

GLENFORD STONE "FORT" AND OTHER STONE CONSTRUCTIONS IN OHIO AND BEYOND

NORMAN MULLER

When we think of the ancient history of Ohio, the Mound Builders come to mind, particularly the spectacular geometric earthen mounds that the Hopewell Indians constructed two thousand years ago in and around the town of Newark. Except for the Great Circle and the Octagon, the latter of which is part of a municipal golf course and was preserved because of it,¹ nearly all of the other features within Newark and beyond were obliterated in the nineteenth century for agricultural purposes. Less well known are those structures and walls built completely of stone or a composite of earth and stone. Glenford "Fort" was constructed entirely of stone, and it is the main subject of this paper. But we find other structures in Ohio also built of stone, some wholly and others partly. Together, these stone structures are but a small sampling of similar walled features found throughout the Midwest and South. By presenting a body of data showing Indian stone construction throughout the eastern half of the United States, as this article attempts to do, they counter the view held by many archaeologists in the Northeast that the Indians had no stone building technology until they were taught how to pile stone by English colonists in the seventeenth century.

STONE "FORTS" IN OHIO

A number of stone walled sites in Ohio have been described in books and articles, although they are not well known to non-specialists.² Philip Smith, in his impor-

tant study of aboriginal stone wall sites in Georgia and neighboring states, listed six stone wall sites in Ohio, four of which were built with a mixture of earth and stone. They were: Butler County site near the Great Miami River, Miami County site on the left bank of the Great Miami River, Fort Hill, and the Spruce Hill Works.³ Two other sites did not make Smith's list: the Stone Fort on Flint Ridge, and the Pollock Site. First, though, let us look at Spruce Hill Works and Fort Hill in a bit more detail:

Spruce Hill Works in Ross County (FIGURE 1) is a large 140-acre hilltop with a two-and-a-quarter mile long stone wall around the perimeter, which was originally

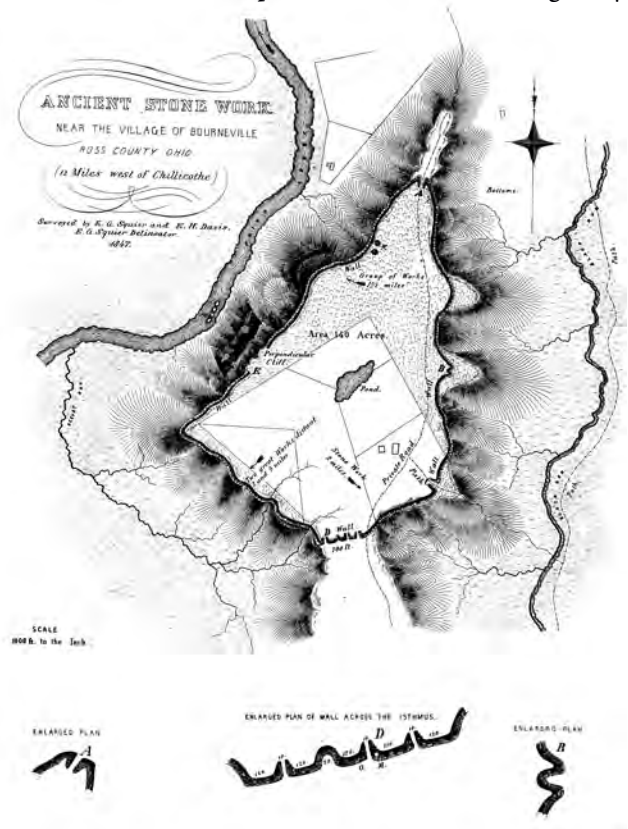


FIGURE 1. SPRUCE HILL WORKS IN ROSS COUNTY, OHIO.

1. Bradley T. Lepper, "The Newark Earthworks" in *Hero, Hawk and Open Hand: American Indian Art of the Ancient Midwest and South*, eds. Richard F. Townsend and Robert V. Sharp, New Haven and London 2004, 73-81. See also E.G. Squier and E.H. Davis, *Ancient Monuments of the Mississippi Valley*, NY 1848, Pl XXV facing 67 and 67-72.
2. Philip E. Smith (Part II: "Aboriginal Stone Constructions in the Southern Piedmont," University of Georgia Laboratory of Archaeology Series, Report No. 4, March 1962, 44) describes two stone wall sites in Ohio: one in Jefferson County consisting of two stone walls across a narrow neck of a ridge, one 175 feet long and the other 425 feet. The second was in Preble County, and consisted of a wall or

- line of stones 700 feet long and 12 feet wide.
3. Smith (as in note 2), 44.

faced with sandstone blocks.⁴ Squier and Davis measured the “wall” in 1847 at four feet high and fifteen to twenty feet in width. In 1995 and 1996, personnel from the Hopewell Culture National Historic Park conducted test excavations near “one of four opening or gateways at the southern end of the site.”⁵ As summarized in a report, they concluded “the size and distribution of the stones used to construct the gateway provide evidence of intentional design: the bulk of the feature is constructed of small, rubble-sized stones while the outer surfaces are faced with large tabular blocks, perhaps to stabilize the structure or modify its outward appearance.”⁶

Fort Hill in Highland County, Ohio, was investigated by Olaf Prufer in 1964, during which he determined the stratigraphy of one of the walls. He concluded there were two phases of construction. The “inner core wall was covered by a single layer of large, more-or-less dressed, flat sandstone slabs,” and the outer wall was also covered with “a ballast of large sandstone slabs which followed the contour of the surface...These slabs ranged from 0.1-2.6 ft in maximum dimension. From the arrangement of these slabs and the way that they were cut...they were purposely fitted to form a ballast or pavement. The ballast was layered and formed a covering from 3 to 4 slabs thick.”⁷

“Stone Fort on Flint Ridge,” a stone enclosure in Licking County, Ohio, was first described in Cyrus Thomas in 1894 (FIGURE 2)⁸. Within the enclosure on Flint Ridge were two earthen mounds, the larger one of which was called the Hazlett Mound. It measured approximately 90 feet in diameter and 13 feet high, having the shape of a “flattened cone.” In a 1921 report on the mound,⁹ an excavation uncovered the remains of a flint

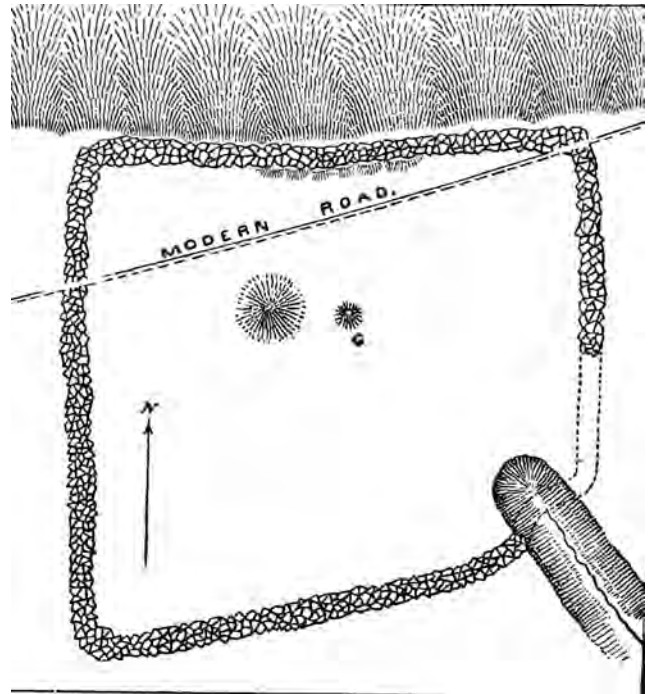


FIGURE 2. “STONE FORT ON FLINT RIDGE,” FIRST DESCRIBED IN 1894 BY CYRUS THOMAS.

walled house 37 feet square, with an interior dimension of approximately 16 feet. The walls were perpendicular and were approximately six feet high and gradually sloped to the ground on the outside, but were perpendicular on the inside (FIGURE 3). Within the walls were two skeletons with artifacts attesting to the structure’s Hopewell cultural affiliation and date. The wall surrounding the mound was a substantial 20 to 30 feet wide and from 1 to 2 feet high, with the wall segments being from 422 feet long to 607 feet long.¹⁰

Robert Riordan first began to excavate the Pollock Works in the early 1980s,¹¹ and described some of his findings in 1998.¹² More recently he presented new information on the site, concluding that the embankments on

4. Squier and Davis (as in n.1), PL IV facing 10, and 11-14.
 5. Hopewell Archaeology: The Newsletter of Hopewell Archaeology in the Ohio River Valley, Vol. 2, No. 2, October 1997 (<http://www.nps.gov/history/mwac/hopewell/v2n2/doc/v2n2.pdf>).
 6. Ibid.
 7. Olaf H. Prufer, “Fort Hill 1964: New Data and Reflections on Hopewell Hilltop Enclosures in Southern Ohio,” Ohio Hopewell Community Organization, eds. William S. Dancey and Paul J. Pacheco, Kent & London, 1997, 311-327, esp. 318-319.
 8. Cyrus Thomas, “Report on the Mound Explorations,” Bureau of American Ethnology, 469.
 9. William C. Mills, “Flint Ridge,” Ohio Archaeological and Historical Publications, Vol. XXX, 1921, 139-143.

10. A later examination of the Hazlett Mound was made in 1967 (Jeff Carskadden and Donna Fuller, “The Hazlett Mound Group,” *Ohio Archaeologist*, 17/2, 1967, 139-143. They review previous literature on the mound and conclude from the evidence that the stone mound and the Hazlett Mound were constructed by the Hopewell people.
 11. Pollock Works were first described by Squier and Davis in 1848 (as in note 1), 33-34 and PL XII, No. 3, p.31.
 12. Robert V. Riordan, “Boundaries, Resistance and Control: Enclosing the Hilltops in Middle Woodland Ohio,” *Ancient Earthen Enclosures of the Eastern Woodlands*, eds. Robert C. Mainfort and Lynne P. Sullivan, Gainesville 1998, 68-84.



FIGURE 3. REMAINS OF HAZLETT MOUND FLINT-WALLED HOUSE.

the west side were “intentionally remodeled...to cause it to better resemble, and thereby to more properly become, an elevated space that was considered to be divorced from its surrounding landscape: a hilltop effigy, if you will.” An U-shaped embankment between the north and central gateways at the west end of the site was dug into, and Riordan found five separate construction layers, the top four of which were capped with slabs of limestone. From the trench that was cut through the embankment, Riordan and his crew excavated 1400 stones, each of which was weighed. The total weight of the stones was around 4.6 tons, and the average stone weighed three kilograms (one kg = 2.2 lbs). Of the large stones that were found, “one hundred and twenty rocks weighed 10 kg or more, including 78 that were between 10 and 20 kg, and 21 that weighed more than 30 kg.” These, Riordan determined, came from an exposed limestone outcrop in a gorge upstream, .5 to 1 km away and down slope from where they were found. One large block weighed 127 kg which Riordan’s workers had difficulty moving down slope!¹³ Riordan initially couldn’t understand why the builders felt compelled to move a stone weighing 127 kg (279 lbs) three quarters of a mile up slope to a site where it was to be placed. In the end, Riordan concluded that the rocks served an aesthetic and symbolic effect, and suggested to viewers that the western end of the site, where the slope was gradual, was visually enclosed by rock-faced embankments that blended into the rocky cliffs which defined the remaining perimeter of the

13. Robert V. Riordan, “Enclosed by Stone,” *Hopewell Settlement Patterns, Subsistence, and Symbolic Landscapes*, eds. A. Martin Byers and DeeAnne Wymer, Gainesville 2010, 215-229.

site.¹⁴ As Byers noted in his commentary to Riordan’s article, the act of moving rock could be seen as “a form of sacred activity...a type of ordeal ritual, possibly a rite of passage by which the laborers achieved a new social status and recognition.”¹⁵

GLENFORD FORT

Ten years ago I had not heard of the Glenford stone fort when I began to search for evidence of Indian stone construction outside the New England area. Archaeologists within New England (and even outside) were quite dismissive of any attempt to demonstrate the Indians constructed with stone before the European invasion of the seventeenth century. They were of the view that American Indians in the Northeast had no stone building technology before the Europeans invaded in the seventeenth century, and that any odd stonework had to be colonial. To me, the idea that the Indians did not construct with stone seemed odd, even impossible, since I knew from many articles and books I had read that they did so outside New England. And it seemed logical and important to counter this view held by many archaeologists by providing documented examples of American Indian stonework, supported by maps, photographs and documentary evidence, which could, over time, shift the paradigm to a point where differing ideas could be judged on their merits. This, then, was the reasoning behind researching the Glenford Stone Fort. Today the well preserved fort is on private land owned by Elizabeth Cooperrider, and it has been in the same family since 1831.

Early History of the “Fort”

Ohio was settled by veterans of the Revolutionary War at the end of hostilities in the 1780s. These early settlers began to take notice of the amazing geometric earthworks, and the more educated among them sent reports describing their finds, along with drawings of them, to newspapers and magazines on the East Coast. One of these early settlers in Ohio was Caleb Atwater, who was born in North Adams, Massachusetts, and educated at Williams College. After a spoiled business deal in New York City, he left for Circleville, Ohio, in 1815 with his large family, where he intended to open a

14. *Ibid*, 221.

15. A. Martin Byers, “Commentary on Robert V. Riordan’s ‘Enclosed by Stone,’ in *Hopewell Settlement Patterns, Subsistence, and Symbolic Landscapes* (as in note 13), 246.

law practice. But the mystery of the earthworks in the town and elsewhere got the better of him, and he spent much of his spare time exploring the earthworks from one end of the state to the other, taking notes and making sketches of what he saw. In 1818 he visited the town of Glenford, 6.4 miles south of Newark, and saw the flat-topped mesa with the stone wall tracing the summit perimeter.

Atwater's description of the Glenford Fort, along with an engraving of it, was published in the first volume of *Archaeologia Americana*, in 1820.¹⁶ Atwater's map of the structure was schematic, and must have been based on few and rather inaccurate measurements, clearly demonstrating he didn't spend much time there (FIGURE 4), probably because the area within the walls was fully wooded at that time. In any event, Atwater described the mound at M as being twelve to fifteen feet in height. He also pointed out a gateway at G and a square earthen enclosure at S. The walls he said, consisted of stones lying "in the utmost disorder, and if laid up in a regular wall, would make one seven feet or seven feet six inches in height, and from four to six feet in thickness."¹⁷ Interestingly, Atwater did not believe the walled structure was used for defensive purposes. Rather, he concluded, the work probably was "a sacred enclosure, or 'high place, which was resorted to on some great anniversary.'"¹⁸

Other visits followed. Charles Whittlesey's 1838 engraving of the "fort" was reproduced in the third volume of the *Smithsonian Contribution to Knowledge* (FIGURE 5). While his map was a bit more accurate, he admitted that the "sketch was made by examining the perimeter in detail, and noting its parts by the eye, and short measurements; its dimensions are, therefore, not strictly exact."¹⁹ Undoubtedly the extensive tree cover, illustrated in the map, limited what surveying he could do. He described the large stone mound at m, and an entrance at c, in the northwest corner. And, unlike Atwater, he was convinced that it functioned as a fortress.²⁰

16. Caleb Atwater, "Description of the Antiquities Discovered in the State of Ohio and Other Western States," *Archaeologia Americana*, 1 (1820), 131-133.

17. *Ibid.*, 132.

18. *Ibid.*, 132.

19. C. Whittlesey, "Descriptions of Ancient Works in Ohio," *Smithsonian Contributions to Knowledge*, Vol. III, Washington, D.C., 1850, 14.

20. Squier and Davis (as in n.1) briefly mentioned the Glenford Fort on 131.

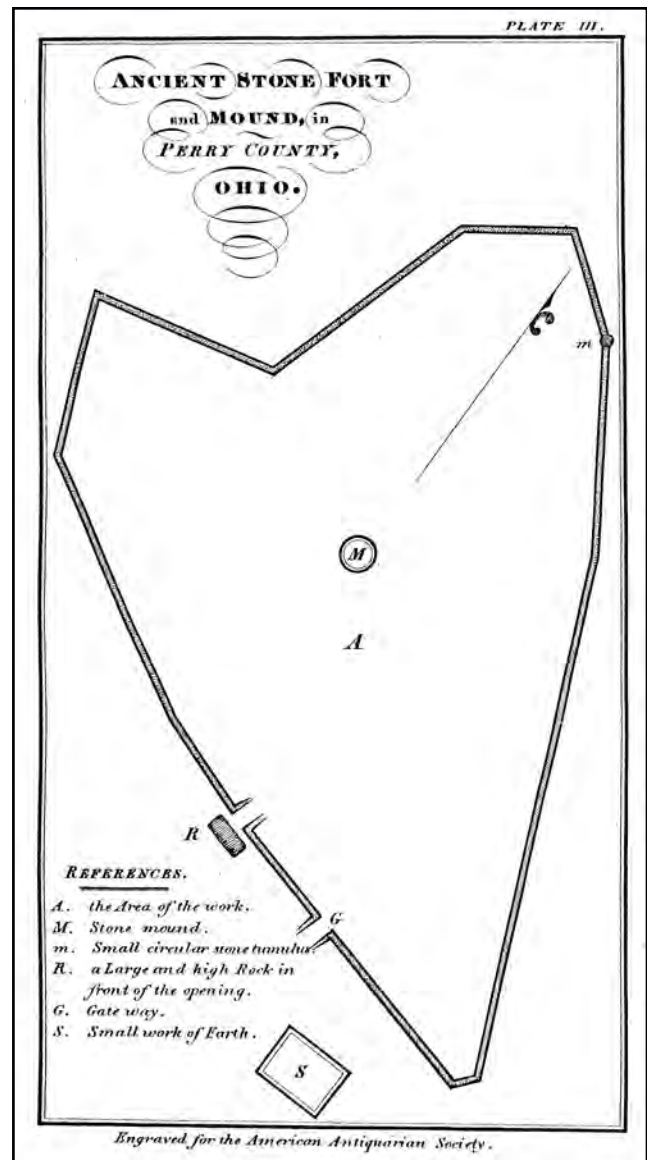


FIGURE 4. ATWATER'S 1820 MAP OF GLENFORD FORT.

According to an unidentified document from around 1860 in the Case Western Reserve Historical Society, David Wyrick, a Licking County surveyor, and Dr. Joseph S. Unzicker, a Cincinnati physician, surveyed the site on September 5, 1860, and produced a map, a copy of which is hand drawn in the document (FIGURE 6).²¹ The notation beside the mound mentioning that the large stone mound was 220 feet in diameter and 22 feet high, is all

21. The hand drawn map is found in the Joseph S. Unzicker Scrapbook, 1849-1869, which is housed in the Case Western Reserve Historical Society in Cleveland. The map appears to be in the Wyrick's hand, since a notation below the map, referring to the Whittlesey map of 1838, says "Mr. Unsicker will copy and send to me."

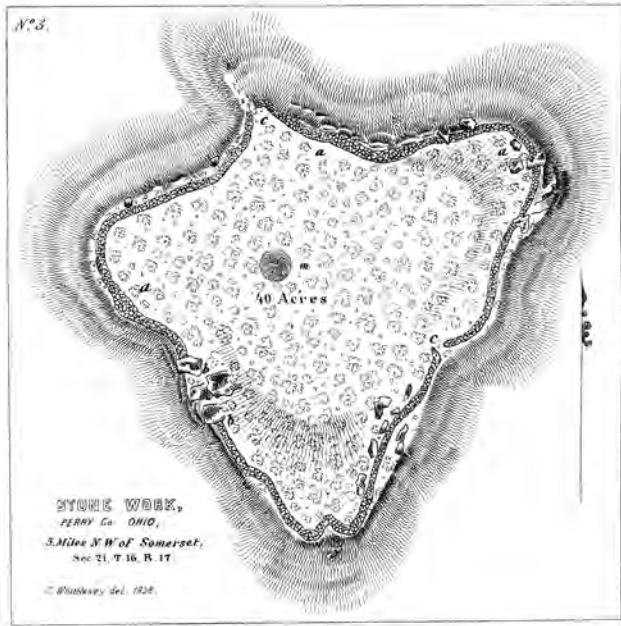


FIGURE 5. CHARLES WHITTLESEY'S 1838 ENGRAVING OF THE "FORT."

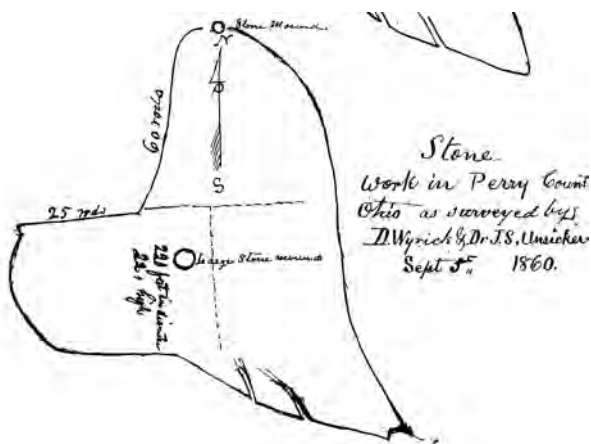


FIGURE 6. WYRICK AND UNZICKER 1860 SURVEY MAP.

but useless. However, the map is a slight improvement on Atwater's and better than Whittlesey's.

Approximately three years later, James Salisbury visited the site and made the first accurate map of it (FIGURE 7), describing it in detail in an unpublished report that was submitted to the American Antiquarian Society in 1863. Jacob Cooperrider, whom Salisbury met on his visit, had been co-owner of the property since 1831, and the summit was partially cleared of trees by the time of Salisbury's visit, evidently for agricultural use. The part that was still wooded was confined to an area east and south of the large mound. This somewhat unrestricted view Salisbury had of the entire summit enabled him to

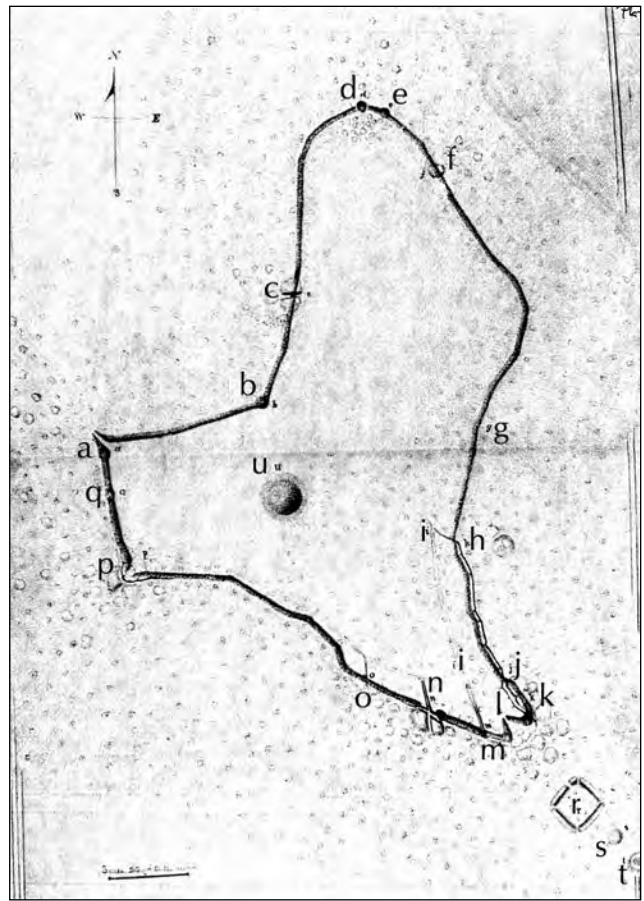


FIGURE 7. James Salisbury map ca 1863 (Salisbury's LETTER ANNOTATIONS ENHANCED FOR CLARITY).

draw an accurate map of the hilltop and the stonework, which is the best currently available. Salisbury described the enclosure as follows:

"Ancient Stone Fortification; Perry County

"This extensive Hill Fortification (FIGURE 37. Pl X) is situated 24 poles west of the South East Corner of S.17, I 17, R16, -- Hopewell Township, Perry County, Ohio; upon the lands of Jacob Cooperrider and Austin Smith. The hill is one of the highest in that vicinity, rising about 300 feet above the broad and fertile valley of Jonathans Creek & capped by a thick stratum of conglomerate sandrock that underlies the Ohio Coal field. A few feet below the nearby level summit, the rock crops out around the brow of the hill, forming cliffs in many places, from 10 to 20 feet in height. The area within the artificial wall; - is mostly composed of a rich clay loam, so common in this part of Ohio; - A large portion of which area has been cleared and is now under cultivation.

At some remote period, the crowning rock of this hill, like that of many others along this conglomerate ridge, being undermined by the action of water along its outcropping edges, slid from its native bed, or tumbled down the steep declivity in huge masses, thus forming fosses, fissures and cliffs, which when improved by art, as in this case, afforded a stronghold of no mean character – considering the arms used in ancient warfare. Just below the brow of the hill an along the edge of the outcropping rock, an artificial wall of masses of sandstone in the rough extends around the entire summit area. This wall, at the present time; presents no apparent order, exhibiting no signs of the use of the gavel, chisel, trowel or the plummet in its construction; being simply a long pile of rough stones, such as a single individual could easily handle. The base of the wall is generally about 20 feet in breadth, and its height from three to six feet. Composing its circumference, there are 48 different courses, -- its longest diameter extending north and south.

“At *p* there is no wall for a short distance, - it being unnecessary on account of a perpendicular cliff below, from which huge masses of rock have been broken, some of which have slid down the hill a short distance, whilst others have tumbled far below. Thence from *p*, the wall extends in a northerly direction 198 feet to *q* – a mound like enlargement of the wall, - thence to the northwestern gateway at *a* – 178 feet. This gateway is formed by the wall on each side of the corner, extending outward and approaching each other, leaving a narrow passage at their extremities without, which passage widens rapidly within; - thus affording the occupants great advantage over a foe without. At the base of the western area of the gateway, is an elevation in the wall, or sentinel station, overlooking the gradual but steep descent.

“From *a* – the wall extends in an easterly direction 458 feet to the corner *b* – where there is a mound about 10 feet in height. This line of wall is much heavier than in other parts. Thence the wall extends nearly north 396 feet to *c* – at which place it passes over two large rocks separated by a fissure, in which are piled

stones. A little south of this, in a depression of the hill slope, the wall has tumbled down the declivity, and lays scattered for some distance. From *c* the wall continues nearly in the same direction 366 feet, thence extending North Easterly 264 feet to an observatory mound at the northern extremity *d*. On each side of this mound is a narrow pass way. Within are some 15 isolated rocks from 10 to 20 feet in diameter, and rising from 4 to 6 feet above the surface, which might serve as convenient breastworks to the occupants, in the defense of this point. At *e* about 66 feet from *d* on the wall extending South East, is another small mound. From *e* – 198 feet distant – the wall continuing South East – is a large detached rock, over which it passes; below which are scattered several other large rocks.

“The wall on the East Side of the fortification is not as heavy as on the other sides, probably on account of a steep declivity or bench some 40 feet in height, running nearly parallel with the fort wall & from 10 to 15 rods below, between which and the wall the descent is gentle. The wall, somewhat low and scattered, continues nearly in the same direction from *f* 462 feet, thence turning west of South to *g* – 297 feet, where occurs a slight depression & ravine in the hillside. On this line, the wall is missing for several rods in one place, probably having been taken away for building purposes in modern times.

“Thence from *g* – the wall continues west of South 462 feet to *h*. At this point, a perpendicular cliff commences, from 6 to 15 feet in height, continuing 371 feet, nearly in a straight line to *i* – bearing East of South – on the brow of which the wall is built. The whole distance of this line, & extending to the southern wall, the outcropping sand rock from 4 to 6 rods wide, has slid down the hill, leaving a fosse or ditch *i-i* from 3 to 4 rods wide within – presenting the appearance of an empty canal. This natural fosse, was undoubtedly of service in the defense of the South Western gateway, in which direction the ridge extends. A short distance below, are two large isolated rocks, upon one of which a tree is standing.

“From *j* to the southern angle of the gate wall, distant 132 feet, a long mass of rock has slid still farther from its native bed. Across this fissure thus formed at *j* – the wall is carried. It also extends over the top of this isolated rock at *k* – recrossing the fissure near the gateway, thus leaving a long deep channel behind the wall and within bow shot of the gateway. The gateway at *l* opens inwardly – the walls forming which, being respectively 86 & 41 feet in length – presenting a wide entrance without, but very narrow within. At the junction of the gate walls with the fort walls, on each side are enlargements or small mounds.

“Immediately in front of the gateway, is a group of jagged & moss-covered rocks, with passage ways winding between.

“The fissure *m* – distant 66 feet from the gateway is a continuation of *i-i* and is blocked up with slabs. Thence the wall continues 198 feet to the high cliff, at the large fissure *n* on both sides of which there is no wall for 50 feet.

“This fissure, forming an admirable covered entrance, is about 10 feet wide, from 15 to 20 feet high at its mouth and extends inwardly in a diagonal direction about 70 feet, terminating with a slight grade to the surface within. Some 20 feet below the cliff, at the fissure – are two huge portal rocks, separated by a long and narrow passage, mostly in line with the fissure. Between these rocks and the cliff is a broad passage winding around the rocks, looking wild and gloomy beneath the dark shades of the forest. From *n* to the fissure *o* 141 feet distant, the wall passes along the brow of the cliff, thence 594 feet to a slight turn, thence 264 feet to the beginning, making its entire circumference 5288 feet, or 8 feet over one mile – measuring on the wall – and containing an area of nearly 28 acres.

“From the corner *b* South $7\frac{1}{2}^{\circ}$ East and distant 23 poles from the middle of the wall *a-b* – is a stone mound on the high ground of the enclosure, 110 feet in diameter and 15 feet high, around which is a broad band of sand rocks, piled from one to two feet high and 15 feet wide. Directly fronting the South Eastern gateway, 75

paces distant, is a rectangular earth enclosure, with rounded corners, in which are narrow openings. Its main gateway is in its north west side, near the north corner opening, towards the entrance of the stone fort. It is formed of an earth embankment now 2 feet high, and a ditch within, enclosing an area 40 paces in diameter from center to each of its walls. East of this enclosure, 27 paces is an earth and stone mound 48 feet in diameter and 6 feet high, a short distance south east of which, is a large rock, upon which are piled stone.

“This fortification contains 27 acres 3 rods & 15-75/100 poles.”²²

A description of the “fort” was provided by E.S. Colburn in 1883, after contacting John H. Shearer, an editor of the *Marysville Tribune*, who had visited the site.²³ In the 1880s the wall was described as one having been “eight or ten feet high, sufficient to debar a foe from entering. The walls, however, are demolished, the stones thrown down and scattered, and many of them have been hauled away we learn for various purposes.” He then described the entrance to the fort on the southeast side, which is “cut through a solid sand rock,” and added that “a few rods west of this entrance there is another entrance of about the same dimensions, and no doubt used for the same purpose.” As for the large stone mound, Shearer mentioned that “Man prompted by curiosity, has displaced the stone and disfigured the pile, expecting perhaps to find some hidden treasure deposited there.”²⁴

Then in 1894, Cyrus Thomas published a map and an account in the Bureau of American Ethnology 12th Annual Report.²⁵ The fort was illustrated as FIGURE 319 (FIGURE 8), and various features along its length were described, particularly the main entrance in the southeast corner and the large stone mound, which was measured as 100 feet in diameter and 12 feet high. “The entire length

22. Dr. James H. Salisbury, Charles B. Salisbury, “Ancient Monuments and Inscriptions of and near the Summit Between the Head Waters of the Hocking and Licking Rivers, Ohio,” James H. Salisbury Papers, Folder 4, 1863. American Antiquarian Society, Worcester, MA.

23. Fide John H. Shearer, in Graham, A.A., *History of Fairfield and Perry Counties, Ohio. Their Past and Present*, Chicago 1883, 196-197.

24. *Ibid*, 197.

25. Cyrus Thomas, “Report on the Mound Explorations,” 470-471.

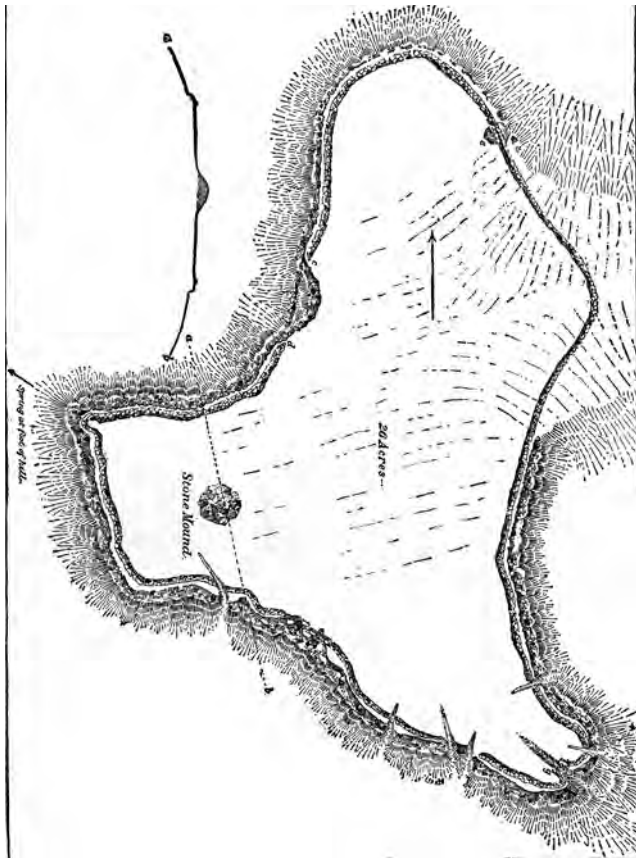


FIGURE 8. CYRUS THOMAS 1894 MAP. *BUREAU OF AMERICAN ETHNOLOGY 12TH ANNUAL REPORT*

of the wall, following all the curves and bends, is 6,610 feet, and the area embraced about 26 acres.”²⁶

THE FORT TODAY

In March 1980, the Ohio Historic Preservation Office undertook a limited archaeological inventory of the site, focusing on a small stone mound, 25 feet in diameter and 2.5 feet high, which they located along the southern edge of the stone wall, and appeared to be distinct from the wall. The survey also attempted to find the small square earthen enclosure beyond the southeastern entrance that Salisbury had described and illustrated, but they failed to do so.

Using the Salisbury map, and its detailed descriptions, I visited the site on April 8, 2008, having obtained permission beforehand from Mrs. Elizabeth Cooperrider to visit and study the fort.

A dirt road leads up the hill from the Cooperrider residence, and then turns left (north) up a more gradual

26. *Ibid.*, 471.

slope to enter the hilltop just north of point C on the Salisbury map. Not quite sure where I was on the Salisbury map when I arrived at the summit, I followed what remained of the wall north to a mound of stone, which I later determined was point d on the map, and then followed the wall to point j, when I decided to head directly toward the stone mound at u on the map. Unlike the photograph of the eastern wall looking south that Fowke had taken in 1902 (FIGURE 9)²⁷, which showed the land very open, with the low wall well defined, brush and briars have grown up around the wall, making it difficult at times to see and trace.



FIGURE 9. 1902 PHOTOGRAPH OF EASTERN WALL. FOWKE

The Glenford “Fort” Hill is mesa-like, rising 160 feet above the surrounding terrain on the west to a flat-topped summit 1100 feet above sea level. Geological maps refer to the bedrock as sedimentary, consisting of Maxville Limestone with Logan and Cuyahoga Formations (undivided), the latter two being bedded sandstone. While the slopes on the west, north and east are fairly gradual, with only small sections of sandstone outcrop being exposed, that along the southern edge of the hill is quite different, with long, high sections of sandstone bedrock presenting an impressive façade, fifteen and more feet high, punctuated by several long, wide vertical fissures in the stone (FIGURE 10). As Doug Shrake of the Ohio Department of Natural Resources pointed out, the wide splits in the rock were probably caused by glacial ice filling the narrow joints and then pushing them apart, such as we find in FIGURE 11.²⁸ The huge blocks of stone that broke off and now look like large islands in front of

27. Gerard Fowke, *Archaeological History of Ohio: The Mound Builders and Later Indians*, Ohio State Archaeological and Historical Society, Columbus, 1902.

28. Personal correspondence, 18 June 2010.

the southern edge of the hill (FIGURE 12), can probably be explained by periglacial activity at the end of the last ice age. We can imagine that ancient Indians, seeing this awesome and rather forbidding southern flank, with its



FIGURE 10. SOUTHERN EDGE OF THE HILL SHOWING SANDSTONE FAÇADE.



FIGURE 11. WIDE SPLITS IN ROCK FROM GLACIAL ACTION.



FIGURE 12. HUGE BLOCKS OF STONE OFF SOUTHERN END OF HILL.

phenomenal characteristics,²⁹ sought this particular hill to build the wall because of its strong spiritual resonance. And it is no wonder that the main entrance to it, which is marked on the Salisbury map by the letter X, was at this location. The importance of this entryway is also emphasized by the square earthen enclosure that both Atwater and Salisbury noted but which no longer exists, plus the large boulder just below it as shown on the Salisbury map at point t, which had small stones on top, perhaps as donations. In 2008 I attempted to find this boulder, but was unsuccessful.

Because the hill has been in the Cooperrider family for nearly 170 years, the surrounding wall has not much changed since Caleb Atwater visited the site in the early 1800s. The wall, or what remains of it, is probably much the same as it was nearly 200 years ago, being no more than two feet high and ten to fifteen feet in width (FIGURE 13). While some have speculated how high the wall was originally, I found no evidence of careful stone stacking anywhere along its mile length, and my impression is that the wall was never as well constructed as those ancient cairns we find in Vermont.

The various points along the wall that Salisbury noted on his map can still be found with careful plotting and looking. One point that I found especially interesting was the entrance at a, the only other entrance to the enclosure, and probably constructed to access the large circular mound marked by u on the map. No one to my knowledge has commented on the two large slabs of grey stone that seem to mark steps leading to the entranceway (FIGURE 14). These are a different kind of stone from the sandstone found in the vicinity and must have been brought to the site from elsewhere. Ancient visitors climbing the hill and passing through this narrow gap would have come face to face with the 100 foot wide stone mound looming in front of them. The mound still has some of its original 15 foot height, and its diameter is still the same at 110 feet, but originally the mound was more intact than it is now. Over the past century, stones have been removed from the mound for construction elsewhere, and so now we are left with what looks like a hollowed out bomb crater (FIGURE 15). In the overhead

29. Jack Steinbring, "Phenomenal Attributes: Site Selection Factors in Rock Art," *American Indian Rock Art*, 17 (1992), 102-113. Steinbring lists "prominence" as one of the most basic of phenomenal conditions, by which he means the "dramatic character of the formation." Undoubtedly the south end of Glenford "Fort" is that.

Google it looks like a donut, with the hollowed-out interior (FIGURE 16).



FIGURE 14. TWO LARGE SLABS OF GREY STONE NEAR ENTRANCEWAY.



FIGURE 15. AREA WHERE STONES HAVE BEEN REMOVED FROM THE MOUND.



FIGURE 16. GOOGLE OVERHEAD VIEW OF HOLLOWED-OUT AREA.

In March 1980, the Ohio Historic Preservation Office conducted an archaeological inventory of the Glenford Fort site, focusing on the wall, the large stone mound, a small stone tumulus integral with the southern portion of the wall, and a small earthen fort mentioned by Atwater and later by Salisbury. They never did locate the earthen fort, but in their description of the large stone mound, they said the following: “The mound has a rather large excavation pit (shaft) extending from top center to near the base of the mound. There are also several slumped areas around the sides of the mound. Mr. Cooperrider states that several of these slumps have occurred within his lifetime and he believes that the mound was originally chambered and as the wood frames rotted the rocks piled onto the mound have subsided.”

James Dutcher, in June 1987, received permission from Elizabeth Cooperrider, the owner, to excavate the stone mound in search of diagnostic material to date it.³⁰ He measured the mound at 129 feet east to west and 110 feet north to south, with the highest point being 12 feet. Using a backhoe, he removed large portions of stone from the center of the mound, excavating a trench 30 feet by 10 feet on the northwest side of the stone mound. In the trench he found a fire hearth and a layer of charcoal on thirteen flat stones; four postmolds were also located. The charcoal was sent to Beta Analytic in Florida in January 1988 for radiocarbon dating, and the results produced a date of 2220 ± 50 B.P., which translated to a date of ca. 270 B.C., suggesting a late Adena or early Hopewell period structure. Dutcher stated that the excavated pit did not contain any faunal material, which leaves open the question of what purpose the mound served.

Based on the average size of stones in the wall, and the present width and height of it, I had a friend of mine, Herman Bender, estimate the number of stones in the wall, and in the mound. He came up with a figure of 1.5 to 2 million stones in the wall having an aggregate weight of approximately 28,880 tons!³¹ The same amount

30. James Dutcher, “C-14 Dating Results From the Glenford Stone Mound Site #33-PE-3,” *Ohio Archaeologist* 38/3, Summer 1988, 24-26.

31. Personal correspondence, April 18, 2008. As Bender said, “I did a work-up on an estimate of how many rocks were used in the ‘fort’ wall. I used the dimensions of 5288 feet long x 17 feet wide x 3.8 feet high. Figuring an average size of 20 cm. x 18 cm x 15cm. and converting the dimensions above to metric, I came up with an estimate of between 1,500,000 and 2,000,000 rocks. Then, I used an average

of stones was estimated for the large mound! Donald Cooperrider, the former owner of the Fort, made the following comment to a reporter in 1966: "It's a mystery where they got the stone. I don't know of a place around here where they could have obtained stones like that. All the stones are about the same size, and small enough for a person to carry."³² The source of the stones is a question worth investigating.

More recently, Robert Riordan has been investigating a site called the Moorehead Circle at Fort Ancient near the town of Oregonia. Here, the circle "incorporates literally tons of limestone as both chinking stones for posts as well as slabs laid as pavers in clay floors. We're estimating that somewhere between 50-100 tons of stone was brought up 250 vertical feet from the Little Miami River level below the Fort, involving probably a mile of walking or more with each load that was carried. These people were an industrious lot!"³³

CONCLUSION

Glenford Fort owes its remarkable state of preservation to having been in the hands of one family for close to two hundred years. Only the large circular stone mound is compromised, but the wall is probably much the same as it looked when Atwater first laid eyes on it in 1818. Were the site to be obtained by a conservation group sometime in the future, the only thing I would recommend would be to clear the brush and trees away to the outside edge of the wall. This way, one could see and appreciate the incredible effort that went into its construction.

There are only two completely stone enclosures in Ohio: the Glenford Stone Fort, and the Flint Ridge Stone Fort. Further west and south other stone structures have been found, all predating the colonization of the land in the early nineteenth century. The most complete listing of the various structures was made by Philip Smith in his article "Aboriginal Stone Constructions of the Southern Piedmont," which also included

of 1,800,000 rocks with an average density of 2.7 gram/cubic cm. Each rock would be ~5400 cubic centimeters and weigh 14,580, so (after conversion) would average approximately 32 pounds. Multiply the 1,800,000 rocks by 32 pounds and then dividing by 2000 pounds/ton, the total weight would be 28,880 tons of rock!"

32. Ron Shoup, "Glenford Fort – Tourist Mecca?" *Advocate & American Tribune*, Newark, OH, December 13, 1966.

33. Personal correspondence, September 20, 2010.

a summary of stone structures found in Tennessee, Alabama, Kentucky, West Virginia, Indiana and Ohio.³⁴ Other reports of interest are several dealing with Illinois "forts" or enclosures: one by Irvin Peithmann,³⁵ another by William Nelson Moyers,³⁶ and another by Walter Brieschke and Frank Rackerby.³⁷ Then there is one by Willard Rouse Jillson on "Indian Fort" in Kentucky.³⁸ Much more recently, Dr. Harry Holstein of Jacksonville State University in Alabama has issued several archaeological reports on walls and other stone structures in his state. One is "Preliminary Investigations at the Shelton Stone Mound Complex, 1CA637, Calhoun County, Alabama,"³⁹ another is "Preliminary Investigations at the Skeleton Mountain Snake Effigy Site, 1CA157, Calhoun County, Alabama,"⁴⁰ and the third is "A Preliminary Archaeological Investigation of the Morton Hill Stone Structure Complex, 1CA671, Calhoun County, Alabama."⁴¹ Taken together, these reports demonstrate that the Indian tribes east of the Mississippi River undertook widespread stone construction, and these sites roughly enclose the Northeast. But even within the latter region we find documented Indian walled sites, three of which are worth noting: two stone walls on Blue Mountain in Danielsville, Pennsylvania, the Lochmere Stone Fort in Lochmere, New Hampshire, and the stone wall at the Flagg Swamp Rockshelter in Marlborough, Massachusetts.

The two walls on Blue Mountain were described by A.F. Berlin in an article that appeared in *The American Antiquarian* for 1887.⁴² The two walls, each about a half

34. Smith (as in note 2), 1-47.

35. Peithmann, "Stone Forts, Corrals, or Pounds," *Journal of the Illinois State Archaeological Society*, 3 (1953), 47-51.

36. Moyers, "The Seven Wonders of Egypt: The Seven Archaic Stone Walls on the Seven Hills," *Journal of the Illinois State Historical Society*, 27/2 (1934), 178-194.

37. Brieschke and Rackerby, "The 'Stone Forts' of Illinois," *Outdoor Illinois*, 12/2 (1973), 19-26.

38. Jillson, "Prehistoric People of the Knobs," *Geography of the Kentucky Knobs*, Series VI, Vol. 19, The Kentucky Geological Survey, 1926, 135-160.

39. Jacksonville State University Archaeological Resource Laboratory Research Series No. 3, 2007.

40. Jacksonville State University Archaeological Resource Laboratory, December 2007.

41. Jacksonville State University Archaeological Resource Laboratory, Research Series No. 5, March 2010.

42. A.E. Berlin, "A Game Drive," *The American Antiquarian*, IX, 1887, 311-313.

mile long, were on either side of a gully on the steep east side of the mountain. Berlin pointed out that the land on which the walls are found had always been under Indian control; the land was officially deeded to them in 1732 by the proprietors of William Penn. Ten years ago the walls were rediscovered, and have little changed since Berlin described them. They are no more than one or two feet high and four to five feet wide, and are simply thrown together.

The Lochmere Stone Fort was described by E.G. Squier in volume II of the *Smithsonian Contributions to Knowledge*, published in 1851.⁴³ This structure, consisting of two horseshoe-shaped walls of stone and gravel, now totally obliterated, was first described briefly by Belknap in 1792,⁴⁴ and was visited and drawn by Jacob Moore in 1822, who then provided a document and map to the American Antiquarian Society in Worcester, Massachusetts. Moore, probably in 1848, passed on this information to Squier, who then included it in the second volume of *Contributions to Knowledge* and later published the same information in his book *Antiquities of the State of New York*.⁴⁵ Moore's and Squier's interest in this intriguing structure had to do with structural and design similarities to Hopewellian enclosures.

Lastly, we have the Flagg Swamp Rockshelter, which was excavated in 1981 before it was destroyed by a superhighway offramp.⁴⁶ The archaeological team from Harvard University discovered a stone wall, dated to 4200 ± 120 B.P., beneath the dripline of the shelter. Similar walls have been found in rockshelters throughout

the New England area, but the one in Westborough is the only one to be dated.

These three piled stone structures in the Northeast are clearly of American Indian origin, but there are perhaps thousands of undated and unexamined stone constructions throughout the Northeast that await careful study. By combining these with the examples from the Midwest and South, it is quite obvious that there was a clearly defined stone building technology among the ancient Indian tribes of the East long before North America was invaded by European settlers in the seventeenth century.

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43. E.G. Squier, "Aboriginal Monuments of the State of New York," *Smithsonian Contributions to Knowledge*, II, 1851, 87-89. An engraving of the "fort," based on the original drawing by Moore, accompanied the article.

44. Jeremy Belknap, *The History of New Hampshire*, III, Boston, 89.

45. Squier, *Antiquities*, Buffalo 1851, 145.

46. Frederick Huntington, "Preliminary Report on the Excavation of Flagg Swamp Rockshelter." Institute for Conservation Archaeology, Peabody Museum of Archaeology and Ethnology, Harvard University, 1982. The wall in the rockshelter was later mentioned by Curtiss Hoffman, an archaeologist and author of *People of the Fresh Water Lake: A Prehistory of Westborough, Massachusetts* (American University Studies, Series XI, Anthropology and Sociology, Volume 47, New York, 1990, 148, 207). Hoffman says the idea that Native Americans would have required European intervention to construct complex structures of stone, racist.

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