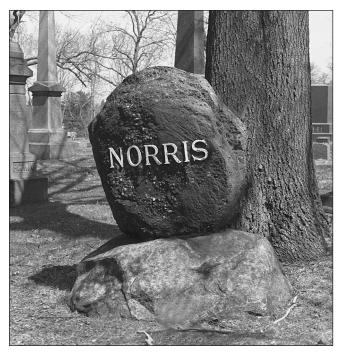


FIGURE 33.—Norris monument, made of a large boulder of Sharon Formation stone, Glendale Cemetery. April 2005 photo.

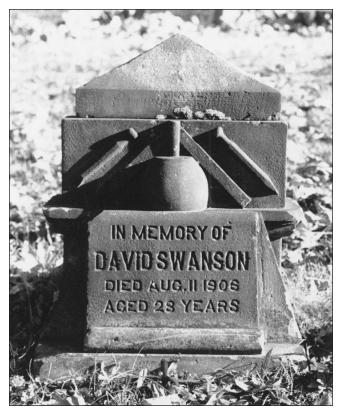


FIGURE 34.—Sandstone gravestone of David Swanson, Glendale Cemetery. Mallet and chisels of the stone mason are depicted. October 2004 photo.

nelly, 1994, p. 45). At least in the 1880s (Anonymous, 1884, p. 4), stone workers from Aberdeen, Scotland, who may have started in the industry while still boys (child labor was rife then), could have obtained enough experience in Scotland to obtain good, higher paying jobs in the United States. Indeed, stone workers from Europe have continued to emigrate to the United States until the present day, although not at the rate of the past.

The small (22 inches/56 cm high), Swanson gravestone is carved out of fine-grained sandstone, however, not granite. The use of sandstone is appropriate here, however, as sandstone is the local stone type. The monument depicts a typical stone mason's wooden mallet and metal chisels. Similar monuments, including representations of stone carvers' tools, are known from other cemeteries. One of the best known is the Baker Monument in Green Hill Cemetery, Bedford, Indiana, which is fashioned from Salem Limestone, a stone quarried in Bedford.

# Stop 6H. Conger mausoleum

There are many styles of mausoleums in Glendale Cemetery. The Conger mausoleum, (fig. 35), located on a hill in Section 8, stands out from the others due to its cyclopean architecture, utilizing giant blocks of sandstone. The stone is fine to medium grained; it may be from the Sharon Formation.



FIGURE 35.—Conger mausoleum, Glendale Cemetery. October  $2004~\mathrm{photo}$ .

## Stop 6I. Dunn monument

As in other nineteenth-twentieth century rural-style cemeteries, there are a number of marble statues in Glendale Cemetery. One of the most prominent is that of the Dunn monument (fig. 36) in Section 14. A mourning woman is depicted in fine-grained marble (possibly Carrara marble). The marble in this statue, like the marble in many other gravestones and monuments in the cemetery, is sugared, that is weathered so that its outer surface looks or feels like sugar grains. This is due to the dissolution of the borders of the grains of calcite composing the marble, along the boundaries between the grains. A close inspection of the statue reveals that some parts, once smooth, have an eroded appearance, and some features that were once clearly delineated are now barely seen. The face of the figure is especially weathered. The statue is on a base of light-colored granitic rock, possibly Barre Granite.

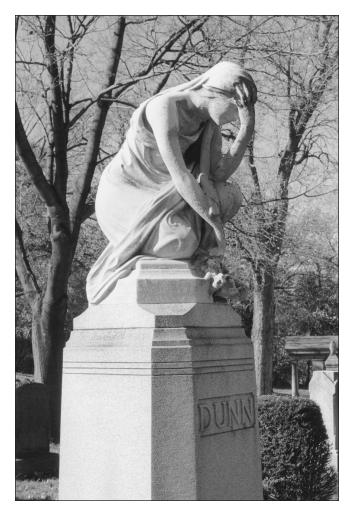


FIGURE 36.—Dunn monument, Glendale Cemetery. October 2004 photo.

## STOP 7. GLENDALE STEPS

An elegant stone stairway (fig. 37) known as the Glendale Steps (Downing, 1993) extends from a cul-de-sac at the south end of South Walnut Street down 242 steps into Glendale Park. The park (fig. 24) is a grassy area along Glendale Avenue east of the entrance to Glendale Cemetery (Stop 6). The stairway is made of stone from the Sharon Formation. The sandstone is beige and reddish and has prominent cross-

stratification. Many of the blocks contain typical Sharon pebbles. The stairway was a WPA project, constructed at about the same time as the WPA stonework at the John Brown Monument (Stop 5). The stone was quarried off East Tallmadge Avenue at the site of a proposed city reservoir in eastern Akron (Anonymous, 1937).

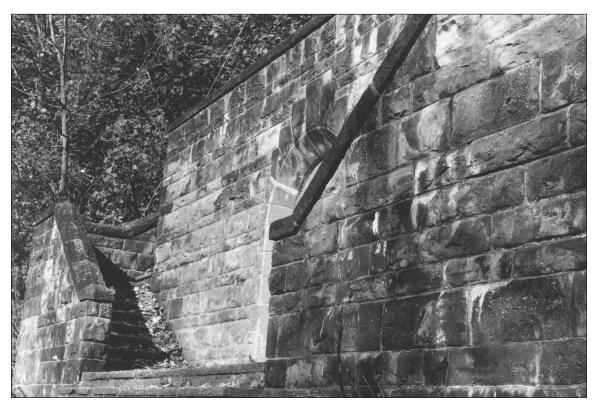


FIGURE 37.—Glendale Steps. November 2004 photo.

## STOP 8. ST. VINCENT DE PAUL CHURCH

Saint Vincent de Paul Church (fig. 38), popularly known as St. Vincent, is located on West Hill, at the corner of the intersection of South Maple and West Market Streets (fig. 24). Most of this church, built between 1864 and 1867, is made of Sharon Formation sandstone and conglomerate. Some of the blocks used for the structure contain prominent Sharon pebbles as well as cobbles ranging up to at least 2.4 inches/6 cm in diameter (Hannibal, 1999; Hannibal and Foos, 2003, p. 40).

The church's cornerstone was laid on St. Patrick's Day in 1864, but its construction was delayed by the Civil War, and it wasn't completed until 1867. David Robb, an early Akron stone contractor, built the tower, which is said to be made of self-supporting stone blocks (Scullen, 1937, p. 77). A 30-foot (9-m) length was added in 1893 (Scullen, 1937, p. 19). The stone for this addition blends in with the original stone. The parishioners of the church and the students of

St. Vincent's parochial school apparently participated in the quarrying and transportation of the stone (Scullen, 1937, p. 87). Sources differ on the origin of the stone used for the original exterior of the church. Carney (1997), in an article in the *Akron Beacon Journal*, states that the stone was believed to come from a quarry on Forge Street, but Old Portage has also been said to be the site of the quarry. Regardless of the exact site, the stone probably was quarried in or near Akron. Most of the original stone blocks are rock faced.

Post-1937 additions to the church have utilized Berea Sandstone, probably because of the decline of the use of Sharon as a building stone. The Berea Sandstone used for this building can be distinguished by its prominent horizontal stratification. Its likely quarry area was in the South Amherst, Ohio, region.

Several kinds of stone are used in the interior of this church, including *Verona marble*, a reddish-orange stone

from Italy (see Stop 2, Stan Hywet Hall & Gardens, for more on this stone), and *Botticino marble*, a beige limestone, Jurassic in age, quarried in the Brescia area of Italy.

Just to the east of St. Vincent de Paul Church, along West Market Street and the streets that intersect West Market, can be found *Medina sandstone* pavers reused for a retaining wall, and Berea Sandstone used for curbs and sidewalks.

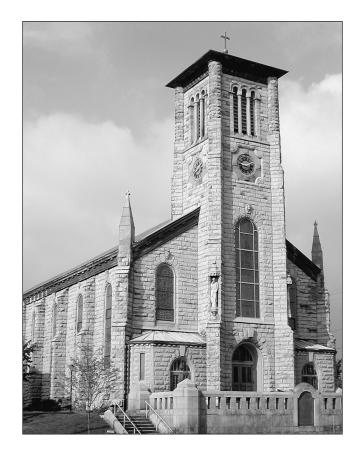


FIGURE 38.—St. Vincent de Paul Church, photo by A. Foos. From Foos and Hannibal (2003, p. 41).

# CANAL AND RAILWAY SITES

Akron has a number of canal-related sites and miles of towpath trails, all within the Ohio & Erie Canal Canalway. The Ohio & Erie Canal more-or-less follows the route of the original shorter Portage Path across the divide at Akron. This route includes passage through Summit Lake, a natural lake, albeit highly modified by canal engineers. The canal stops in this guidebook are related to the Ohio & Erie

Canal; the remnants of the Pennsylvania & Ohio Canal are buried, or at least not as visible as are those of the Ohio & Erie. The railway followed in the wake of the Ohio & Erie Canal, and, in some areas, railroad lines come close to the canal. Various railroad bridges and other structures can be found near canal-related sites in Akron.

# STOP 9. SUMMIT LAKE

Summit Lake (figs. 1, 39-41) is located between I-76/77 and Kenmore Boulevard in Akron. A convenient access point is Summit Lake Park, located on the northeastern edge of the lake. The park has entranceways off Lakeshore Avenue, a street which runs along the east side of the lake. As a water source for the Ohio & Erie Canal and industrial and other uses, Summit Lake has been an important element in the history and early growth of Akron.

For various reasons, the lake is one of the most celebrated places along the Ohio & Erie Canal, and is noted in a number of traveler's accounts, ranging from the Prince of Wied's report on his journey along the Ohio & Erie Canal

in 1834 (Wied, 1839-41; 1906) to the artist/reporter S. S. Dustin's 1890 account published in Frank Leslie's Popular Monthly. Summit Lake was once a beautiful (or, depending on your point of view, impenetrable) tamarack-lined lake lying on the Portage Summit. It was a springfed lake without any major outlet (Wright, 1881, p. 523). The soil of the surrounding land was, in the 1830s, black peatland (Wied, 1841, p. 392). The engineers of the Ohio & Erie Canal routed the canal right through Summit Lake and the adjacent wetlands. They also lowered the level of the lake by 9 feet (2.7 m) to save the cost of a pair of locks. This took a few years, in great part due to the difficulty of

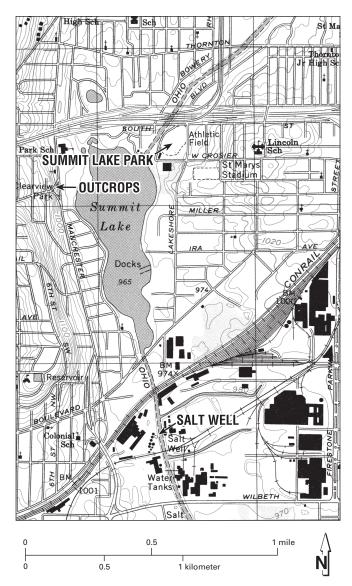


FIGURE 39.—Portion of the 1994 U.S. Geological Survey Akron West, Ohio, 7.5-minute quadrangle showing location of Summit Lake and the nearby salt well. Contour interval is 10 feet (3 meters).

digging through peaty material and cutting the tamarack (Turner and Bond, 2004, p. 2). The lowering of the lake level reduced the area of the lake a great deal. The newly exposed wetlands on the edges of the newly downsized lake could not support an adequate towpath (Gieck, 1992, p. 80). Thus the mules that pulled the canal boats traversing the lake had to walk along a floating towpath built of wooden timbers and planks (fig. 41). The wooden towpath lasted well into the twentieth century, when it was used as a fishing pier (Francis and Francis, 2004, p. 11, p. 28). In the 1890s, Lakeside, a summer resort, was located along the lake (Dustin, 1890, p. 282). The lake was a chief source of water power for Akron in the nineteenth century (Reese, 1880, p. 68). Since canal times the surrounding land has been the site of an amusement park (the site of today's Sum-

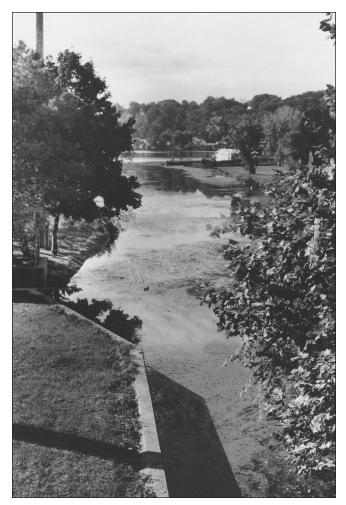
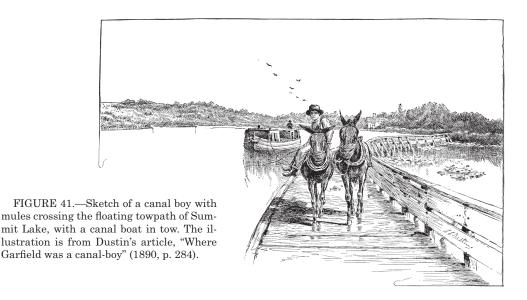


FIGURE 40.—Ohio & Erie Canal (foreground) flowing north from Summit Lake (background). Fall 2004 photo.

mit Lake Park), various industries, and housing. Haney recently (2004) analyzed a core taken in the lake to chart the effect of anthropogenic impact over time, finding that human activities have resulted in an increase in mineral content and trace metal concentrations.

The hill just west of Summit Lake is underlain by Pennsylvanian rock. Outcrops of the Sharon Formation are exposed along Clearview Avenue. Brining operations in Akron and vicinity date back to the turn of the twentieth century. A major brining operation (salt well) is located just south of Summit Lake. The Cargill Co. now operates the salt well here, deriving salt from the Silurian-age Salina Group deep below the surface. Salt deposits beneath Akron are between about 2,800 and 3,130 feet below the surface (based on P-447, Diamond Crystal # 51 well, Clifford, 1973, pl. 1).



## STOP 10. CANAL PARK, LOCKS 2 AND 3

Locks 2 (figs. 42, 43) and 3 (figs. 42, 44) and the accompanying structures occur in a highly urbanized context. The canal structures have been modified a number of times, and parts of buildings have been built to bridge the canal. The area described here extends from alongside Canal Park Stadium (Lock 2 is on the west side of the stadium) to the point at which the canal disappears under buildings immediately west of Main Street (fig. 49). Sites are accessible via a walkway from Main Street, not far from its intersection with Bowery Street, as well as from other nearby streets.

Lock 2 was a lock reconstructed of Massillon sandstone in the 1980s (Hannibal, 1998, p. 22). The rebuilt lock has been called Lock II as well as Lock 2. The stone was quarried by the Briar Hill Stone Company in northwestern Coshocton County, Ohio. The original lock at this site was probably made using Sharon Formation sandstone. The towpath extends northward to Lock 3 Park.

The locks in Lock 3 Park were rebuilt utilizing concrete in 1906. (More information on the concrete used for locks can be found under "Cement and Concrete" on p. 11.) The concrete work on the locks typically kept or reused some of the original stone blocks, especially at the bases of locks; blocks of sandstone (most are probably from the Sharon Formation) can be seen in the lower parts of the locks where they have not been covered by concrete. Some concrete has been added or redone subsequent to the original 1906 rebuilding.

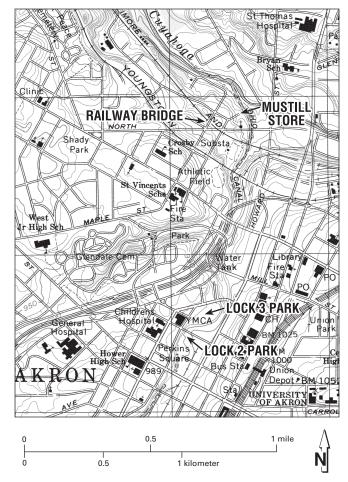
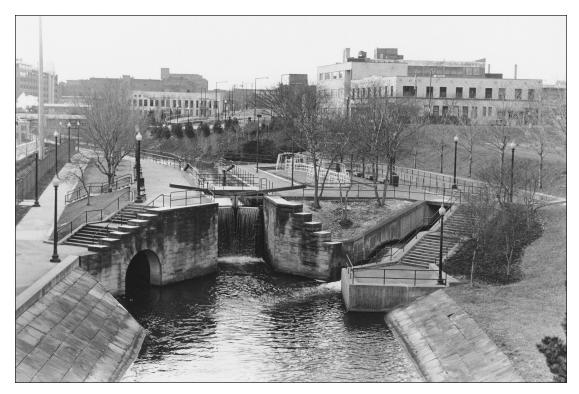


FIGURE 42.—Portion of the 1994 U.S. Geological Survey Akron West, Ohio, 7.5-minute quadrangle showing location of Lock 2 Park, Lock 3 Park, Mustill Store, and railway bridge near the canal. Additional canal locks are located along the towpath adjacent to Mustill Store. Contour interval is 10 feet (3 meters).



 $FIGURE\ 43. \\ --Lock\ 2,\ downtown\ Akron.\ From\ Hannibal\ (1998,\ fig.\ 24).\ December\ 1997\ photo.$ 



FIGURE 44.—Lock 3 (center left) and concrete-lined canal (foreground), downtown Akron. Fall 2004 photo.

## STOP 11. MUSTILL STORE AND LOCKS ALONG TOWPATH IN CASCADE VALLEY METRO PARK

Cascade Valley Metro Park includes a length of the Ohio & Erie Canal, as well as Mustill Store (fig. 42), an old canal store that has been restored as an interpretative center. Mustill Store is located along the Ohio & Erie Canal just north of North Street. A number of concrete locks, which include parts of original stone, remain along the towpath trail within easy access of the store.

From the store northward, the towpath follows alongside the Little Cuyahoga River. To the south, the towpath follows Willow Brook, a tributary of the Little Cuyahoga (see Stop 6, Glendale Cemetery, for more on Willow Brook), for about 0.6 mile (1 km).

Mustill Store itself is mainly built of wood, but contains a fair amount of sandstone, probably from the Sharon Formation. The sandstone is fine to medium grained, but includes larger quartz grains, pebbles, and now-hollow concretions.

The original lock stone used in this area also appears to be from the Sharon Formation, although most (but not all) of it is nonpebbly. Some pebbles are apparent, however, in old sandstone blocks that are found at or near the base of locks where concrete did not cover, or no longer covers, the blocks.

The towpath trail extending north and south from Mustill Store provides excellent views of concrete canal structures. The path to the south, across North Street, goes up alongside a staircase, or cascade, of closely spaced locks (Locks 14 through 10), adjoining concrete walls between locks, and

an assortment of other industrial archaeological remains. An outcrop of the Meadville Formation, a Mississippian-age rock unit, can be seen just north of Lock 12 (see Hannibal, 1998, for more on these locks).

To the north, four locks (figs. 45-47) are located along an easier, more level trail, beginning with Lock 15 next to Mustill Store, and extending about 0.7 mile (about 1.1 km) to Lock 18. These locks provide an excellent place to see details of the concrete construction, as the locks have been preserved as ruins. These ruins provide "cut-away" views showing the use of various material in the concrete, ranging from large pieces of sandstone and flat slabs of siltstone to rounded river rocks (figs. 45, 46). Indeed, the present towpath trail passes right through Lock 18 (fig. 47). The impressions of forms used to contain the concrete when freshly poured are evident (you can see where some of the forms bowed out during the process). The height (thickness of the layers) of individual concrete pours (known as "lifts") can easily be seen.

The **aggregate** used in the 1906 concrete work includes what appear to be rounded river pebbles, likely derived from the bed of Willow Brook and the Little Cuyahoga River. Close inspection of the locks will reveal some of the original stone blocks in places. These are from the Sharon Formation. It may have been Lock 18, but more likely one of the next two locks (Locks 19 or 20) to the north, from which the first coal from Coal Hill was shipped to Cleveland (Crowell, 1995, p. 125-126; Canal Society of Ohio, 1996, p. 12).



FIGURE 45.—Upper end of Lock 16, north of Mustill Store. Note weathered surface, exposing rounded and other stones used in the concrete walls. April 2005 photo.



FIGURE 46.—Lower end of Lock 17, north of Mustill Store. Note large slab of protruding sandstone (arrow) included in the concrete used for the lock, as well as the indications of the forms used to contain the concrete when first poured. April 2005 photo



FIGURE 47.—Upper end of Lock 18, Akron, north of Mustill Store. The towpath trail passes through this concrete lock, allowing the concrete of the inner lock walls to be easily examined. April 2005 photo.

## STOP 12. RAILWAY BRIDGES NEAR THE CANAL

Local stone was used for the railroad bridges that were built in Akron during the second half of the nineteenth century. The Sharon Formation was widely used for bridges (and foundations) in Summit County (Read, 1891). Quarries in both Akron and Twinsburg produced blocks of the Sharon for use in railroad bridges. Quarries in Akron were the most likely source for bridge stone used within the city of Akron (Orton, 1884, p. 603). Two late nineteenth century Sharon quarries (fig. 6) in Twinsburg Township are illustrated in the 1874 atlas of Summit County (Tackabury, Mead & Moffett, 1874, p. 30, 31).

Three easily accessible railroad bridges (figs. 42, 48) are located not far from Mustill Store. Two cross Howard Street north of its intersection with Martin Luther King, Jr. Boulevard. One crosses Maple Street just north of its intersection with North Street. All three bridges have bases composed of large blocks of sandstone, most probably from the Sharon Formation. One bridge over Howard Street has "Jos. Hugill 1898 constr." carved into a central stone block. Hugill

was a prominent local quarry owner (see Use of stone from the Sharon Formation in Akron, p. 6-7). The stone used for these bridges varies in color from beige to red to brown, and some blocks have prominent iron banding, which protrudes somewhat from the stone. The sandstone is fine to medium grained and mostly nonpebbly, but a diligent search will turn up some very small pebbles. Some of the stone has prominent cross-stratification and clayey clasts. The stone blocks also contain large, tapered holes chiseled into them for the insertion of the prongs of tongs used to move the stone (see fig. 6 in Hannibal, 1998). Some old foundations near the bridges are composed of smaller blocks of the Sharon containing large pebbles.

The coming of the railroad to Akron in the 1850s signaled increased trade. The efficiencies of the railway (faster and year-round transport) eventually led to the decline of the Ohio & Erie Canal. The development of a network of railways also aided in the export of local stone, as well as the import of stone from afar.

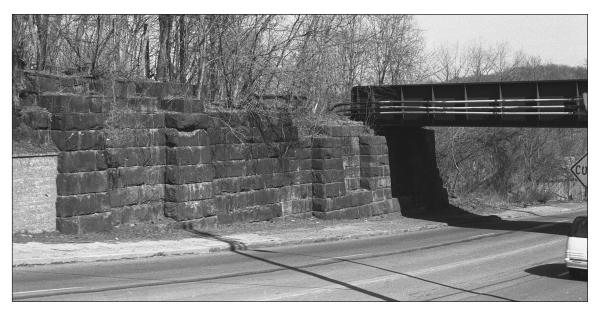


FIGURE 48.—Railway bridge just north of the intersection of Ridge and Howard Streets. April 2005 photo.

#### DOWNTOWN BUILDINGS AND STATUARY

An assortment of structures utilizing a variety of stone can be found in the central area of downtown Akron (fig. 49). The following downtown stops follow a path through the downtown area, starting with the oldest stone building still standing along the route, the Old Stone Schoolhouse. From the old schoolhouse, the route proceeds in a large counterclockwise loop, ending at Quaker Square, a quintessential Akron locale.

The underlying rocks and sediment of the downtown area vary greatly. The Sharon Formation underlies parts of this area, including the higher part of High Street. At least one quarry was cut into this stone (see Stop 18, Municipal Building) near the center of downtown. Other types of bedrock, including shale (see Stop 28, University of Akron sites), are exposed in some excavations. A large buried valley runs through downtown Akron, so the depth to bedrock varies on the basis of whether a location is above bedrock or above the buried valley. The buried valleys are filled with glacial material such as sand and gravel. Some low areas also have been covered with fill, especially cinders formed as industrial byproducts.

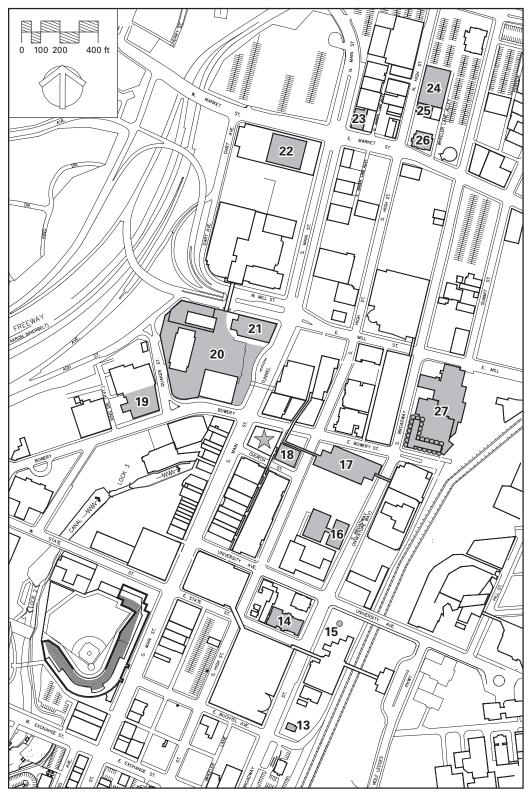


FIGURE 49.—Map of downtown Akron showing locations of Stops 13-27 and the location  $(\not x)$  of the 1800s Tressel and Schneider quarry, a large Sharon Formation quarry (now covered by the Key Building). Map modified from City of Akron, Department of Planning original.

- 13) Old Stone Schoolhouse
- 14) St. Bernard's Church
- 15) Simon Perkins Monument
- 16) Summit County Courthouse
- 17) Oliver R. Ocasek Government Office Building
- 18) Municipal Building
- 19) SBC Building
- 20) Cascade Plaza
- 21) First National Tower
- 22) U.S. Courthouse and Federal Office Building
- 23) Everett Building
- 24) Sojourner Truth Building (site of Old Stone Church).
- 25) East Ohio Gas Building
- 26) Carnegie Building
- 27) Quaker Square

## STOP 13. OLD STONE SCHOOLHOUSE

Akron's old schoolhouse (figs. 50, 51), located at 299 South Broadway Street, on the northeast corner of South Broadway Street and East Buchtel Avenue (fig. 49), is a simple, rectangular (32 by 38 feet/9.8 by 11.6 m), hip-roofed structure fashioned from stone blocks. It is Greek Revival in style. The stone composition of the building may have something to do with its survival, and its remarkably good preservation. It is said to have been built sometime before 1840. A 12-foot by 30-foot (3.7-m by 9.1-m) section was added to the rear of the building in 1967. The Summit County Historical Society now owns the old schoolhouse.

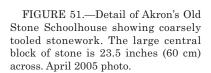
Stone from the Sharon Formation, undoubtedly local in

origin, is used for most of the structure. Most of the stone is light-colored beige sandstone, but some is darker and purplish. Many of the stone blocks contain some pebbles, and some blocks are very pebbly. The stone also contains dark-colored iron banding. A dark patina that once covered the stone (Butler, 1963, p. 62) has been recently removed. The original stone blocks (fig. 51) are set in courses. Individual blocks are crudely worked with a chisel to produce roughly flat surfaces. This is known as a boasted finish.

The stone of the rear addition does not quite match that of the original structure. With some exceptions, the sandstone used is not as pebbly, and resembles the Massillon sandstone.



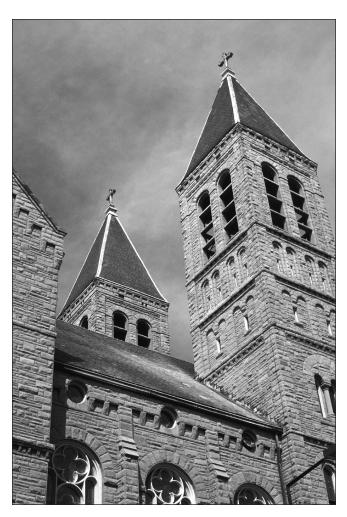
FIGURE 50.—Akron's Old Stone Schoolhouse. May 2003 photo.





## STOP 14. ST. BERNARD'S CHURCH

Saint Bernard's Church (figs. 52, 53), located at Broadway Street and State Street (fig. 49), is one of the most celebrated of Akron's historic houses of worship. This large church is built upon a Sharon Formation high. The stone at the base of the church, especially at its lower end, was either excavated or quarried. The cornerstone of the church was laid in 1902 and the exterior was completed in 1904. The church was dedicated in 1905. Berea Sandstone, quarried in Peninsula and known as *Peninsula stone* (Anonymous, 1905b), was used for the exterior of the church. According to various sources (e.g., Mantz and Roach, 1977, p. 7), 125 train-car loads of sandstone were shipped from the Peninsula quarries of Frank Lukesh. Lukesh's ad in an 1890s directory (Akron Map & Atlas Co., 1891) somewhat, but not entirely, supports this, noting that he was a builder and contractor, with "stone work a specialty," and had an office on West Market Street in Akron. Features seen in the stone, including reddish-brown clayey clasts (fig. 53), small quartz pebbles (up to and in some cases exceeding 0.6 inch/1.5 cm in diameter), and irregular brown, gray and green clasts, are consistent with the stone found in the Berea Sandstone in Deep Lock quarry at Peninsula (Hannibal, 1999, p. 15). This church is built in Romanesque Revival style, a style that has always



been associated with the use of stone. Most of the stone is rock faced. The stone was sandblasted in the 1960s and was cleaned with less harsh methods in 1995 (Anonymous, 1995). The color of the stone varies from beige to light shades of brown; the original color, however, apparently was gray (Anonymous, 1905c, p. 1).

Carrara marble, the famous white marble quarried in the Apuan Alps in northern Italy, is used for the altars and statuary (Anonymous, 1905b, 1905c) of the church. This is the most famous of all statuary marbles. It was used by the Romans by the first century B.C., but the quarries fell into disuse in the Dark Ages. Quarrying activity resumed during the late thirteenth century (Bradley, 1997). Use of this stone by Michelangelo for his Pièta and David made this the single most desired stone for sculptural purposes for several centuries. One of the statuary groups in the church was transported from the sculptor's studio in Italy to the docks via a team of 12 oxen (Anonymous, 1905b). Such teams were commonly used in the Carrara region.

Carrara marble is metamorphosed limestone. The limestone was deposited during the early Jurassic Period (about 190 million years ago). Much later, this was metamorphosed into marble during the mountain-building episode that built the Apuan Alps during the **Paleogene** Period, about 27 million years ago (Bradley, 1997, p. 13; Roy Kligfield, personal communication, 1992).

A fine-grained marble with gray **veining** is used for **wainscoting** in the church. Floor tiles are fine-grained white marble and fine-grained gray marble. Several other stones, mostly from Italy, are used for inlays and other ornamentation. These include yellow *Siena marble* and a green **breccia**.

The brick and stone school building next door (now the site of Hope Academy) is the former school building of Saint Bernard's, built in 1898. The sandstone used for the building has prominent cross-stratification. The stone is either from the Sharon Formation or is the Berea Sandstone.

FIGURE 52.—Towers of St. Bernard's Church. July 1997 photo.



FIGURE 53.—Detail of stone used for the exterior of St. Bernard's Church. A large clayey clast can be seen in the large block. April 2005 photo.

# STOP 15. SIMON PERKINS MONUMENT

Simon Perkins (1805-1887) was an important early businessman, politician, and philanthropist in Akron (see Stop 3, Perkins Stone Mansion, for more information). A 10-foot (3-m) bronze statue of a hirsute Perkins (fig. 54) now stands at the corner of Broadway Street and University Avenue (fig. 49) atop an 11-foot (3.4-m) polished stone base. The statue formerly was located at Akron's Grace Park. The plague associated with the monument states that the base is made of "rare Quincy granite from Massachusetts." Quincy Granite may be rare at this spot, but it is extensively used in Glendale Cemetery (Stop 6) and many other places in the United States. The stone was quarried for a long period of time just south of Boston, Massachusetts (see map, pl. 24, in Dale, 1923), in the Blue Hills area. By 1880 Quincy Granite had an excellent reputation and was widely known, so much so that Newberry (1880, p. 120) could write that "The Quincy Granite is so well known that a detailed description of it would be superfluous," and it continued to be a very important monument stone in the U.S. well into the twentieth century (Bowles, 1939, p. 119). Quincy Granite is technically a granodiorite. Its main component is gray to blue-gray feldspar (the color varies some), and it has a

conspicuous **ferromagnesian** mineral content, including both **amphibole** and pyroxene (Dale, 1923, p. 317). It also contains some smoky quartz. This coarse-grained gray granite probably is Mississippian in age.

Quincy Granite was marketed under varied names, mostly according to its shade of gray (Bowles, 1939, p. 119). The stone is no longer quarried; the last of the Quincy Granite quarries closed in 1963 (Thomas Mahlstedt, personal communication, 1995). Some of the old Quincy quarries are now within the Blue Hills Reservation of the Boston Metropolitan District Commission. Quincy Granite was also used for parts of the structure and for the large column of downtown Cleveland's Soldiers' and Sailors' Monument (completed in 1894) (Hannibal and Schmidt, 1992, p. 7).

The stone used for the Perkins Monument is a darker variety of Quincy Granite. The dark coloration is due to the high percentage of ferromagnesian minerals, chiefly hornblende but also pyroxene (note the small angular crystals) and the dark-gray coloration of the larger feldspar crystals. Classically the stone has been known as a hornblende pyroxene granite (Merrill, 1891, p. 195). Some chips of stone have been pecked or weathered out over the years.



FIGURE 54.—Simon Perkins Monument. April 2005 photo.

#### STOP 16. SUMMIT COUNTY COURTHOUSE AND STATUARY

The Summit County Courthouse (fig. 55), located at 209 South High Street, near the intersection of Church Street with South High (fig. 49, back cover), was completed in 1908. Its annex was completed in 1924. Both structures are in Renaissance Revival style. The courthouse is faced with Berea Sandstone (also known as *Ohio sandstone*, e.g., in Marzulli, c. 1982, p. 60). Most of the stone has held up well, but the Broadway entrance is spalling along the doorway

The great stairway that climbs the hill in the front of the northwest side of the building has two sets of statuary: a pair of giant lions at street level (fig. 56) and statues of human figures representing "Law" (fig. 57) and "Justice" (fig. 58) near the entrance doors. Although commonly known as being made of sandstone (see, for example, Marzulli, c. 1982, p. 60), all of these are carved out of blocks of Salem Limestone (*Indiana limestone*) (see Stop 19, SBC Building, for more information on Salem Limestone). The human figures have been nicknamed "Justice Sandstone" and "Law Sandstone" (Sutliff, 1953), on the basis of the erroneous

premise that they are carved from sandstone. They might better be named "Justice Limestone" and "Law Limestone." The limestone lions stand on large bases of Berea Sandstone. The sword of Justice has been reattached (not an unusual occurrence for suboptimally designed outdoor limestone statuary).

Small fossils of various animals are quite evident in the two figurative statues, as are some sinuous fossil trackways. Cross-stratification also is evident, especially on the base of Justice. The statuary here has weathered considerably since it was installed. In places, fossil grains protrude at least 2 mm. This is an average weathering rate of 0.02 mm per year since the statues were installed. Most of this is probably due to acid rain.

The present courthouse complex replaces an 1843 courthouse (fig. 23, back cover) built of local sandstone. That neoclassical-style courthouse was torn down in 1905. One of the columns from the portico of the old courthouse was reused for the John Brown Monument (Stop 5), and it is that stone that indicates

that the Sharon Formation was used for the old courthouse.

Two main types of stone are used in the interior of the current courthouse. Walls of the lobby and main floor, stairways, and various pillars and **pilasters** are faced with a finegrained white marble. The marble contains gray veining. High wainscoting is made of the same marble. It is likely that this is *Vermont marble*. A number of the marble slabs are positioned so that the veining on four adjacent slabs creates a set of nested diamond shapes.

Stairs are Tennessee marble, stone from the Holston For-

mation of eastern Tennessee (see Municipal Building, Stop 18, for more on this stone). The steps between the first and third floors are dished owing to the footsteps of those who have climbed them over the years, indicating the side of the stairs favored. Two bronze busts of Athena located in niches flanking the interior of the front entranceway have bases made of Milbank Granite (see Stop 28B for more on this stone). The large City and County Safety Building next to the courthouse is faced with exposed marble-chip aggregate with trim of dark-brown granite.



FIGURE 55.—Exterior of Summit County Courthouse. February 1988 photo.



FIGURE 56.—Lion statue at Summit County Courthouse. February 2005 photo.

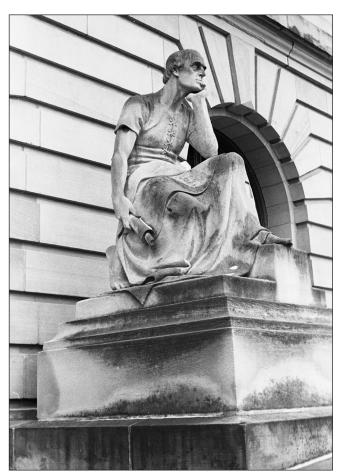


FIGURE 57.—Statue at Summit County Courthouse said to represent "Law." February 2005 photo.

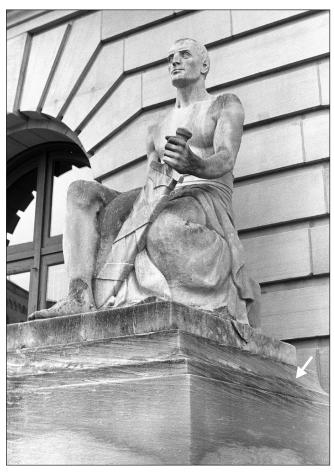


FIGURE 58.—Statue at Summit County Courthouse said to represent "Justice." Note the distinct cross-stratification (arrow) seen at the top of the statue base. February 2005 photo.

## STOP 17. OLIVER R. OCASEK GOVERNMENT OFFICE BUILDING

This large, five-story granite-clad building (figs. 59, 60), stretches along Bowery Street between South High and South Broadway Streets (fig. 49). It was completed in 1984. The building is clad in a brownish- to pinkish-gray granite that has been known commercially as Caledonia granite (original Caledonia granite from quarry number 3 of Polycor). Caledonia granite consists of large (up to about 1 inch/2.5 cm long) subrectangular crystals of feldspar with smaller crystals of quartz and ferromagnesian (pyroxene and hornblende) minerals. This granite contains **plagioclase feldspar** and alkali feldspars. The color is determined by the large crystals of pale-yellowishbrown to pinkish-gray oligoclase (a type of plagioclase feldspar) crystals. Because its large feldspar grains stand out from the other, smaller grains, this rock is a porphyry. The stone was quarried in the Rivière-à-Pierre region (Nantel, 1983, p. 98-100) of Quebec, a well-known quarrying area of Canada. This stone is from the Grenville Province, an area of Precambrian rock dated to between 880 million and 1 billion years ago. (Rocks of the Grenville Province also underlie Akron, deep beneath a thick layer of sedimentary rocks.)

Aggregations of dark, iron- and magnesium-rich (mafic) minerals can be seen in this stone. Bands or streaks of these dark minerals cross many of the rock slabs. Many of the smaller, rounded or irregular-shaped masses of dark minerals are **mafic enclaves**.

The stone on the exterior of the building, as well as that used for paving on the corner of High and Bowery Streets, is **flamed**, but that used for benches and combined planter/benches on the outside of the building (fig. 60) is polished. Because the flamed surfaces include many crystals broken along their **cleavage planes**, on a sunny day one can see light reflecting off various crystals. The polished surfaces are interesting, as the ferromagnesian minerals have been preferentially weathered (rub your hand on the stone to feel this effect). A large map of Ohio high on the South Broadway side of the building is delineated by a different surface treatment of the stone: the protruding stone representing Ohio consists of linear stone ridges carved in raised relief. The same stone type is used in the interior of the building. Some of it is polished, some of it is flamed.



FIGURE 59.—Oliver R. Ocasek Government Office Building. April 2005 photo.

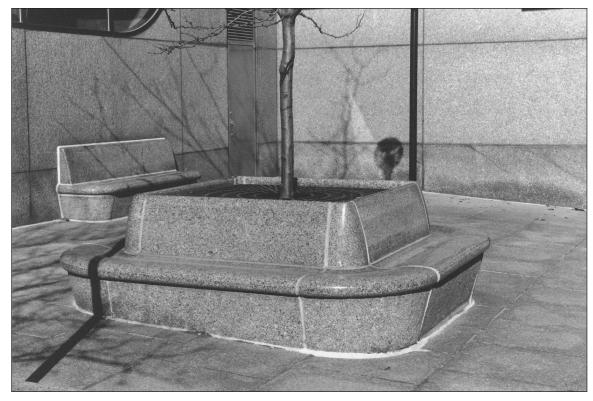


FIGURE 60.—Outdoor seats and detail of the Ocasek Building near the corner of University and Bowery Streets. November 2004 photo.

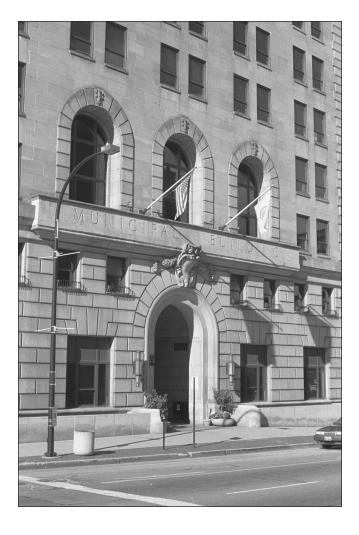
## STOP 18. MUNICIPAL BUILDING

The Akron Municipal Building (fig. 61), also known as City Hall, is located at 166 South High Street (fig. 49), at the intersection of High and Bowery. It is at the east edge of the old downtown Sharon Formation quarry as mapped in the 1880s (Sanborn Map Company, 1886). The Key Building, located just to the west (on the other side of the alley known as Maiden Lane) of the Municipal Building, was built in the old quarry. The High Street and Church Street sides of the Municipal Building are faced with Berea Sandstone. A gray granite is used along the base of this Renaissance Revival building. Granite is less permeable than sandstone, so the granite at the base serves to protect the sandstone from salt weathering in the winter. The Municipal Building was completed in 1926.

The Ohio Quarries Company provided 33,000 cubic feet of sandstone, known as *Buckeye Gray sandstone* (Anonymous, 1926a; Ohio Quarries Company, 1926) and also as *Silvertone Gray Amherst sandstone* (Cleveland Quarries Co., late 1930s), from their quarries located between Amherst and

South Amherst, Ohio (Cleveland Quarries Co., late 1930s). This variety, quarried from the Buckeye quarry located just north of Ohio Route 113 and west of Quarry Road in Amherst Township, Lorain County, has been widely used for buildings and curbstones.

The center of attraction in the splendid lobby on the first floor is the polychrome floral pattern in the floor, composed of pink and black limestone tiles. The same types of stone are used for the walls of the lobby. The pink limestone, from the Holston Formation, is known as *Tennessee marble* (Dale, 1924). That used for flooring contains prominent dark **sty-lolites**. Many light-colored fossils, mostly **bryozoan** colonies, are found in the stone. The fossils are best seen in the Holston Formation stone used for the walls. The details of the bryozoan colonies, consisting of adjacent individuals (less than 1 mm wide), can best be seen using a hand lens. The stone is **Ordovician** in age, and represents a time when bryozoans formed reef tracts (Walker and Ferrigno, 1973). Stone from the Holston Formation was widely used



for public buildings during the first half of the 1900s. Many other important buildings in Ohio, including the nearby Summit County Courthouse (Stop 16) and the Municipal Building (Stop 18) as well as buildings in Cleveland, Columbus, and Cincinnati, have flooring, stairs, or walls made with this stone.

The black stone is a **fossiliferous** limestone, possibly Crown Point Limestone from Vermont. The light-colored objects in the black stone are fossils. Holston Formation stone is used for stairs and wainscoting or walls in the stairways leading to the basement and up to the second and third floors. Floors in the basement and on the second and third floors are **terrazzo**. The stone pieces in the terrazzo are subrounded to subangular pieces of white marble. Wainscoting on the second and third floors is a gray fossiliferous limestone. It contains abundant body and **trace fossils**. **Brachiopods**, seen in cross section, are among the more prominent fossils: some are 1 inch (2.5 cm) wide. Several species are present. The trace fossils consist of elongate tubular burrows. The stone is probably from Tennessee, Missouri, or nearby states.

FIGURE 61.—Municipal Building. November 2004 photo.

# STOP 19. SBC BUILDING

Located at 50 West Bowery Street (fig. 49), the SBC Building (formerly the Ohio Bell Telephone Building) (fig. 62) was completed in 1930. It is faced with variegated *Indiana limestone* quarried by the Bedford Cut Stone Company (Anonymous, 1930). *Indiana limestone* is a commercial appellation for the geologic rock unit known as the Salem Limestone. Variegated is a color term that has been used by quarriers for freshly quarried stone. It indicates a mix of gray and buff coloration. Such a mix is not apparent, however, on stone, such as that used for the SBC Building, that has weathered for a long period.

Salem Limestone is Middle Mississippian in age. Bedford, in Lawrence County, Indiana, is at the southern end of the Salem Limestone quarrying region (which stretches northward from Bedford, beyond Bloomington, into northwestern Monroe County). The stone used as building stone typically is a grainstone, composed of grains consisting of fossils and fossil fragments (fig. 63). Besides these **body fossils**, trace fossils also can be seen in places in this stone.

The Salem Limestone is one of the most widely used dimension stones in North America. Because limestone is composed of the mineral calcite, it is easier to cut than harder stone such as silica-cemented sandstone. *Indiana limestone* is also a **freestone**, a stone that can be cut in any direction without deleterious effect. Distinct bedding features can be present in blocks of the stone, but the stone does not readily split along these features. Bedding features in sandstone, on the other hand, are more likely to cause splitting. *Indiana* 

limestone, despite consisting almost entirely of calcite, holds up well to acid rain in cities. This does not mean that it is unaffected, however: the stone is etched over time, making fossils stand out better in older buildings. The stone is also very porous. The pore spaces between grains are generally visible with the naked eye.

Salem Limestone was quarried at least as early as 1827 at a number of places within the Indiana building-stone district (Patton and Carr, 1982). The rock that has been utilized as a building stone is representative of prehistoric shoal, intershoal, sand flat, and lagoonal facies and contains a variety of body and trace fossils (Thompson, 1990; Keith and others, in preparation). Fossils similar to those seen in figure 63 can be seen in the stone used for this building (look close).

The growth of the railroads in the 1850s allowed for the expansion of Salem Limestone use, and by the early decades of the twentieth century it was being used for many new structures being built in northeastern Ohio and elsewhere, including Cleveland's Terminal Tower (completed in 1928) and New York's Empire State Building (completed in 1930).

The use of Salem Limestone for the SBC Building is one of the earlier uses of this stone in Akron for the exterior of a large commercial structure. Other buildings also were clad, at least in part, with Salem Limestone. These include the Beacon Journal Building (see Additional sites). Salem Limestone has been used for columns and trim of still more structures (see Stop 2, Stan Hywet Hall & Gardens). The University of Akron has a great collection of Salem Limestone structures, including Crouse Hall (Stop 28A; see that stop for additional information on Salem Limestone) and the columns from the former United Brethern Church at the amphitheater (Stop 28E).

A base course around the SBC Building is a pink granite. The color of the stone is determined by the large pink feldspar crystals. As in the Municipal Building (Stop 18), the granite is not merely decorative, but serves to protect the stone above. The limestone is very porous. The lobby (not accessible to the public, but visible through the front doors) contains a large amount of beautiful brown and beige **travertine**, plus borders of *Red Levanto marble* or a similar stone.



FIGURE 62.—SBC Building. November 2004 photo.



FIGURE 63.—Closeup view of Salem Limestone, also known as *Indiana limestone* (from Hannibal and Schmidt, 1992, p. 6). The wheelshaped fossil to the left is a segment of the stem of a sea lily. It is about 3 mm in diameter.

## STOP 20. CASCADE PLAZA

Cascade Plaza (fig. 64) is a large plaza and building complex that extends between Bowery and Mill Streets just west of Main Street (fig. 49). The northwest corner of the plaza (near the intersection of Ash and Mill Streets) was the location of the Old Stone Mill, an Akron landmark of the past. The Stone Mill used water power of the canal for grinding grain.

Plaza trim is Rockville Granite supplied by the Cold Spring Granite Company (Jan Ellering, personal communication, 2005). Much of the stone is polished, but some has a thermal finish (a term used by the Cold Spring Granite Company for a flamed finish), and some is **honed**. The Municipal Garage here utilizes polished, honed, and thermal stone. Rockville Granite is quarried from 1.7-billion-yearold Precambrian-age deposits in the Rockville, Minnesota, area. The stone is porphyritic, containing large, light-colored crystals of microcline feldspar, somewhat smaller crystals of oligoclase feldspar, and smaller crystals of quartz, feldspar, iron- and magnesium-rich minerals, and small amounts of other minerals (Boerboom and others, 2005, p. 76-77). Rockville Granite has been widely used in the Great Lakes area and beyond in the last few decades. Rockville Granite is used in a number of other places in Akron, including the U.S. Courthouse and Office Building (Stop 22) and The University of Akron (Stop 28).

The plaza paving is exposed-aggregate concrete. Pebbles are prominent in the paving. They are mostly rounded quartz pebbles, as one would find in the Sharon Formation; thus the plaza resembles a pebbly outcrop of the Sharon.

The lobby of National City Center, at 1 Cascade Plaza, is clad with panels of brownish-gray and light-brown travertine. The bedding (originally horizontal) of the travertine is clearly visible as are small shrubby structures, rounded grains, holes, and other typical structures found in travertine. Some of the holes in the travertine have been filled with artificial cement. The origin of the travertine is uncertain, but historically most travertine used in midwestern cities has come from Italy, with lesser amounts coming from the western United States. The guard desk in the lobby (added in 2001) is made with travertine from Italy and *Butterfly green granite* from Brazil.

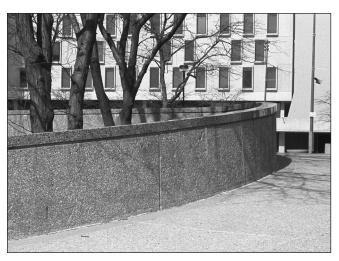


FIGURE 64.—Cascade Plaza. April 2005 photo.

## STOP 21. FIRST NATIONAL TOWER

Akron's tallest building and first skyscraper (fig. 65) is the Art Deco First National Tower located at 106 South Main Street (fig. 49), on the corner of Main and Mill Streets. At 331 feet (101 m) high, this is the tallest building in Summit County. Completed in 1931, it has 26 to 28 stories, depending upon how they are counted. The lower parts of this mostly brick building are faced with stone. The base of the building is faced with a Minnesota granite, possibly the pink variety of Rockville Granite known as Diamond Pink. The remainder of the bottom part of the building is faced with *Indiana limestone*.

The lobby is faced with very fossiliferous slabs of limestone quarried from the Holston Formation of Tennessee and known generically as *Tennessee marble*. The color of the stone varies from pink to dark purplish red. Among the fossils are stacked brachiopods, very large (up to 5 inches/13 cm or more in length), straight-shelled **nautiloids** similar to those found in other Holston Formation stone used for facing (Slagle, 1981, p. 12), and smaller light-colored bryozoan colonies.



FIGURE 65.—Facade of the First National Tower. April 2005 photo.

# STOP 22. U.S. COURTHOUSE AND FEDERAL OFFICE BUILDING

The federal courthouse and office building (fig. 66), at the corner of East Market and Main Streets (fig. 49), was dedicated in 1975. It is faced with Rockville Granite quarried in Rockville, Minnesota, by the Cold Springs Granite Co. (Jan Ellering, personal communication, 2005). Most of the stone is Rockville thermal (that is Rockville Granite with a thermal, roughened finish), but some is polished. The dominant mineral in the Rockville Granite used here is a light-pink feldspar. The color of Rockville Granite varies on the basis of the intensity of color of the dominant feldspar crystals, which range from white to pink. Rockville Granite is about 1.7 billion years old, and is associated with the Penokean Orogeny (mountainbuilding episode). Mafic enclaves occur in places in the granite. (See Stop 20, Cascade Plaza, for more information on Rockville Granite).

Rockville Granite also is used in the interior lobby areas of the building for flooring, large benches, and other structures. The polished stone used for the benches is Rockville  $Beige \ granite$ .

Large sculptural pieces, "untitled 1979," by Robert Morris (b. 1931), on the north side of the building are composed of very minimally worked blocks of Barre Granite quarried in Vermont. The blocks, about 10 feet (roughly 3 m) tall, show various ways of breaking slabs of rock from the main mass at a quarry: note the drilled blocks and the roughly split blocks. Barre Granite is Devonian in age. It originated as magma rising toward the surface and cooling during the Devonian, during the episode of mountain building in the east known as the Acadian Orogeny. (This same episode of mountain building shed sediments to the west into Ohio eventually to form rock such as the Berea Sandstone.) Barre Granite also has been used quite extensively for gravestones and grave monuments (see Stop 6, Glendale Cemetery) and for the Buchtel statue at The University of Akron (see Stop 28B, Buchtel statue).



FIGURE 66.—U.S. Courthouse and Federal Office Building. April 2005 photo.

## STOP 23. EVERETT BUILDING

The Everett Building (fig. 67), located at the intersection of Main and Market Streets (fig. 49), was built in 1871 as the Academy of Music. The building is brick, with substantial trim and a base of sandstone (the base is now covered over). This building once looked quite different, with additional exposed stonework and carvings, and a **mansard roof** (Akron Map & Atlas Co., 1891, p. 42). Despite the changes,

the building preserves rare remnants of complex 1870s stone carvings. The remaining visible stone is high up, but includes an imposing pair of stone lions flanking an eagle. That stone, according to Quine (1958, p. 2) is said to come from the Wohlwend quarry on Washington Street, one of the old Wolf Ledge Sharon Formation quarries, and the carvings were done by one of the local carvers.



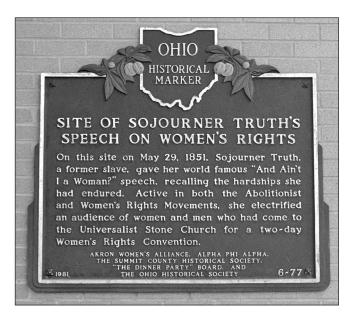
FIGURE 67.—Facade of the Everett Building. April 2005 photo.

# STOP 24. SOJOURNER TRUTH BUILDING, SITE OF THE ORIGINAL STONE UNITARIAN UNIVERSALIST CHURCH

An Ohio historical marker (fig. 68) on the entranceway of the Sojourner Truth Building (fig. 68) marks the site of the Universalist Stone Church (fig. 49) that once stood here at 37 North High Street. This church was where the famous former northern slave, preacher, civil-rights advocate, antislavery lecturer, and suffragette, Sojourner Truth (1797-1883), gave a rousing speech at an Akron women's rights convention in May 1851. Truth's participation was only briefly noted in Akron and Cleveland newspapers of the time (e.g., Anonymous, 1851b). The speech is popularly known as the "And ain't I a woman" or "Ar'n't I a woman" speech, but those phrases are probably apocryphal, as they were recorded long after the speech and do not appear in a more contemporaneous record of Truth's speech (Painter, 1996). None-the-less, the speech that Truth gave here became one of the defining moments of her life and had great symbolic meaning.

The church, known as the stone church or "the Stone

Church in Akron" in accounts of the convention (e.g., Anonymous, 1851a; Tracy and others, 1851; Painter, 1996, p. 121) as well as in accounts of Sojourner Truth's speech (e.g., Painter, 1996, p. 121), was built in 1838 and dedicated in 1839. The church was said to be "one of the handsomest structures of its kind in Ohio" (Lane, 1892, p. 196). It was modest in size, with a footprint of 44 by 57 feet (13 by 17 m), but it had a 100-foot (30-m) high steeple (Perrin, 1881, p. 372). Based on a drawing (fig. 69) in Lane's 1892 history, the main portion of the church was made of large blocks of sandstone laid in courses. Almost certainly, the stone used would have been locally quarried from the Sharon Formation. In 1853, a Baptist congregation took over the church, and the church eventually became known as the Old Stone Church (e.g., Foote, 1881, p. 330-343), an appellation that is still used for the 1850s Old Stone Church in downtown Cleveland (Hannibal and Schmidt, 1992, p. 8). The Akron Old Stone Church was torn down in the late 1800s.



 $FIGURE\ 68. \\ --Ohio\ historical\ marker\ commemorating\ Sojourner\ Truth's\ speech\ at\ the\ site\ of\ Akron's\ Old\ Stone\ Church.\ January\ 2005\ photo.$ 

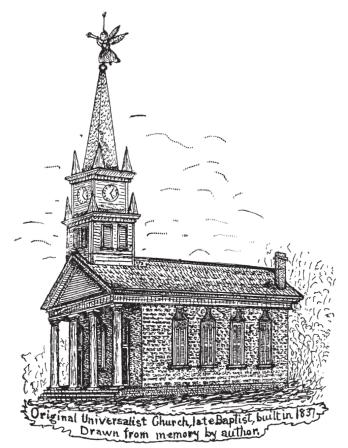


FIGURE 69.—The original Universalist Church, also known as Akron's Stone Church (from Lane, 1892, p. 197). The church was built in 1837 or 1838.

## STOP 25. EAST OHIO GAS COMPANY (BMB) BUILDING

The former East Ohio Gas Company Building (fig. 70) located at 19 North High Street (fig. 49), is now the law office of the Blakemore, Meeker, and Bowler Company (BMB). The building is faced with two types of stone. The lower part of the building is Morton **Gneiss**, a beautiful **migmatite**, also known as a **granite gneiss** (Grant, 1972, 1973), that has long been quarried in Morton, in southwestern Minnesota

(Thiel and Dutton, 1935). Morton Gneiss is at least 3.3 billion years old. This stone is also known by the trade name *Rainbow granite*. The red feldspars and the black ferromagnesian minerals, chiefly biotite, determine the coloration. Salem Limestone (*Indiana limestone*) is used for the upper part of the structure. The use of Morton Gneiss for part of a building, usually the lower portion, is typical.



FIGURE 70.—East Ohio Gas Company Building (now BMB law offices). January 2005 photo.

# STOP 26. CARNEGIE BUILDING

Akron's Renaissance-style Carnegie Building (fig. 71) stands at 75 East Market Street (fig. 49), at the northeast corner of Market and High Streets. As the Carnegie name implies, this building was built as a home for the Akron Public Library. Like many other public library buildings in northern Ohio and elsewhere, it was financed by Andrew Carnegie. The 1904 building is faced with Berea Sandstone, which in some accounts of the building is known as *Ohio sandstone* or *Gray Canyon stone*. Most of the Berea Sandstone shows horizontal bedding. There are a few clayey, concretionary bodies and pyrite blebs here and there. The two tall Ionic columns are also Berea Sandstone. The front steps are made of Salem Limestone (*Indiana limestone*). The backside of the building is brick.

The building was originally to be faced with vitrified brick or terra-cotta, so as to keep clean longer, with a granite (preferably *Milford granite*) basement (Anonymous, c. 1902). However, it was subsequently proposed (Carmichael, 1902) that *Gray Canyon stone* be substituted, and Carnegie provided extra funding for this upgrade to stone. *Gray Canyon stone* was one of the varieties of Berea Sandstone then quarried by the Cleveland Stone Company in the Amherst area (Cleveland Stone Company, 1900). This stone was named for the huge "Canyon" quarry, one of the largest sandstone quarries of its time (Anonymous, 1912). The stone is no longer gray. The present light-brown to orange color is probably due to weathering over time as well as the techniques used to clean the stone.

The Akron Public Library outgrew this building by 1950. The building became the first home of the Akron Museum of Art (then the Akron Art Institute, and now located across the street). The Carnegie Building is now a law office.



FIGURE 71.—Carnegie Building. January 2005 photo.

## STOP 27. QUAKER SQUARE

The old Quaker Oats cereal factory complex (fig. 72), now known as Quaker Square, is centered at 120 East Mill Street, near the intersection of Mill and Broadway Streets, and extends south down Broadway (fig. 49). The Crowne Plaza (formerly the Quaker Square Hilton), located at the intersection of Bowery and Broadway Streets, forms the southern part of the complex.

Grain milling was an important industry in Akron during the nineteenth and early twentieth centuries, beginning with the establishment of Crosby's Old Stone Mill in 1832 (Lane, 1892, p. 454). The early mills availed themselves of the abundant power provided by streams and canal races. Ferdinand Schumacher moved to Akron in 1851 and began making oatmeal in 1859, achieving remarkable success (Lane, 1892, p. 454; Doyle, 1908, p. 151). The Quaker Oats Company was founded in 1901, with the amalgamation of Schumacher's operation with other companies in Ravenna, Portage County, Ohio, and Cedar Rapids, Iowa. Quaker Oats headquarters remained in Akron for decades, and production of cereal continued in Akron until 1970.

By the 1870s, Akron had become the principal market for Berea Sandstone from quarries in Peninsula (Orton, 1884, p. 588), and one of the chief uses was for millstones used for hulling grain such as barley (Orton, 1884, p. 588). By the late 1800s, Berea Sandstone from quarries in Peninsula, Ohio, including Deep Lock quarry, had already become a preferred source for stone for oat mills (Read, 1892, p. 617). Indeed, the oatmeal producer Ferdinand Schumacher owned Deep Lock quarry for a time. Large, unfinished milling (hulling) stones manufactured in the 1800s can still be seen along

the trail at Deep Lock quarry (see fig. 8; see also Hacker, 2004, p. 168, fig. 13.8).

The silos (purists might call them storage bins) of the former cereal factory were remade into circular hotel rooms in 1980. This was an imaginative, adaptive reuse of the structure (Anonymous, 1981a, 1981b). Circular saw blades with industrial diamonds embedded in them were used to make the cuts (fig. 72) in the 7-inch (18-cm) thick silo walls. One of the sawblades, about 23 inches (about 58 cm) in diameter, is on exhibit in the hotel complex. Said to be one of the largest such commercial concrete-cutting jobs until that time, the four-month sawing project was done by a diamond-core drilling company from Elyria, Ohio (Anonymous, 1981a, p. 54). Edges of the sawed concrete were coated with transparent epoxy. Thus aggregate used for the concrete can best be seen in the concrete cross sections exposed to make openings for the hotel rooms. This aggregate includes an assortment of different pebbles, as well as concretions, most 0.4-0.8 inches/1-2 cm long.

The foundation of the silos is exposed in the basement of the hotel complex. It consists of giant blocks of sandstone. Sandstone also is used for the foundation of the surrounding Quaker Square complex. Some of it contains very large, reddish concretions or clayey clasts.

The lobby of the hotel complex contains beige and reddishorange limestone. The limestone counter of the registration desk contains prominent calcite veins, stylolites, mottling due to fossil burrows, and fossils of **ammonoids** and **belemnites**. This stone belongs to or appears very similar to the **Mesozoic** red ammonitic layers found in Europe.



FIGURE 72.—Detail of silo at Quaker Square showing cut-away section. February 2005 photo.

## THE UNIVERSITY OF AKRON

The University of Akron is now part of the state university system in Ohio, but was founded in 1870 as the private Buchtel College by the Universalists. It was named for John R. Buchtel (1820-1892) in honor of his monetary contributions toward the college (Knepper, 1990, chapter 3). The campus is mostly east of the buried valley that cuts through downtown Akron. The University of Akron is underlain by bedrock (mostly the Sharon Formation) and glacial material. In 1912, Prosser (p. 494) wrote that, "The Sharon conglomerate is reported as underlying Buchtel College, which is probably true, but no exposures were visible at the time the campus was visited. In particular the engine house is said to be on rock foundation." From time to time, especially when a new structure is being built, bedrock is exposed. At places a gray

shale has been encountered, including the site of the new (2005) student union (John Szabo, Annabelle Foos, David Person, University of Akron, personal communication, 2004-2005). The shale, medium gray in color, appears to be a shale found at the top of the Sharon and so represents what is sometimes called the Sharon shale. It is possible that the foundation of the engine house was built upon Massillon sandstone, located above the shale.

In summer 2005, an excavation for the new home of the School of Dance, Theatre, and Arts Administration exposed weathered sandstone of the Sharon Formation (John Szabo, personal communication, 2005). Holes for the large support piers for the structure were to be drilled 20 to 25 feet (6-7.6 m) into the sandstone.

# STOP 28. UNIVERSITY OF AKRON SITES

The University of Akron is an ever-growing complex of buildings (fig. 73) located on the eastern side of downtown Akron. The original part of the campus was on Spicer Hill, between Middlebury and Carroll Streets, south of the intersection of College Street with Middlebury Street (now Buchtel Commons). This was once the site of the Spicer Hill Cemetery. Although a high area, the cemetery was underlain by shale (high areas are more typically capped by a more resistant rock), and there was a nearby spring, so burials tended to stay soggy. Therefore, this site violated two of the most important qualities of a good site for a cemetery: ease of digging a grave and adequate drainage (Hosler, 1982, p. 52). This situation was not unusual; almost a third of Sum-

mit County cemeteries are suboptimally located in places where the soil has qualities that should limit its use for cemeteries (Hosler, 1982, p. 63). The shale bedrock at Spicer Hill Cemetery made digging graves difficult; Lane (1892, p. 233) notes that graves had to be dug "almost wholly with the pick, so that surface water, percolating through the loose earth above the coffin, would be largely retained in the substantially water-tight grave." At Spicer Hill Cemetery, 6 inches/15 cm of water frequently was found standing in newly dug gravesites before coffins were placed in them (J. D. Commins in Lane, 1892, p. 235). This situation became the impetus for the founding of Glendale Cemetery (Stop 6). All of the graves in Spicer Hill Cemetery were removed (or

perhaps not quite all, as some bones may have been left, see Knepper, 1970, p. 28; 1990, p. 26-27) to Glendale Cemetery, making room for the college on this prime location. Zook Hall now stands on part of the old cemetery grounds. The stops in this section of the guidebook begin with Crouse Hall, the site of the Department of Geology, and continue with nearby buildings and sites, ending with several stops that are farther from the heart of campus.

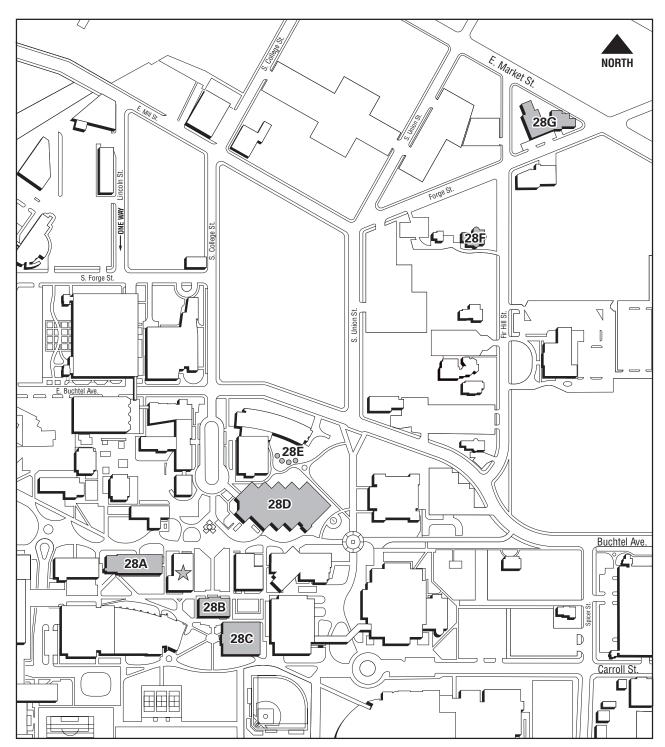


FIGURE 73.—Map of The University of Akron showing location of Crouse Hall (Stop 28A), Buchtel Hall (Stop 28B), Carroll Hall (Stop 28C), Bierce Library (Stop 28D), limestone columns at amphitheater (Stop 28E), Hower House (Stop 28F), historic church buildings (Stop 28G) and Zook Hall (\*). Map modified from University of Akron original.

# Stop 28A. Crouse Hall

Salem Limestone (Indiana limestone) is widely used for campus buildings, including Crouse Hall, home of the Department of Geology. The stone here is a grainstone composed almost entirely of small fossils and fossil fragments (see fig. 63 for a close-up view of the Salem Limestone). The fossils are easier to see in the coarser grained parts of the stone (a hand lens makes this much easier). Horn corals, colonial corals, sea lilies, brachiopods, bryozoans, snails, and other fossils can be seen in the stone used for Crouse Hall and other campus buildings using Salem Limestone. Large (0.4 inch/1 cm in diameter), sinuous trace fossils (fig. 74) can be found in these buildings. Erosional surfaces (fig. 75) can also be seen in this and other buildings. Most of the slabs of Salem Limestone used for the exterior of these buildings are probably horizontal cuts of rock, representing horizontal slices of fossilized marine sediment more-or-less parallel to bedding planes (Todd Thompson, personal communication, 2005). (See Stop 19, SBC Building, for additional information on Salem Limestone.) Zook Hall, located just east of Crouse Hall, also is faced with Salem Limestone.

The interior of the east entranceway of Crouse Hall is faced with a red limestone that is composed primarily of bryozoans and sea-lily stem pieces. The bryozoans are very light colored. Inspection with a hand lens will reveal the minuscule individual chambers (less than 0.5 mm in diameter) within the colonies. The sea-lily fragments may be rounded, looking like miniature tires.

The Geology Department halls contain exhibits of various rocks, minerals, and fossils, as well as posters showing research done by students and professors in the department.

There are several boulders between Crouse Hall and the student center directly to the south. These are glacial boul-



FIGURE 74.—Trace fossils in the Salem Limestone used for the exterior of Crouse Hall. February 2005 photo.

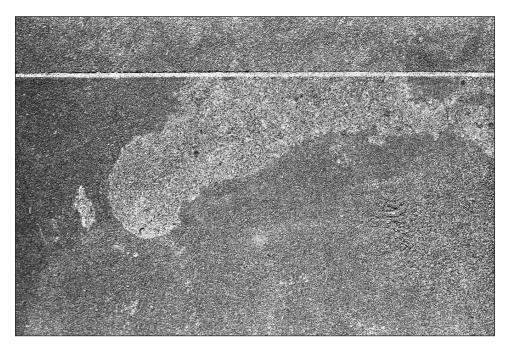


FIGURE 75.—Portions of two slabs of Salem Limestone used for the exterior of the south side of Crouse Hall. The larger, lower, slab includes rock of two color tones, the lighter of which is coarser in grain size and which contains larger fossils and fossil fragments. The boundary between the lighter colored stone and the darker colored stone represents an erosional surface. February 2005 photo.

ders, and one or more were moved from the John Brown home/Perkins farm site (see Stop 3, Perkins Stone Mansion) to the campus around 1880 (Knepper, 1990, p. 29). Like glacial boulders on a number of other Ohio campuses, some of these have been painted, obscuring their mineral composition.

Just a short walk northwest of Crouse Hall, outside the glass-and-steel Polymer Building, there is a National Historic Chemical Landmark monument consisting of a large (about 5.3-foot/1.6-m tall) piece of Rockville Granite (Rockville white). The block is roughly shaped, so many crystals have broken along cleavage planes. The polymer program of The University of Akron is an outgrowth of Akron's rubber industry.

# Stop 28B. Buchtel statue and Buchtel Hall

A 6.5-foot (2-m) tall Barre Granite statue of John R. Buchtel stands in the heart of The University of Akron campus, in front of Buchtel Hall (fig. 76). This statue is a duplicate of the Buchtel statue in Glendale Cemetery (fig. 32). The University of Akron had originally wanted to move the statue from the cemetery to the college in the 1980s (Buchtel's will allowed for this), but a copy was made instead (Colopy, 1991, p. 28). It was carved by the Rouleau Granite Company of Barre, Vermont (Anonymous, 1989). (See Glendale Cemetery, Stop 6, p. 27, for more information on Barre Granite.) The statue of Buchtel stands on a 6-foot (about 2-m) high base of Milbank Granite, quarried in Milbank, South Dakota. This stone is sold under a number of commercial names, including Carnelian, Dakota Mahogany, and Sequoya granite. Note the distinctive blue quartz in this stone. Such blue quartz tends to be found in very old rock; this stone is more than 2 billion years old (Philip Banks, personal communication, 2002).

Directly in front (north) of the statue in Buchtel Common is the Dorothy Garrett Martin Fountain, which was constructed in 1989. The base of the fountain is exposed-



FIGURE 76.—Buchtel Hall and Buchtel statue. January 2005 photo.

aggregate concrete, that is, concrete with plainly visible aggregate (particles). The exposed aggregate includes quartz pebbles such as one would find in the Sharon Formation. Top parts of the fountain are made of Milbank Granite, similar to that used for the base of the Buchtel statue. Portions of the first floor of the law center (completed in 1978) on campus are also faced with Milbank Granite.

The first large building constructed for the college, known as Old Buchtel, was completed in 1872. It is said that the water for the building was supplied by an "underground stream" (Knepper, 1990, p. 29). This may have been a Sharon Formation spring. The building burned down in December 1899, and geological and other natural history specimens were lost, including type specimens assembled by geologist E. W. Claypole.

The foundation level of the present (1901) Buchtel Hall is made of sandstone blocks. The upper portion of the building is brick. Supports on the sides of the front exterior stairs are also made of sandstone. These stair supports are capped with coarse-grained white marble, most likely from Georgia. The marble contains some mica and other minerals. This marble has weathered severely; protruding grains of noncalcite minerals indicate that at least 4 mm of the original surface of the stone has weathered away. White columns on the front of the building are painted white in imitation of marble.

## Stop 28C. Carroll Hall

The interior of the west entranceway of Carroll Hall is faced with one of the most beautiful stones on campus, a gray and red limestone (of unknown origin) filled with fossils and sedimentary structures. The fossils include brachiopods, bryozoans, and sea lilies. The brachiopod shells stand out, as they are a darker brown. Some are filled with white calcite. There are also nonfossil vugs (originally open spaces in the rock) that have been filled in by calcite, and, to complicate things, some patched areas in the stone. The outside of the west entrance of this building is faced with a brown granite.

## Stop 28D. Bierce Library

Bierce Library is a study in concrete, with concrete used extensively inside and out. The exterior of the building is clad with exposed-aggregate panels (fig. 77). Most of the pebbles in the aggregate are quartz, but include other minerals, as well as small rocks such as sandstone. It appears that much, but not all, of the aggregate is local. The building was completed in 1973, and the panels were designed so that they could be removed and then reused when the library was expanded (Anonymous, 1973).

The library is named for Lucius Bierce (1801-1876), a fervent supporter of Buchtel College and, as an abolitionist, of John Brown. Bierce also was a part of an ill-fated scheme to invade Canada in the 1830s (Knepper, 1990, p. 66-67).

## Stop 28E. Limestone columns near the amphitheater

Four 20-foot (6-m) tall (not counting the height of the bases and capitols) Ionic columns (fig. 78) are located at

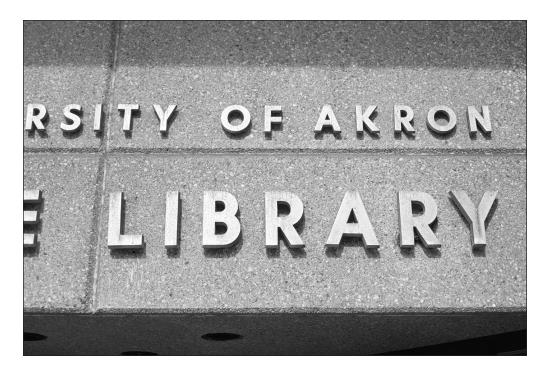
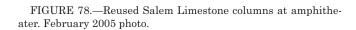


FIGURE 77.—Exposed-aggregate concrete panels used for the exterior of Bierce Library. February 2005 photo.





the upper end of the Lewis Turner Amphitheater between Bierce Library and the large Arts & Sciences Building to its north. The columns are made of Salem Limestone (*Indiana limestone*). These columns once stood on the portico of the United Brethren Church, which became part of the campus in 1972 and was then known as East Hall. The columns were removed in 1993 (Anonymous, 1993), and the building was demolished in 1995.

In their present setting, the columns are evocative of ruins. Indeed, close inspection of the columns indicated that the column drums were damaged sometime after their use for the church, various parts have been patched, and one column has been shortened some. Part of one column had been used as a table pedestal in The University of Akron's architect's office. It was returned when the columns were installed in this setting.

Because the stone has been exposed to weathering over a period of years (like a number of other structures described in this guidebook), fossils and sedimentary structures tend to stand out. Still, the fossils are small enough to recommend a hand lens.

The next two stops (Stops F and G) are located to the northeast of the previous stops.

## Stop 28F. Hower House

The Hower House, 60 Fir Hill Street, at the intersection of Fir Hill and Forge Streets, is a nicely preserved 1871 structure built mainly of brick, with a splendid mansard roof. The building was donated to the university by the Hower family. Sandstone is used for the porch, foundation, and for window sills and other trim. The sandstone used is probably from the Sharon Formation, at least in part. The large, weathered stone block at the entranceway, as well as many other stone blocks used for the building, show typical

Sharon cross-stratification. Large blocks of sandstone in the property include examples of pebbly Sharon.

A large (32-inch/81-cm radius) grindstone (or well cover), on the ground is most likely made of Berea Sandstone.

#### Stop 28G. Historic church buildings (Ballet Center)

Two historic church buildings (figs. 79, 80), used at the time that this guidebook was being written as the university's Ballet Center, are on a triangular plot of land bounded by East Market, Forge, and Fir Hill Streets. Their address is 354 East Market Street. The two buildings reflect changing trends in stone use over time: the older sandstone building is the St. Paul's Episcopal Chapel, dedicated in 1885 as a parish and Sunday school house (Lane, 1892, p. 200, illustration on p. 199); the newer (1907) Episcopal church structure is faced with limestone. A passageway connects the two structures. The university purchased these buildings in the 1950s.

The older (1885), Romanesque chapel building is faced with light-brown to grayish-red sandstone. The sandstone is medium grained and poorly sorted, with some small pebbles a few mm to 0.5 cm in diameter; it is clearly one of the Pennsylvanian-age sandstones of northeastern Ohio. The sandstone contains dark, resistant iron banding like that known from the Sharon Formation. It is likely that the stone is from the Sharon Formation. The rock-faced blocks of stone used for the building are set in courses. A small amount of Berea Sandstone has been added by some of the basement windows in recent years.

The older chapel is the more complex of the two buildings. It is an early example of the use of the Akron Plan in ecclesiastical architecture. That plan, which originated in Akron, but which became a nationwide trend during the later nineteenth and early twentieth centuries, allowed for a flexible use of space. A number of small rooms around the

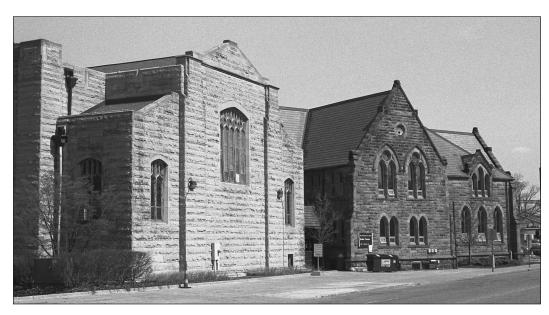


FIGURE 79.—Historic St. Paul's Church complex (Ballet Center). The older (1885) St. Paul's Episcopal Chapel is on the right; the newer (1907) church structure is on the left. April 2005 photo.

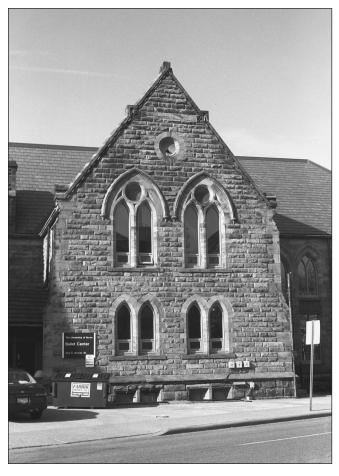


FIGURE 80.—1885 St. Paul's Episcopal Chapel. April 2005 photo. Note the ornate stonework of this historic sandstone structure. April 2005 photo.

periphery of the building could be closed off as individual Sunday school classrooms for various grades, or opened up to join the main space so that everyone could participate in common activities (see examples in Henry & Son, 1907). The rooms have been walled off, but have centrally facing doors clearly evocative of the original configuration.

The newer (1907) building, designed as a church, is faced with Salem Limestone (*Indiana limestone*; see Stop 19, SBC Building, for additional information on Salem Limestone). The limestone blocks are rock faced and laid in courses, except for trim.

The base of the church building is made of a different, light-gray limestone. This limestone is, like the Salem, very fossiliferous, containing abundant sea-lily fragments (and therefore could be called a crinoidal limestone). It is also full of fossil burrows. But, unlike the Salem Limestone used for the rest of the exterior of the church building, the limestone used for the base has not held up well over the years. Weathering has accentuated the burrows in this light-gray limestone, and pieces of the stone have exfoliated.

One of the most colorful episodes relating to stone buildings in Akron occurred before the construction of the build-

ings at East Market and Forge. At one time, the congregation of St. Paul's met in a second-story room of the Old Stone Block in downtown Akron, a structure that no longer exists. A storm caused massive damage to the structure on a Sunday in 1840, during services. A chimney and other parts of the three-story Stone Block crashed down through to the basement (Lane, 1892, p. 190). A number of parishioners' seats slid into the basement and some congregation members were injured.

## ADDITIONAL SITES

Besides the examples above, a number of downtown Akron buildings are clad with Salem Limestone (Indiana limestone). The bottom portion of the Akron Savings & Loan Company Building, located at the corner of Bowery and South Main Streets, is made with Select Buff Indiana limestone (Salem Limestone) from the McMillan & Son quarry in Indiana (Anonymous, 1926b). The Beacon Journal Building (completed circa 1930), located on the southwest corner of the intersection of East Exchange and South High Streets, also is faced with Salem Limestone, as is the elegant old post office at the corner of East Market and South Prospect Streets. Salem Limestone is also used for facing of the current First Congregational Church of Akron located at 292 East Market Street (at the intersection of Market and Union Streets), completed in 1910. The Old Akron Post Office (completed in 1899), now part of the Akron Art Museum complex, located at 70 East Market Street, has sandstone trim.

A number of buildings, not all of them generally accessible to the public, have interesting interior stonework. The Mayflower Hotel, 259 South Main Street, once the most famous hotel in the city and now a residential hotel, has a lobby clad with *Ste. Genevieve Golden Vein marble*. This "marble" is geologically a limestone from the Middle Devonian Grand Tower Formation, quarried in Ste. Genevieve County, Missouri (Hinchey, 1946, p. 14-22). The mottled gray and light-brown stone contains a number of coral species, including both horn corals and colonial corals. Many of the most evident fossils, including many of the corals, are lighter in color than the rock matrix. Some of the horn corals are 1.5 inches (4 cm) in diameter, and colonial corals in the lobby stone exceed 27.5 inches (70 cm) in length.

The old Middlebury Cemetery, established in 1809, is located at Newton Street near its intersection with Barder Street, to the east of downtown Akron. This cemetery predates the founding of the town of Akron (Olin, 1917, p. 331) and contains classic sandstone and marble gravestones fashioned during the nineteenth century. Some gravestones here are fine-grained sandstone, including the Federal-style tombstone of John Brown, a 24-year-old (canal?) engineer from New York who died in 1829. Marble gravestones are common; some are badly weathered. Most of the marble gravestones are very simple rectangular tablets. The changeover here from gravestones made of local sandstone to marble, and subsequently granite, was similar to that of the rest of Summit County in general as described by Hosler (1982, p. 33) and documented in the Cleveland area by Bauer and others (2002). Like so many small, old, historic cemeteries, this cemetery has had its ups and downs over the years.

At times it has been semi-abandoned; at times it has been fixed up (see photo on p. 201 of Olin and others, 1925).

There are a number of less urban geologic sites located near Akron. Akron's Gorge Metro Park, located at the border of Akron and Cuyahoga Falls, has numerous good exposures of the Sharon Formation (Foos and others, 2003) and underlying rocks. There are also numerous outcrops of the Sharon Formation in Cuyahoga Falls. The Cuyahoga Valley National Park, which is located between Akron and Cleveland, contains numerous sites of geologic interest (Hannibal and Feldmann, 1987; Hacker, 2004).

Canton, Ohio, about 20 miles (32 km) south of Akron, is notable for the use of the Massillon sandstone. Howe (1888, p. 613) noted that Trinity Lutheran Church (1888) was built with cream-tinted Massillon sandstone. Several other houses of worship, as well as private homes, in Canton, also were made of the Massillon sandstone (Bownocker, 1915, p. 144). Canton's McKinley Monument, made of Milford Granite, quarried just north of Milford, Massachusetts (Dale, 1908, p. 85), is another site of note.

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## **GLOSSARY**

- aggregate The coarse portion of a concrete or mortar, typically sand in this region, but in some cases also crushed rock such as limestone and/or pebbles, slag, or other material.
- ammonoid An extinct type of shelled cephalopod. It has a mutichambered, generally coiled shell. The chambers are separated by complex partitions. Ammonoids were open-ocean predators.
- amphibole A white to black ferromagnesian silicate mineral. Hornblende is a common type of amphibole.
- ashlar Masonry consisting of stone cut into rectangular blocks.
- **bedrock** The solid rock that underlies a particular region. **belemnite** An extinct type of shelled **cephalopod**. It has a tripartite internal shell. One part of this shell, a cigar-shaped element, is most commonly fossilized. In cross section, radial features can be seen within this element.
- biotite A common black, dark-brown, or dark-green ferromagnesian mica. Biotite crystals can be distinguished from amphibole and hornblende by their waferlike shape.
- bluestone A term used in Ohio, New York, and Pennsylvania for very fine grained, dense sandstones typically used for paving and steps.
- body fossil The actual or mineralized remains of an organism, or a mold or cast of an organism, as distinguished from trace fossils.
- **brachiopod** A marine invertebrate that has a shell that superficially resembles that of a clam. The shell consists of two valves that are each bilaterally symmetrical, but, unlike the shells of most clams, each valve is not the mirror image of the other.
- **breccia** A rock composed of large, angular rock fragments with finer grained material in between.
- **brownstone** A brown, reddish-brown, or red **sandstone** used for buildings.
- **bryozoan** A small, aquatic, colonial invertebrate. The individual tubes within a bryozoan colony are characteristically less than ½ mm wide. Forms commonly found as fossils may resemble small twigs or miniature, lacy fans.
- building stone A natural or manmade stone used for building.
- **buried valley** A prehistoric valley that has been filled in by **sediment**. In northeastern Ohio there are many such valleys filled in by glacial and glacial-lake sediments.
- calcite A generally light-colored mineral composed of calcium carbonate. Calcite is fairly soft and effervesces (bubbles) in weak acid. It is the principal mineral in limestone and many marbles.
- calcium carbonate The chemical compound CaCO<sub>3</sub>. A common natural form is the mineral calcite.
- **carbonate** Material, such as **limestone**, composed of oxides of calcium and carbon.
- case hardening Hardening of the surface of a stone or stone block due to evaporation of water from the interior of the stone and deposition of mineral matter through evaporation on or near the surface of the stone.
- Cenozoic Era The large division of geologic time following

- the **Mesozoic Era**, spanning from about 65 million years ago to the present. This era is divided into two periods, the **Paleogene** and the **Neogene**.
- **cephalopod** A member of a group of marine invertebrates that includes octopuses, squids, and their relatives, modern and extinct, including shell-bearing forms, such as the pearly nautilus.
- **clast** A part of a rock, or a piece of sediment, that has been incorporated into another rock or sediment.
- **cleavage planes** Natural planes of weakness in minerals. Minerals tend to break along such surfaces.
- coarsely crystalline An adjective used to describe a rock in which the individual crystals are larger than the grains of table sugar.
- **cobble** A grain that is between 2.5 and 10 inches (64 and 256 mm) in diameter. The next smallest particle is a **pebble**.
- colonial Said of animals that live together as an interconnected unit.
- conglomerate A stone made of smaller particles (less than 2 mm in diameter) as well as larger (greater than 2 mm in diameter), rounded to subangular grains.
- coral A marine invertebrate with a soft body and a hard external structure composed of calcium carbonate. Corals live attached to the sea floor, especially in shallow, tropical seas. Some corals live as separate individuals, others are colonial and form extensive reefs.
- cross-stratification The layering of sediment at an angle to the horizontal.
- **Devonian** A period of geologic time in the middle of the **Paleozoic Era**. It began about 416 million years ago and lasted until about 359 million years ago.
- **dimension stone** Building stone that is cut into blocks or other shapes.
- **dolomite** A light-colored mineral composed of calciummagnesium **carbonate**, CaMg(CO<sub>3</sub>)<sub>2</sub>.
- **dolostone** A rock composed of the mineral **dolomite**.
- **drafted margins** Tooled margins on the surface of a stone block. The width of drafted margins reflects the width of the blade of the chisel used to draft them.
- **drove work** Parallel grooves produced by a chisel bearing several adjacent carving edges.
- **feldspar** The general name given to any of a group of common rock-forming aluminum **silicate minerals** that contain the elements potassium, sodium, calcium, or some combination of these. There are two major divisions: **plagioclase feldspars** and **potassium feldspars**.
- ferromagnesian Minerals containing iron and magnesium.
- **field stone** Rough, generally elongate, but in some cases rounded, stones that may be found on the surface in fields and which are used for **building stone**.
- **flamed** A type of rock finish in which a surface is roughened by fracturing using heat. The name refers to the flames once used to do this. The technique is also known as thermal. Mostly done to **granites**.
- fluvial Relating to rivers.
- formation A particular body of rock or sequence of rock

- layers. It is identified by its composition, texture, and its position relative to other rock units. Formal formation names consist of two parts: the name of a geographic locality and either the word formation or the name of a type of rock, such as **sandstone** or **shale**.
- fossil (adjective = fossiliferous) Any preserved remains or trace of prehistoric organisms.
- freestone A fine- or medium-grained stone, typically a sandstone or limestone, which can be cut easily in any direction and which will not split in any particular direction.
- gabbro A dark-colored, coarsely crystalline, plutonic rock composed primarily of ferromagnesian minerals, calcium-rich plagioclase feldspars, or some combination of these minerals.
- **glacial boulders** Large, rounded to subrounded pieces of rock carried by glacial ice away from the main body of rock from which they are derived. Also known as erratics.
- gneiss Abanded metamorphic rock. The principal minerals in gneiss are generally feldspar and quartz. Mica also may be present.
- granite A light-colored, coarsely crystalline, plutonic rock that consists primarily of potassium feldspars and plagioclase feldspars and contains quartz. Granite also may contain mica and other minerals. Builders and architects use this term in a broader sense to indicate any very hard crystalline rock used for building purposes.
- granite gneiss A granite that has been metamorphosed.
- granodiorite A coarsely crystalline, plutonic rock intermediate in color and composition between granite and gabbro.
- **groundmass** Finer crystalline material in a **porphyry**. **group** A term for two or more associated **formations**.
- **hematite** A reddish-brown to black mineral composed of iron oxide.
- honed A type of smooth rock finish with a dull sheen.horn coral A solitary coral having a cup or hornlike shape.They are common in many Paleozoic limestones.
- hornblende A dark-green to black ferromagnesian silicate mineral; in rock, hornblende is generally distinguished from biotite and pyroxene by the elongate (lath) shape of its crystals compared to the flat, hexagonal crystals of biotite and the more blocky crystals of pyroxene. Hornblende is a type of amphibole.
- igneous A rock that crystallized from hot, fluid rock material either below the Earth's surface (plutonic) or at the Earth's surface (volcanic). Igneous rocks consist of interlocking mineral crystals. The igneous rocks, including granite, noted in this guidebook are plutonic.
- **Jurassic** The period of geologic time during the middle of the **Mesozoic Era**. It began about 200 million years ago and lasted until about 145 million years ago.
- **kamelike** Similar to a kame, a hummocky or moundlike glacial deposit composed of stratified (layered) sand and gravel.
- **knob** A prominent hill capped by a rock unit resistant to erosion. In northeastern Ohio, knobs are commonly capped by the Sharon Formation.
- limestone A sedimentary rock composed predominantly

- of the mineral **calcite**. Many of the rocks called "marble" by builders and architects are actually limestone.
- mafic enclave An aggregation of dark, ferromagnesian minerals, typically with an irregular bounding surface. Such enclaves are common in some granites and related rocks.
- magnetite A black, magnetic iron oxide mineral.
- mansard roof Roof characterized by a steep outer surface punctuated by dormers. Such roofs were popular in Victorian times in the U.S. Buildings with such roofs are generally classified as Second Empire or as Italianate in style. This style of roof was named for an architect of Louis XIV.
- marble A rock resulting from the metamorphism of limestone or dolostone. Builders and architects use this term in a broader sense to denote any stone, typically composed of calcite or dolomite, that is capable of being polished.
- member A subdivision of a formation.
- Mesozoic Era The large division of geologic time between the Paleozoic and Cenozoic Eras, spanning from about 251 to 65 million years ago.
- metamorphic Arock derived from pre-existing rock as the result of metamorphism.
- metamorphism The collective name for all of the various processes that alter pre-existing rock buried within the Earth. The changes result from heat, from the pressure of overlying rock, from the pressures related to mountain-building activities, or some combination of these. Alterations that may occur in the pre-existing rock include recrystalization of minerals, formation of new minerals, and/or rearrangement of crystals or other particles in the rock.
- metamorphosed Recrystallized due to heat and/or pressure within the Earth.
- mica A group of common rock-forming minerals that have a flat shape and cleave easily into thin layers or sheets. One common mica is biotite.
- microcline A type of potassium feldspar. Microcline is a common mineral in granites.
- migmatite Arock containing both igneous and metamorphic minerals. Such rocks are commonly banded.
- **Mississippian** A late **Paleozoic** period of geologic time. It began about 359 million years ago and lasted until about 299 million years ago.
- nautiloid A type of cephalopod with a multichambered shell through the center of which passes a tube known as a siphuncle. The chambers of nautiloids are separated by simple partitions.
- Neogene A period of geologic time within the Cenozoic Era, extending from 23 million years ago to the present.
- **Ordovician** An early **Paleozoic** period of geologic time. It began about 488 million years ago and lasted until about 444 million years ago.
- **orthoclase** A type of **potassium feldspar**. It is typically light-colored.
- Paleogene A period of geologic time covering the earlier part of the Cenozoic Era, from 65 million years ago to 23 million years ago.
- Paleozoic Era The large division of geologic time between

the **Precambrian** and the **Mesozoic Era**, spanning from about 570 million years ago to about 245 million years ago.

- **pebble** A fragment of rock, typically rounded or subrounded, that is between <sup>1</sup>/<sub>6</sub> inch to 2<sup>1</sup>/<sub>2</sub> inches (2-64 mm) in diameter.
- pelmatozoan A marine invertebrate with a central stalklike supporting column and a flowerlike body. Pelmatozoans are relatives of starfish and sea urchins; some are known informally as sea lilies.
- **Pennsylvanian** A late **Paleozoic** period of geologic time. It began about 318 million years ago and lasted until about 299 million years ago.
- **phenocryst** One of the large crystals found in a **porphyry**.
- pilaster A vertical element projecting from a wall, resembling a column, but rectangular in shape.
- plagioclase feldspar A common rock-forming silicate mineral ranging in color from white to gray to black.
- Pleistocene Epoch A subdivision of the Neogene Period.

  The Pleistocene began about 1.8 million years ago and ended about 11,500 years ago. The Pleistocene is commonly referred to as the Ice Age.
- plutonic An igneous rock, or relating to igneous rock, that crystallized below the surface of the Earth. The crystals in a plutonic rock are the size of grains of sugar or larger.
- porphyry (adjective = porphyritic) An igneous rock that includes large crystals (phenocrysts) in a groundmass of smaller crystals. Many igneous rocks used for building stone are porphyritic in texture.
- potassium feldspar A common rock-forming silicate mineral characteristically ranging in color from white to pink and red, but which may be blue, gray, or green.
- **Precambrian** All geologic time from the formation of the Earth, about 4.6 billion years ago, to the beginning of the **Paleozoic Era**, about 542 million years ago.
- pyrite A gold-colored mineral composed of iron sulfide. It is informally known as "fool's gold." Pyrite is found in some sedimentary rocks and may react with water to cause stains.
- **pyroxene** A type of dark **silicate mineral**. Crystals of pyroxene are typically more blocky (square in cross section) than crystals of **hornblende** and other dark minerals.
- quartz A common glassy, typically clear to gray, rockforming mineral composed of silica.
- **quartzite** A **metamorphosed** rock usually formed by the recrystallization of **sandstone**. The grains of **quartz** in a quartzite are much more tightly bound together than are the grains in a **sandstone**.
- **quoin** A block, commonly made of stone, at the corner of a building. If made of the same material as the rest of the building, a quoin may differ by its finish or size.
- random ashlar Masonry in which ashlar blocks are set so that there is no continuous layering across a surface.
- rock faced A rough type of facing, resembling a natural surface, used for the exposed side of blocks of building stone.
- rock-unit name The name given to a body of rock, such

- as a **formation**, at the time of its first formal geologic description.
- sandstone A sedimentary rock composed of sand-sized grains (between <sup>1</sup>/<sub>16</sub> and 2 mm in diameter), held together by mineral cement.
- sea lily A colloquial term for certain types of **pelmatozo**ans. The term includes crinoids and blastoids.
- **sediment** Solid material, such as sand and silt particles and **fossil** fragments, that has been transported by wind or water or both. Sediments are characteristically deposited in layers.
- **sedimentary** Relating to or consisting of **sediment**.
- shale A sedimentary rock composed of clay minerals or clay-sized particles (less than <sup>1</sup>/<sub>256</sub> mm in diameter), distinguished from the slightly coarser rock, siltstone, by its smooth feel. A true shale also can readily be split into thin layers.
- silica Silicon dioxide, SiO<sub>2</sub>, a rather hard mineral common as cement in sandstones. Chert, jasper, and quartz are composed of silica.
- silicate mineral A mineral containing silicon and oxygen as major constituents.
- siltstone A sedimentary rock composed of silt-sized grains (between 1/256 and 1/16 mm in diameter), distinguished from shale by its gritty feel.
- **Silurian** An early **Paleozoic** period of geologic time. It began about 444 million years ago and lasted until about 416 million years ago.
- **slate** A rock derived from the **metamorphism** of **shale**. Slate is harder and more durable than shale, but breaks easily into thin layers.
- stylolites Natural, irregular seams in limestone that formed where soluble material dissolved away, leaving a thin film of insoluble residue. Limestone is easily dissolved by weak acids. The dark color of stylolites is due to a concentration of the insoluble materials that remained behind.
- terra-cotta A baked clay used to make tiles, panels for building facing, and statuary.
- terrazzo Flooring composed of stone chips set in a cement matrix.
- till Generally unstratified material deposited by direct melting of a glacier.
- trace fossil A footprint, trackway, burrow, or other indirect evidence of a prehistoric organism. Trace fossils are distinguished from body fossils.
- **trade name** A manufacturer's name for a product, such as a building stone. The names *Amherst stone*, *Indiana limestone*, and *Rainbow granite* are examples of trade names. Such names are italicized in this report.
- **travertine** Freshwater **limestone** deposited by springs, commonly with the help of bacterial activity.
- **veining** Any type of planar or semilinear feature that appears to cross through a **building stone**. Such veining can be seen, for instance, in various veined **marbles**.
- wainscoting The lining of an inside wall, commonly the lower 3 feet/0.9 m or so, but may be higher. This term also is used to refer to the material used for the lining.

TABLE 1.—Simplified geological time scale showing the geologic periods during which building stones used in downtown Akron, and other rock layers and sediment noted in the text, were deposited or formed

Era	Period	Millions of years ago	Building stone/rock layer/sediment
CENOZOIC	Neogene	23	glacial deposits
CENOZOIC	Paleogene	65 —	Carrara marble, Red Levanto marble
	Cretaceous		
MESOZOIC	Jurassic	145 — 200 — 251 — 299 — 318 — 359 — 416 — 444 — 488 — 542	Botticino marble, Verona marble
	Triassic		Black and Gold (Portoro) marble
PALEOZOIC	Permian		Marietta sandstone (Constitution stone)
	Pennsylvanian		Massillon sandstone, Sharon Formation
	Mississippian		Cuyahoga Formation (Meadville Member and other units), Quincy Granite?, Salem Limestone (Indiana limestone)
	Devonian		Barre Granite, Berea Sandstone (Amherst stone, Buckeye Gray sandstone, Ohio sandstone, Peninsula sandstone, Silvertone Gray Amherst sandstone)
	Silurian		"Clinton" sandstone, Grimsby Sandstone (Medina sandstone), Salina Group
	Ordovician		Holston Formation (Tennessee marble), Vermont marble
	Cambrian		
PRECAMBRIAN		042	banded iron formation (BIF), Caledonia granite, Milbank Granite (Dakota Mahogany granite), Morton Gneiss (Rainbow granite), Rockville granite

Dates for the time scale are from Gradstein and others (2004). A question mark following a building stone name indicates uncertain age.

 $\begin{array}{c} \text{TABLE 2.--Summary of uses or occurrences, sources or locations, and ages of major types} \\ \text{of building stone or other types of stone or rock at stops 1-28 in this guidebook} \end{array}$ 

Stone, and/or rock unit	Use/occurrence	Source/location	Age
STOP 1.—NORTHERN TERMIN glacial boulder diabase and dolomite	IUS OF THE PORTAGE PATH historical marker railroad ballast	north of Ohio varies	unknown depends on source
STOP 2.—STAN HYWET HALL A	AND GARDENS outcrops, various structures including gateposts and fences	Akron	Pennsylvanian
Salem Limestone ( $Indiana\ limestone$ ) bluestone	gateposts manor steps	Bloomington-Bedford, Indiana probably northern Ohio	Mississippian probably
Berea Sandstone Verona marble Red Levanto marble Black and Gold (Portoro) marble	café porch trim well curb solarium flooring table tops	northern Ohio Verona area, Italy eastern Liguria, Italy probably La Spezia area, Liguria, Italy	Devonian Devonian Jurassic Paleogene probably Triassic
STOP 3.—OUTCROPS OF THE Sharon Formation	SHARON FORMATION, THE PORT outcrops, Perkins Stone Mansion, fences	AGE PATH, AND THE PERKINS STO Akron	NE MANSION Pennsylvanian
glacial boulders  Medina sandstone (Grimsby sandstone)	fences paving blocks	north of Ohio northwestern New York	unknown Silurian
STOP 4.—AKRON ZOOLOGICA Sharon Formation Massillon sandstone? Cuyahoga Formation	L PARK outcrops, ornamental stone welcome center landscape stone	Akron northern Ohio Akron region	Pennsylvanian Pennsylvanian Mississippian
STOP 5.—JOHN BROWN MONU Sharon Formation	JMENT outcrops and monument	Akron	Pennsylvanian
STOP 6.—GLENDALE CEMETE "Clinton" sandstone Sharon Formation	RY (AKRON RURAL CEMETERY) source of gas entrance pillar, monument bases,	beneath Akron Akron area	Silurian Pennsylvanian
Salem Limestone (Indiana limestone) Berea Sandstone Berea Sandstone (Amherst stone) Marietta sandstone (Constitution	Norris monument, etc. entrance pillars exterior of Memorial Chapel interior of Memorial Chapel trim of Memorial Chapel	Bloomington-Bedford, Indiana Peninsula, Ohio Amherst, Ohio near Constitution, Ohio	Mississippian Devonian Devonian Permian
stone) Holston Formation (Tennessee	gravestones and monuments	Knoxville area, Tennessee	Ordovician
marble) white marble	gravestones and monuments	Vermont and Carrara, Italy	Ordovician (Vermont), Paleogene (Carrara)
Barre Granite Quincy Granite banded iron formation (BIF)	gravestones and monuments gravestones and monuments Lane monument	Barre, Vermont Blue Hills area, Massachusetts probably Upper Peninsula of Michigan	Devonian Mississippian? Precambrian
STOP 7.—GLENDALE STEPS Sharon Formation	stonework	Akron	Pennsylvanian
STOP 8.—ST. VINCENT DE PAU Sharon Formation Berea Sandstone Verona marble Botticino marble	JL CHURCH original exterior stone post-1937 exterior stone interior interior	Akron South Amherst area, Ohio Verona area, Italy northern Italy	Pennsylvanian Devonian Jurassic Jurassic
STOP 9.—SUMMIT LAKE Salina Group	brine (salt)	below Akron	Silurian

 ${\it TABLE~2.-Summary~of~uses~or~occurrences, sources~or~locations, and~ages~of~major~types~of~building~stone~or~other~types~of~stone~or~rock~at~stops~1-28~in~this~guidebook—Continued}$ 

Stone, and/or rock unit	Use/occurrence	Source/location	Age
STOP 10.—CANAL PARKS, LOC Massillon sandstone Sharon Formation	CKS 2 AND 3  Lock 2 reconstruction original canal stone	northwestern Coshocton County Akron	Pennsylvanian Pennsylvanian
STOP 11.—MUSTILL STORE AN	 ND LOCKS ALONG TOWPATH IN C	ASCADE VALLEY METRO PARK	
Sharon Formation	original locks, lower part of Mustill Store	Akron	Pennsylvanian
STOP 12.—RAILWAY BRIDGES Sharon Formation	NEAR THE CANAL bridge supports	Akron	Pennsylvanian
STOP 13.—OLD STONE SCHOOL Sharon Formation	LHOUSE most of exterior	Akron	Pennsylvanian
STOP 14.—SAINT BERNARD'S Berea Sandstone (Peninsula stone) Carrara marble Siena marble	CHURCH exterior altars and statuary ornamentation	Peninsula, Ohio Carrara area, Italy Siena area, Italy?	Devonian Paleogene uncertain
STOP 15.—SIMON PERKINS Me Quincy Granite	ONUMENT   statue base	Blue Hills area, Massachusetts	Mississippian?
STOP 16.—SUMMIT COUNTY C Berea Sandstone (Ohio sandstone) Salem Limestone (Indiana limestone) white marble Holston Formation (Tennessee marble) Milbank Granite (Dakota Mahogany granite)	exterior of building statuary (human figures and lions) interior stairs bases of busts	South Amherst, Ohio, area south-central Indiana probably Vermont Knoxville area, Tennessee Milbank, South Dakota	Devonian Mississippian Ordovician? Ordovician Precambrian
STOP 17.—OLIVER R. OCASEK Caledonia granite	   GOVERNMENT OFFICE BUILDIN   exterior	 IG   Rivière-à-Pierre region, Quebec	Precambrian
STOP 18.—MUNICIPAL BUILD Berea Sandstone (Buckeye Gray sandstone; Silvertone Gray Amherst sandstone)	exterior	South Amherst area, Ohio	Devonian
Holston Formation (Tennessee marble)	walls, stairs	Knoxville area, Tennessee	Ordovician
STOP 19.—SBC BUILDING Salem Limestone (variegated Indiana limestone)	exterior	Bedford area, Indiana	Mississippian
travertine	lobby	unknown	unknown
STOP 20.—CASCADE PLAZA Rockville Granite travertine Butterfly Green granite	trim lobby of National City Center lobby of National City Center	Rockville, Minnesota Italy, at least in part Brazil	Precambrian Neogene unknown
STOP 21.—FIRST NATIONAL T granite Salem Limestone (Indiana limestone) Holston Formation (Tennessee marble)	OWER BUILDING base of building part of exterior lobby	Minnesota? south-central Indiana eastern Tennessee	unknown Mississippian Ordovician
Rockville Granite (Rockville thermal, Rockville Beige granite)	AND FEDERAL OFFICE BUILDING  exterior and lobby	Rockville, Minnesota	Precambrian
Barre Granite	sculptural pieces	Barre, Vermont	Devonian

TABLE 2.—Summary of uses or occurrences, sources or locations, and ages of major types of building stone or other types of stone or rock at stops 1-28 in this guidebook—Continued

Stone, and/or rock unit	Use/occurrence	Source/location	Age
Stop 23.—EVERETT BUILDING Sharon Formation	carvings and trim	Akron	Pennsylvanian
STOP 24.—SOJOURNER TRUT	 H BUILDING, SITE OF THE ORIGI	I NAL STONE UNITARIAN UNIVERSA	LIST CHURCH
probably Sharon Formation	exterior of church	probably Akron	Pennsylvanian
STOP 25.—EAST OHIO GAS (BI	 MB) BUILDING		
Morton Gneiss (Rainbow granite)	lower portion of exterior	Morton, Minnesota	Precambrian
Salem Limestone (Indiana Limestone)	upper portion of exterior	south-central Indiana	Mississippian
STOP 26.—CARNEGIE BUILDI	l NG		
Berea Sandstone (Ohio sandstone; Gray Canyon stone)	exterior	Amherst area	Devonian
Salem Limestone (Indiana limestone)	exterior stairway	south-central Indiana	Mississippian
STOP 27.—QUAKER SQUARE			
Berea Sandstone	millstones/hulling stones	Peninsula	Devonian
Sharon Formation?	foundation stone	Akron	Pennsylvanian
limestone	lobby of hotel complex	Europe?	Mesozoic
STOP 28.—UNIVERSITY OF AK	I TRON SITES		
${\bf Salem\ Limestone}\ (Indiana\ limestone)$	exterior of Crouse Hall and Zook Hall, columns by amphitheater, 1907 church building, etc.	south-central Indiana	Mississippian
glacial boulders	scattered decorative stones	varies (brought from the north by glaciers)	varies
Rockville Granite (Rockville White	National Historic Chemical	Rockville, Minnesota	Precambrian
granite)	Landmark		
Barre Granite	Buchtel statue	Barre, Vermont	Devonian
Milbank Granite (Dakota Mahogany granite)	statue base, fountain	Milbank, South Dakota	Precambrian
limestone	interior of Carrroll Hall, etc.	unknown	unknown
Sharon Formation	Hower House area	Akron	Pennsylvanian
sandstone	1885 chapel	northeastern Ohio	Pennsylvanian

A question mark following an entry indicates uncertainty.

## TABLE 3.—Trade names and rock-unit names of building and ornamental stones and the buildings and other structures for which they are used, or locations of their use, in Akron

Building, structure, or location

Building stone

Amherst stone (Berea Sandstone) banded iron formation (BIF)

Barre Granite

Berea Sandstone (Amherst stone, Buckeye Gray sandstone, Gray Canyon stone, Ohio

sandstone, Peninsula sandstone, Silvertone

Gray Amherst sandstone)

Black and Gold (Portoro) marble

Botticino marble

Buckeye Gray sandstone (Berea Sandstone)

Caledonia granite

Constitution stone (Marietta sandstone) Carrara marble

Cuyahoga Formation

Dakota Mahogany granite (Milbank Granite)

glacial boulders

Gray Canyon stone

Grimsby Sandstone (Medina sandstone)

Holston Formation (Tennessee marble) Indiana limestone (Salem Limestone) Marietta sandstone (Constitution stone)

Massillon sandstone

Milbank Granite (Dakota Mahogany granite) Medina sandstone (Grimsby Sandstone)

Morton Gneiss (Rainbow granite)

Ohio sandstone (Berea Sandstone)

Peninsula stone (Berea Sandstone)

Portoro (Black and Gold) marble

Rainbow granite (Morton Gneiss) Quincy Granite

Rockville Granite (Rockville thermal) Salem Limestone (Indiana limestone) Red Levanto marble

Sharon Formation

Silvertone Gray Amherst sandstone Siena marble

Tennessee marble (Holston Formation)

variegated Indiana limestone (Salem travertine

Vermont marble Verona marble Limestone)

Glendale Cemetery

Glendale Cemetery

Glendale Cemetery, U.S. Courthouse and Federal Office Building, The University of Akron

Akron streets, Carnegie Building, Glendale Cemetery, Municipal Building, Quaker Square, St. Bernard's Church, Stan Hywet Hall & Gardens, Summit County Courthouse

Stan Hywet Hall & Gardens

Stan Hywet Hall & Gardens

St. Vincent de Paul Church

Municipal Building

Oliver R. Ocasek Government Office Building

Glendale Cemetery, St. Bernard's Church

Glendale Cemetery

Akron Zoo

The University of Akron

Portage Path?, Perkins Stone Mansion grounds, The University of Akron

Carnegie Building

Akron streets, Perkins Stone Mansion driveway

Carnegie Building, East Ohio Gas (BMB) Building, First National Tower, Glendale Cemetery, SBC Building, Stan Hywet First National Tower, Glendale Cemetery, Municipal Building, Summit County Courthouse

Hall & Gardens, Summit County Courthouse, The University of Akron

Glendale Cemetery

Akron Zoo?, Lock 2

Akron streets, Perkins Stone Mansion driveway

Summit County Courthouse, The University of Akron

East Ohio Gas (BMB) Building

Summit County Courthouse St. Bernard's Church

Stan Hywet Hall & Gardens

Glendale Cemetery, Simon Perkins Monument

East Ohio Gas (BMB) Building

Stan Hywet Hall & Gardens

Cascade Plaza, First National Tower?, U.S. Courthouse and Federal Office Building, The University of Akron

Carnegie Building, East Ohio Gas (BMB) Building, First National Tower, Glendale Cemetery, SBC Building, Stan Hywet

Hall & Gardens, Summit County Courthouse, The University of Akron

locks, Old Stone Schoolhouse, Perkins Stone Mansion, Quaker Square?, railway bridges near the canal, St. Vincent de Paul Akron Zoo, Canal Park, Everett Building, Glendale Cemetery, Glendale Steps, John Brown Monument, Mustill Store and Church, Stan Hywet Hall & Gardens, the original Unitarian Universalist Church?, The University of Akron

St. Bernard's Church

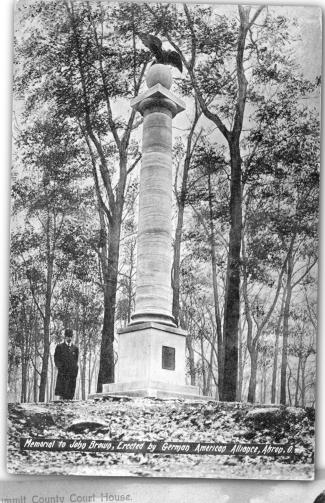
Municipal Building

First National Tower, Glendale Cemetery, Municipal Building, Summit County Courthouse Cascade Plaza, SBC Building

SBC Building

Glendale Cemetery, Summit County Courthouse? Stan Hywet Hall and Gardens

A question mark following an entry indicates uncertainty.





Two early 1900s postcards showing views of Akron. The top view shows the John Brown Monument (Stop 5). This monument consists of a sandstone base and a column from the old Summit County Courthouse. The column is topped by a sandstone ball. A bronze eagle (shown here) once was attached to the ball. The bottom postcard shows, from left to right, the 1908 Summit County Courthouse (Stop 16), the fortresslike old county jail (no longer standing), St. Bernard's Church and school (Stop 14), and the old Summit County Courthouse (round inset), whose constuction began in 1842 and which was completed in 1843. The view is to the southeast.

