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Poplar Forest: A Most Palladian Villa

Abstract

Throughout his long architectural career, Thomas Jefferson considered Renaissance architect Andrea Palladio as his mentor, just as he considered Palladio's *Four Books of Architecture* as his "Bible." Jefferson's principal well-known works—his rebuilt home Monticello and the University of Virginia—have represented certain Palladian influences. Jefferson's initial architectural biographer, Fiske Kimball, stated about Jefferson and Palladio: "The preponderance of spiritual agreement between them [was] overwhelming." The restoration of Jefferson's retirement villa retreat, Poplar Forest, now provides a crucial missing link through which we can understand Kimball's statement and evaluate an even closer Palladian affinity. Typically, buildings are labelled "Palladian" because they mimic exterior design features. Jefferson's design for Poplar Forest comes much closer to the essence of Palladio's works through a common holistic approach that integrated structure, function, and site. For Palladio, how the building was organized was as important as how it looked. To understand this affinity we can examine four aspects of the Poplar Forest design: Jefferson's architectural education, the tradition of the classical and Renaissance villa, a system of design, and the use of ideological forms. Renaissance theories of architecture—based on the authority of antiquity, reason, and nature—are further reflections that explain the Palladian ideals exhibited at Poplar Forest.

Poplar Forest: A Most Palladian Villa

“As Poplar Forest is reshaped before our eyes back to the way Jefferson wanted it to be, it calls up his great ghost in ever more palpable form...making the restoration the most moving event, for me, in recent architectural history.”¹ —Vincent Scully

Toward the end of his life, Thomas Jefferson created an idealistic design for his villa retreat, Poplar Forest, which closely adhered to the “holistic” theory and practice of Renaissance architect Andrea Palladio. Understanding Palladio’s system of design in his sixteenth-century reformation of architecture is critical to understanding the lessons adopted by Jefferson in his own reformation of colonial architecture in nineteenth-century Virginia. Palladio’s genius was a holistic approach to design that integrated structure, function, and site planning. His compositional designs were of a modern and idealized style in which the form of a building’s function and structure was derived from a typology that integrated a vocabulary of classical details large and small. Fiske Kimball, the first architectural historian who fully understood Thomas Jefferson as an architect, recognized the debt Jefferson owed Andrea Palladio, saying that “the preponderance of spiritual agreement between them [was] overwhelming.”² This affinity between Palladio and Jefferson, in the truest sense of Palladian architecture, is nowhere better seen than at Poplar Forest, a product of Jefferson’s later years when his designs are usually associated with neoclassicism. Yet it is only in the past twenty-five years that the full extent of Jefferson’s design for Poplar Forest, both buildings and landscape, has been revealed through a lengthy restoration process in which we have learned much more about Jefferson the architect, and Jefferson the builder.³

Two important factors contributed to Thomas Jefferson’s role as the most accomplished self-trained architect of his time in America, and to his path toward true Palladianism. The foundation for everything Jefferson did was his education and his intense study of any subject. The second component was Jefferson’s application of his architectural education and experience in designing autobiographical houses for himself—especially Poplar Forest. This latter factor, it can be argued, is a unique circumstance for early American architecture. Jefferson’s education and experience as an architect mirrors Palladio’s and must be mentioned as this similarity forms an essential part of understanding their common bonds.

Since Kimball’s time, other architectural historians have considered Jefferson as the New World inheritor of a long Palladian tradition, as the “father” of American classicism, as the “very worthy culmination of English Neo-Palladianism,” and “intellectually the most significant spokesman” for American Palladianism.⁴ Through the restoration of Poplar Forest we can now see how this “missing link” of Jefferson’s most personal—and perfect—work, allows us to understand an even greater debt owed to Andrea Palladio. But what is still only partially comprehended is how Thomas Jefferson transcended his time and place to authentically absorb and use the sixteenth-century architectural principles of Palladio that can be characterized as: a proper architectural education, new traditions of the ancient villa, a system of design, and the use of idealistic forms. To understand Palladio’s accomplishments, we must briefly recount how he followed the advice of the Roman architect Vitruvius in a humanist approach to creating

a modern architecture of his time.⁵ It was the same advice Jefferson would follow.

THE ESSENCE OF PALLADIO

Andrea Palladio's history is fairly well known. Beginning in the construction trade as a teenage stonecutter, working under his birth name of Andrea della Gondola, he was discovered while working on a new Veneto villa for the great Renaissance scholar Gian Giorgio Trissino.⁶ Trissino championed Andrea, renaming him Palladio, and directed his classical and architectural education, especially the study of Vitruvius's *De Architectura*.⁷ Palladio's regimen under Trissino followed Vitruvius's advice: a broad liberal arts education, grounded in construction technology (which Palladio already had), the study of ancient buildings, and familiarization with contemporary architecture.⁸

A translation of Vitruvius's first-century work by Rowland and Howe presents an interpretation that, rather than advancing tight rules, Vitruvius meant for architecture to be "an open, and not an inclusive system of design. It was also capable of accommodating steady progress and innovation."⁹ The liberal arts education advocated by Vitruvius meant that a broad base of knowledge would allow one to prepare new principles and to be selective when borrowing from the past. This translation argues that Vitruvius favored innovation, foreign ideas, and ingenious approaches. Vitruvius was "aware of intellectual multiplicity and felt that the preciousness of tradition should inform innovative progress." In other words, "architecture is a complex art that needs a tradition for rules but must advance through a flexible and judicious invention. The architect must be confident to synthesize both tradition and contemporary influences."¹⁰ This interpretation of Vitruvius helps explain the legacy of Palladio's very modern works, and consequently, those of Jefferson.

Palladio's synthesis of ancient and contemporary models resulted in his most enduring and influential legacy, his book *The Four Books of Architecture* (1570). The iconic images of his villas, palazzos, and churches had a major impact on Western architecture. The rich variety of Roman details led Palladio, like Serlio and Vignola before him, to simplify and codify the Roman Orders of architecture in printed form. From the many Renaissance architectural treatises that Jefferson acquired and studied as a college student, he chose Palladio's as his guiding star, famously telling a friend that it was "...the bible. You should get it and stick close to it."¹¹ Palladio had advanced the classical ideal of man's work in relationship to nature, an

important subject of Jefferson's, and his villas drew part of their power from their relationship with their vernacular sites. The strength of Palladio's theory and practice of architecture was also based on his belief that he was facilitating a social and cultural reform. As Howard Burns has pointed out, Palladio was in the right place at the right time to revolutionize urban palazzos and rural villas in the competitive quest of noble and merchant families who needed appropriate public symbols.¹² Similarly, Jefferson's architecture was founded in a comparable reform ideology that extended into nationalistic examples.

One of the least understood aspects of Palladio's architecture is his system of design. It embodied a very important aspect of Jefferson's architectural education. Palladio innovated a holistic approach to design: a flexible building typology, clearly expressed structure, efficient function, and integrated site planning. Beauty was secondary to how a building was organized and the relationship of its form and details. Vitruvius's famous dictum that good architecture was based on the indispensable aspects of "*firmitas*" (structure), "*utilitas*" (convenience), and "*venutas*" (beauty) was characterized by Palladio as the "correspondence of the parts to the parts, of the parts among themselves, and of the parts to the whole."¹³ Palladio's set vocabulary of selected favorite ancient details allowed for the flexibility and modification that could be used in various combinations for his different typologies of buildings, especially seasonal villas. The most classic villa plan featured an entrance loggia that led into the tall central vaulted "*sala*" room, surrounded by symmetrically placed rooms of certain shapes and sizes. Palladio's villas were also popular for their economy of construction costs by using simple but dramatic exterior massing, simplified trim inside and out, and faux-painted interiors rather than more costly carved stone elements.¹⁴

THOMAS JEFFERSON'S EDUCATION AS AN ARCHITECT

Fiske Kimball characterized Thomas Jefferson's attitude and approach toward architecture, like most other things in his life, as a "relish for precision" coupled with a "historical passion."¹⁵ Others have characterized Palladio's governing authority in a similar way: the authority of Rome, and the authority of math.¹⁶ Jefferson's love of mathematics and his deep knowledge of the classical world were the bedrocks of this precision and passion. His path to becoming an architect followed the advice of Vitruvius and mirrored Palladio's: a broad liberal arts humanist education, an understanding of construction, the study of ancient classical traditions, and knowledge of contemporary

architecture. As a distinguished classical scholar said of Jefferson, “he was the most learned and dedicated classicist. Living in the afterglow of the Renaissance and the radiance of the Enlightenment, he was America’s greatest humanist.”¹⁷

Jefferson’s classical and humanist education started with tutors, but at age sixteen he began his formal education at the College of William and Mary. He was fortunate enough to be mentored by Scottish Enlightenment professor William Small, who, together with Royal Governor Francis Fauquier and his law mentor George Wythe, encouraged Jefferson’s self-study of architecture.¹⁸ The precocious list of books Jefferson acquired in Williamsburg covered ancient, Renaissance, and modern architecture. Most important were books by Palladio, and by the British Palladians James Gibbs, William Kent, and Robert Morris, from which Jefferson acquired his love of octagons.¹⁹ Jefferson’s design of Monticello in the late 1760s was the studied result from all these books, and the most academic use of Palladian rules in the colonies.²⁰ From his earliest drawings, Jefferson demonstrated that he didn’t simply copy forms and details but absorbed ideas from a variety of sources and created unique works.

Jefferson’s five years in Europe (1784-1789) were not only an intellectual, cultural, and social learning opportunity, but a chance to study ancient buildings firsthand.²¹ It was also an opportunity to acquire another two thousand books for his library, some already two hundred years old.²² Jefferson’s time in Europe, and the buildings he admired and studied, is a well-known story that does not need to be reiterated here. What was most important for his architectural development was the chance to study contemporary architecture, of which Paris offered some of the best in the world. New styles of Parisian “*hôtel*” (townhouse) designs, arrangement of “*appartements*” (interior plans), landscape and gardening designs, rural follies and retreats, and modern conveniences such as dome construction and skylights, all influenced Jefferson’s expanded theory and future practice of architecture, resulting in the re-design and re-building of Monticello upon his return, and providing innovative ideas for Poplar Forest.

As part of his liberal arts education that instilled in him an Enlightenment attitude of studying the world around him, Jefferson acquired a thorough knowledge of construction practices and techniques. Palladio had started life as a stonemason and used this knowledge of construction to master his system of integrated design, form, and structure. While not a craftsman, Jefferson had been designing and supervising the construction of his own projects for most of his adult life and he supervised other major projects such the

President’s House and the U. S. Capitol.²³ Jefferson observed and studied construction technology practices and innovative techniques wherever he went and his “building notebooks” are filled with construction notes and processes. His final project, the University of Virginia, was the largest construction project in the country (with more than two hundred workers) for which he not only conceived a new type of university, but also designed and specified every aspect of the many buildings, recruited special workers, and supervised the eight-year project. Jefferson treated his workers in the manner it was said that Palladio treated his: “...eagerly and lovingly taught them the best principles of the art, in such a way that there was not a mason, stonecutter, or carpenter who did not understand the measurements, elements, and rules of true architecture.”²⁴ This construction experience became very evident in Jefferson’s design for Poplar Forest.²⁵

PALLADIAN TRADITIONS AT JEFFERSON’S VILLA

It is no coincidence that in 1809 Thomas Jefferson retired from public life, completed Monticello after a forty-year process, and started using Poplar Forest as his retirement villa retreat. Monticello was the architectural learning curve and Poplar Forest the idealistic mature work. This article does not cover the many things in Jefferson’s life that led to his design for Poplar Forest but focuses on its Palladian aspects. There are three significant Palladian aspects: the tradition of the villa, a system of design, and the use of ideological forms. All three aspects have features that are more obvious, and others more abstract.

The Tradition of the Villa

Thomas Jefferson, like most educated people of his time, studied the classical world as part of a typical education and knew of the ancient Roman villas.²⁶ More specifically, Jefferson’s library contained Robert Castell’s *The Villas of the Ancients Illustrated* (1728).²⁷ The Roman writer Pliny the Younger’s description of his rural villa was well known: “For besides the attractions which I have mentioned the greatest is the relaxation and carefree luxury of the place—there is no need for a toga, the neighbors do not come to call, it is always quiet and peaceful—I always feel energetic and fit for anything at my Tuscan villa, both mentally and physically.”²⁸ Poplar Forest conformed perfectly to the classic, and classical, definition of a villa as articulated by James Ackerman in his history of the type over time:

A villa is a building in the country designed for its owner's enjoyment and relaxation. Though it may also be the center of an agricultural enterprise, the pleasure factor is what essentially distinguishes the villa residence from the farmhouse and the villa estate from the farm. The farmhouse tends to be simple in structure and to conserve ancient forms that do not require the intervention of a designer. The villa is typically the product of an architect's imagination and asserts its modernity.²⁹

This also explains the modernity of Palladio's villas. Palladio and his contemporaries, through the revival of classical writings, were well aware of this ancient tradition. In Book Two, Palladio mentions that "...ancient intellectuals used often to retreat to similar places [villas], where visited by their cultivated friends and their relations, having houses, gardens, fountains, and similar pleasurable places, and above all their innate qualities [virtue], they could easily achieve that blessed life...."³⁰

At Poplar Forest, Jefferson advanced the tradition of the

ancient Roman villa in his own modern style that was perfectly suited for his intended use as an occasional retreat (Figure 1).³¹ Poplar Forest perfectly reflected the universal nature of the villa that was "... less fixed in form than most other architectural types because the requirements of leisure lack clear definition."³² Leisure for Jefferson meant time to read, to write, and to think. Throughout his professional life, in Richmond, Paris, New York, and Philadelphia, he sought and used one type of retreat or another.³³ While the villa is typically seen as the virtuous counterpoint to the vices of the city, in this case Poplar Forest was the necessary escape from Monticello, which had finally been completed in its revised form in 1809 when Jefferson retired from the Presidency. Why start another house? Monticello was infamously filled with visitors who called upon Jefferson and received the expected hospitality for days or weeks. It was also filled with many family members and enslaved servants. Jefferson could lock himself in his multi-room suite, or sit outside his suite in a private louvered porch, but he could not get the peace and quiet his introverted

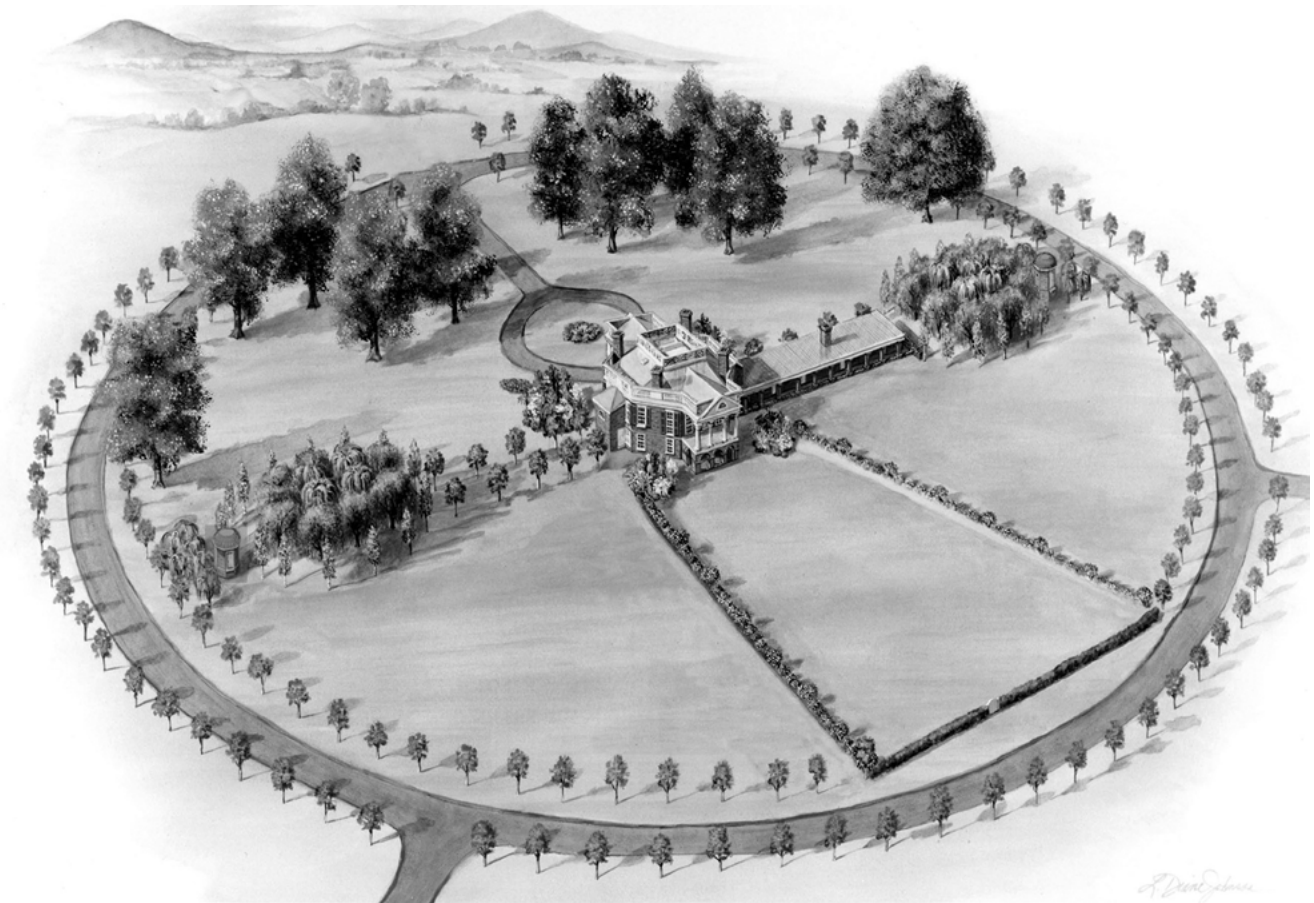


Figure 1. The core landscape of Poplar Forest was situated on a hilltop against the grove of old poplar trees on the north side. The five-acre core was surrounded by a circular road ringed with poplar trees. (Jefferson's Poplar Forest, painting by Diane Johnson.)

persona needed. This was the psychological need for Poplar Forest.

In 1806, while in his second term, President Jefferson started construction of his retirement villa retreat on a remote piece of land he owned in the foothills of the Blue Ridge Mountains. It was one of his five plantation properties worked by enslaved people. By 1809 he started using the unfinished house, which he would do for the ensuing fourteen years, the amount of time it took to finish his most perfect work meant for his own inspiration. It was his dream house and an architectural melting pot of his favorite things yet shared with only family and a few friends. Jefferson typically made the three-day journey from Monticello with one servant and later with two teenage granddaughters. After Jefferson's grandson lived in the house for five years (1823-1828) it left the family and remained a private residence until the 1970s.³⁴

Villa mythology was clearly part of a reciprocal relationship with nature.³⁵ Of two types of ancient villas, the urban and the rural, the rural open type was more associated with health and relaxation through its interaction with nature. It fulfilled its ideological goals through this intimate interaction that physically embraced the natural surroundings and even imitated nature. Man's relationship to nature, and an architect's response to nature, was a discussion brought forward from the ancient writers, in particular Vitruvius, through Alberti, to Palladio. Palladio and his Renaissance contemporaries felt that true architecture was based on the authority of nature, reason, and antiquity. Palladio famously stated, "Architecture must conform to Nature as architecture is an imitator of Nature."³⁶ Vincent Scully has also remarked that Palladio's most successful villas had a relationship to the surrounding vernacular landscape, creating the wonderful tension of man in nature.³⁷

The authority of nature is easily seen at Poplar Forest. It was a "*sopra un monticello*," raised upon a small hill. The choice of a villa's site was important to Palladio. Jefferson's decision to build on a hill with its grove of ancient poplar trees on the north side put nature in a superior position on one side of the house, in effect using nature, and honoring it, as part of his landscape design (Figure 2).³⁸ The house and wing not only embraced the landscape but were actually nestled in the ground, seeming to rise out of it. As important as seeing the villa was the view seen from it. Jefferson drew a plan showing which distant mountains could be seen from each facet of the octagonal house, although this was only partially possible from the roof deck. Jefferson's creation of the radically transparent walls of the parlor with their triple sash windows and the outdoor "rooms" of the south portico



Figure 2. Early twentieth-century view of Poplar Forest with the old growth poplar trees on its north side. (Thomas Jefferson's Poplar Forest.)



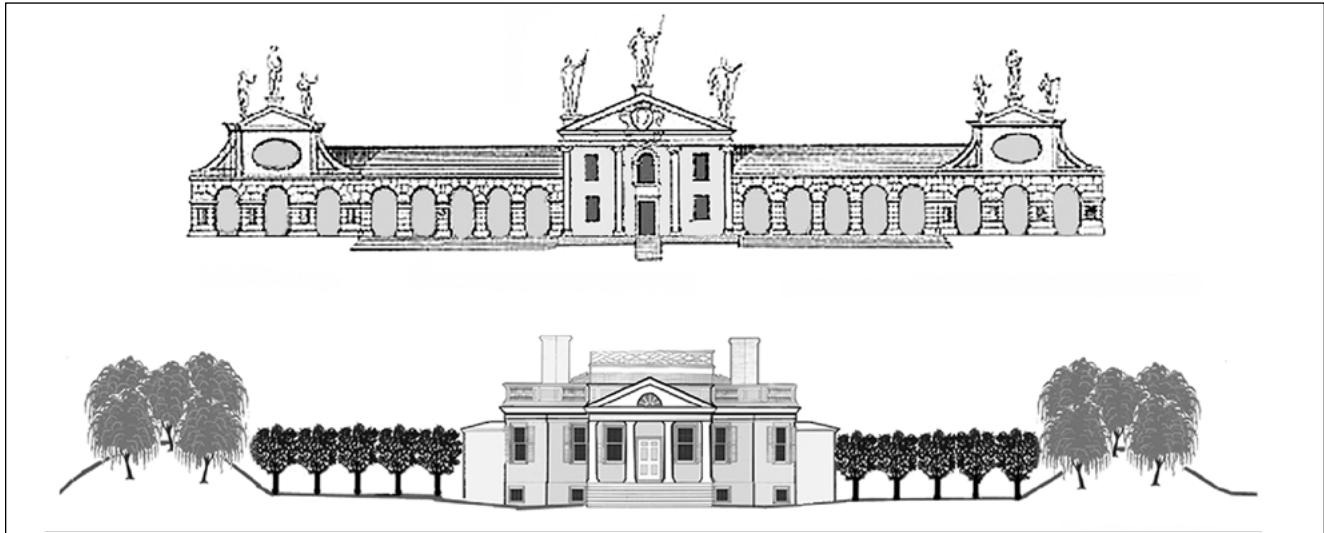


Figure 3. Jefferson's use of the flanking mounds connected to the house by trees mimicked a five-part Palladian composition. (Thomas Jefferson's Poplar Forest.)

and the wing deck all embraced nature in novel ways.³⁹ In one of the most unique methods of referencing Palladio, Jefferson created a five-part Palladian composition using the house in the center flanked by earthen mounds standing in as pavilions, and connected to the house on each side by a double row of paper mulberry trees acting as architectural hyphens (Figure 3).⁴⁰ Each mound, cleverly used as a place to put the dirt from the sunken south lawn, was made more vertical with three rows of trees featuring a "dome" of four willows on the top, a middle row of Golden Willows, and a columnar row of slender Aspen trees around the base. The two octagonal brick privies with their Palladian domes and perfectly proportioned cornices stood on the outer side of each mound, making this a seven-part composition. This unique landscape design featured the natural world of the forest on one side, a combination of architecture and landscape in the center, and man-made gardens on the other side (Figure 4). Jefferson was one of the first American landscape architects to have the building site and landscape features always form part of a larger compositional scheme with the architecture.

The most obvious Palladian reference was the one-hundred-foot-long service wing Jefferson added to the east side of the house in 1814, replacing the double row of trees as a connection to the east mound (Figure 5). Palladian service wings, seen in Palladio's book, had been adopted by Jefferson in his first designs for Monticello. This was not a "*barchessa*" in the sense of the attached agricultural storage buildings of Palladio's Veneto villas, but more related to the typical outbuilding functions that served Virginia plantation houses. Grouping service functions in a wing allowed Jefferson to use the space

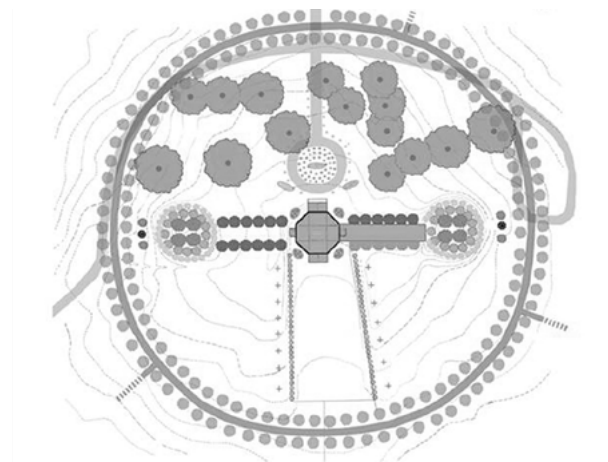


Figure 4. Within the ornamental core, Jefferson used nature on the north side, architecture and landscape in the middle, landscape "clump" plantings around the house, and an allée of flowering shrubs and Kentucky coffee trees bordering the south sunken lawn. (Thomas Jefferson's Poplar Forest.)

at the back of the house for a garden rather than the typical assortment of outbuildings.⁴¹ We can assume Jefferson wanted a balanced west service wing connecting the house to the west mound but it never materialized; perhaps it was included on a list for his grandson to accomplish. Jefferson's symmetrical service wings at Monticello, and the two one-hundred-foot service wings he had just added to the President's House in Washington, would suggest that he anticipated a balanced scheme at Poplar Forest.⁴² The double row of trees that connected the house to the mounds on the west was spaced so that a wing could be built between them. The clever use of the mounds resulted from a practical need of how to dispose of dirt being dug out of the south lawn. The necessity

Figure 5. View from the south showing the rhythm of the Palladian composition of mounds, hyphens, and house. (Thomas Jefferson's Poplar Forest.)



Figure 6. View from the north showing the visible massing of the house and wing partially suppressed in the ground. (Thomas Jefferson's Poplar Forest.)



to lower the south lawn behind the house stemmed from placing the house partially below grade on the north, making it appear one-story on the front, and two full stories on the south. The most logical explanation for all this effort was the anticipation that the service wings Palladio recommended should be partially in the ground (Figure 6). Jefferson had done this at Monticello and at the President's House, with the obvious effect of reducing half the mass of the wing when viewing the house from the front. The four-room wing at Poplar Forest (spinning room, kitchen, laundry, smokehouse), and those at Monticello and the President's House, would have been even taller had Jefferson copied Palladio's wings with their pitched roofs. In his only architectural invention, Jefferson improved upon Palladio's wing by creating a hidden, suppressed roof that allowed for a flat deck above.⁴³ Jefferson's design, what he called a "terras," zigzag, or serrated roof, was a system he would not relinquish for more than twenty years while trying to improve upon it (Figure 7). The enormous effort it took to build one of these roofs allowed Jefferson to use the top deck and to engage nature, and, since the services were grouped in the wing, to view the ornamental landscape.⁴⁴ There are other examples of service wings at Virginia houses but none had the Jeffersonian deck above. While this aspect of connected service buildings was a hallmark of Palladio's holistic site design, those examples generally fit within a surrounding vernacular landscape. Jefferson's design of surrounding ornamental gardens was actually more in the tradition of the ancient Roman villas and European country houses Jefferson had seen.⁴⁵

JEFFERSON'S SYSTEM OF DESIGN

The retreat house was both uniquely Jeffersonian, and very Palladian. Jefferson's final design for Poplar Forest featured a full octagon shape, culminating a lifetime of using this favorite geometric shape, although mostly in unexecuted designs (Figure 8). It was the first full-size octagon house in America.⁴⁶ This typological shape came not from Palladio, who only shows it in ancient buildings, but from the British Palladian books of James Gibbs, William Kent, and Robert Morris.⁴⁷ Like Palladio, Jefferson first started with many preliminary architectural schemes, using his own "typology" of geometrical shapes on paper before arriving at the final design.⁴⁸ And like Palladio, the plan was visualized as a three-dimensional form with integrated façade, section, and structural system. Jefferson's building notebooks are full of pages showing his translations of local Italian measurements

of Palladian architectural orders and moldings into feet and inches, frequently showing dimensions with five or six decimal places. With a final design, Jefferson envisioned the entire building and all of its elements in three dimensions. He was one of the first—if not the first—American architects to produce written specifications calculating every material in the building, sometimes creating full-size "working drawings" showing how pieces went together, and even full-size molding profiles.⁴⁹ Jefferson started living in the unfinished Poplar Forest house in 1809, taking another fourteen years to finish it.⁵⁰ All of the finished trim, inside and out, as well as the "joinery" work, was executed by enslaved craftsman John Hemings and his nephew apprentices. By this time Hemings was the master craftsman at Monticello and went back and forth to Poplar Forest for many years.⁵¹

The unusual octagonal shape still allowed Jefferson to include many Palladian attributes: a harmonic relationship of function, use, structure, space, and hierarchy; a clearly understood structural design on the interior that was expressed on the exterior and that allowed for an even structural load; bilateral symmetry of hierarchically sized rooms; proportional relationship of spaces, features, and details; a flexible vocabulary of classical details; a decorous use of ornament; and a vertical and horizontal hierarchy of spaces. That Jefferson's design used all of these aspects is what establishes Poplar Forest as a true, faithful, and unique New World Palladian work. At the same time we can describe it as Jeffersonian.⁵²

What set Palladio apart from his contemporaries was not only his system of architectural design, but also his holistic system of design blending site layout, plan, structure, function, and detail. Alberti called this harmonic synthesis "*concinnitas*," or the harmony of numbers, proportions, measure, and arrangement. Poplar Forest was extremely holistic in this regard with the size, proportions, and arrangement of the house horizontally, vertically, and structurally. Fiske Kimball said of Jefferson that he made a "determined effort at formulation."⁵³ While the re-designed complex plan and structure of Monticello certainly resulted from great formulated thoughts and calculations, the plan at Poplar Forest was excessively clear and ideal, the opposite of complex yet requiring just as much formulation. Poplar Forest could be so idealistic and modern as an occasional retreat for Jefferson or a few select people, never having to function as a conventional house. The most telling aspect of the plan that reinforces this difference is the location of the dining room and the stairs. From the front door, one unconventionally entered the central dining room, which is one of the two "public" spaces on the

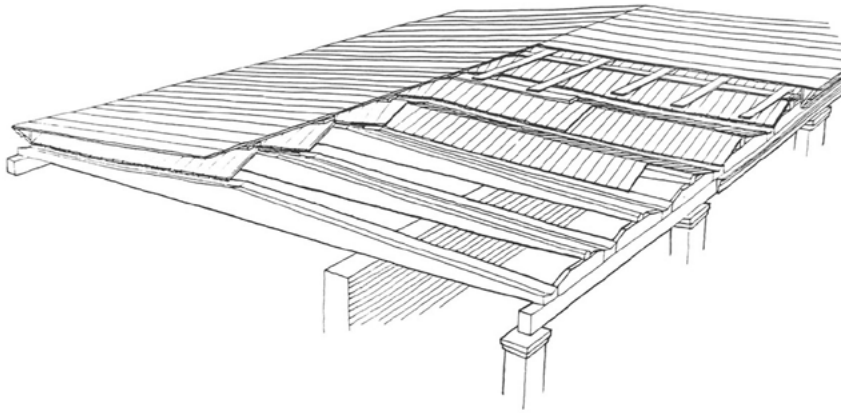


Figure 7. Jefferson's "terras" or "serrated" roof design allowed him to use the top of the Palladian service wing. This was Jefferson's only architectural invention that he used in a variety of forms for more than twenty years. (Mesick Cohen Wilson Baker Architects.)

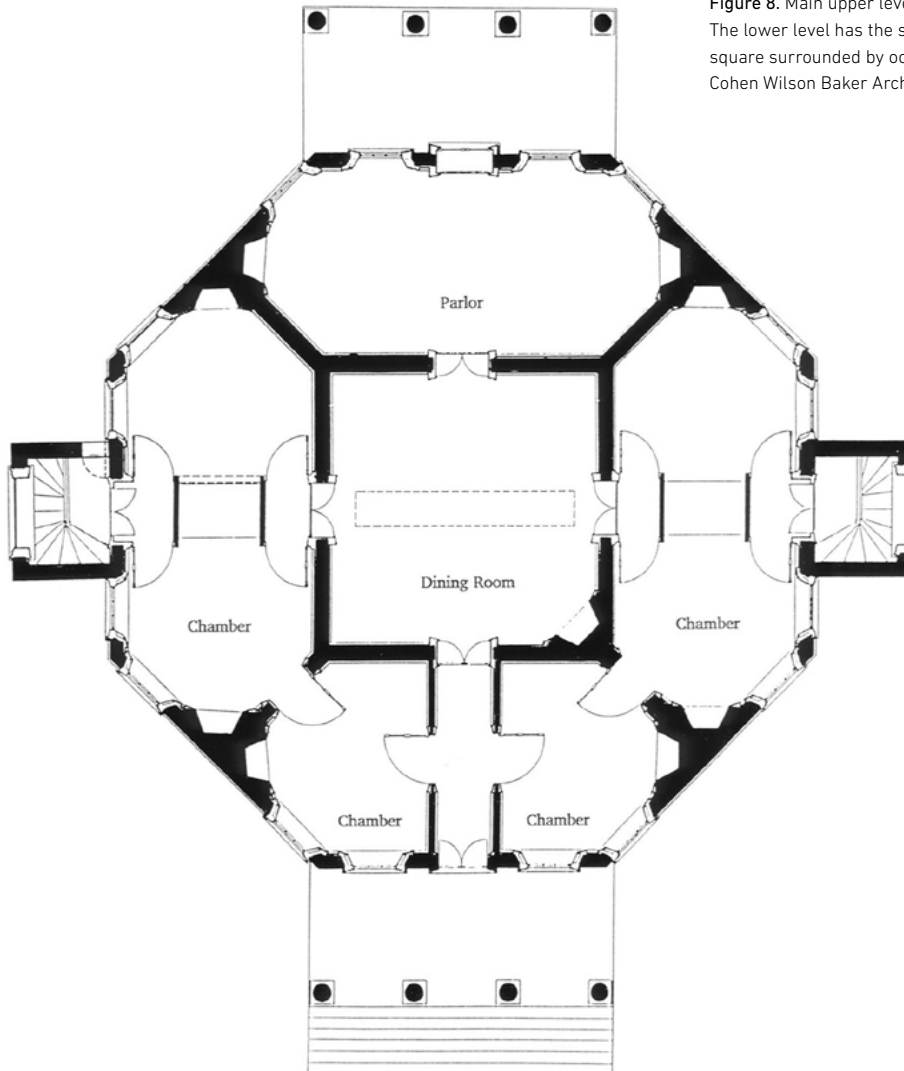


Figure 8. Main upper level plan of Poplar Forest. The lower level has the same plan with a center square surrounded by octagonal rooms. (Mesick Cohen Wilson Baker Architects.)

north-south “public” axis connecting the porticos. The two sets of stairs, on each side of the house in bumped-out pavilions, are only accessed privately from the large bedchambers or from the lower level service floor. The stair pavilions are on the east-west private axis of the house, closed off from the center room by vestibules.⁵⁴

The private nature and occasional use of the house allowed Jefferson to achieve an idealized centralized plan with strict symmetry. This referenced pure Palladian villa prototypes since the plan was not compromised by social and functional needs of other “Palladian” houses of the eighteenth and nineteenth centuries. Palladio famously used certain room sizes and shapes in a hierarchical and symmetrical arrangement with squares, circles, and rectangles. Jefferson used his own special shape, the octagon or half-octagon. With the placement of the central twenty-foot cubic dining room, and the placement of the four chimneys on the angles of the cube, the rooms that wrap around the center constitute a full octagon (south parlor) or half-octagons created by the north passage and the east and west bed alcoves.

The two smallest shapes in the hierarchy are the rectangular stair pavilions. Palladio explained that his symmetrical plans were better for an even roof load on the walls. Jefferson’s genius regarding the spatial arrangement and structural load is that the tall central brick wall of the cube is buttressed on its angles by the large solid chimney masses. The placement of the chimney masses in turn creates the end shape of the perimeter rooms, forming the octagons with fireplaces at the end of each octagonal room and fireplaces serving adjacent rooms. The four chimneys serve fifteen fireplaces on the two levels with the center room’s corner fireplace using one of the chimneys. On the lower level, a square room, constructed with thicker stone walls, goes deeper for the cooler temperature of storing beer, wine, and cider, helping to stabilize the tall upper walls of the cube room above. Using his experience as a builder, Jefferson not only built well with structural clarity, but even over-built the house in a number of ways.⁵⁵

As in Palladio’s buildings, the compositional hierarchy of the Poplar Forest interior design is evident on the exterior (Figure 9).

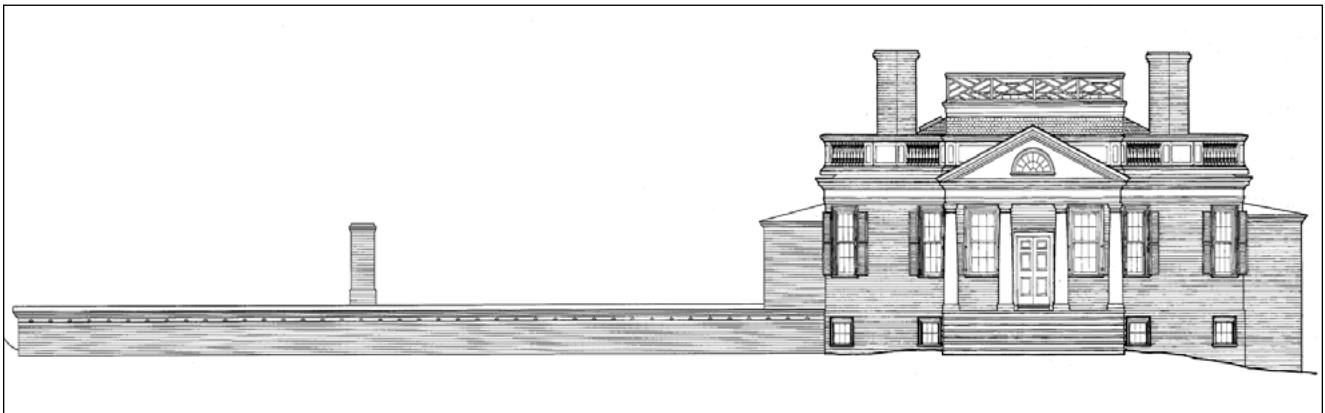


Figure 9. North elevation drawing. (Mesick Cohen Wilson Baker Architects)

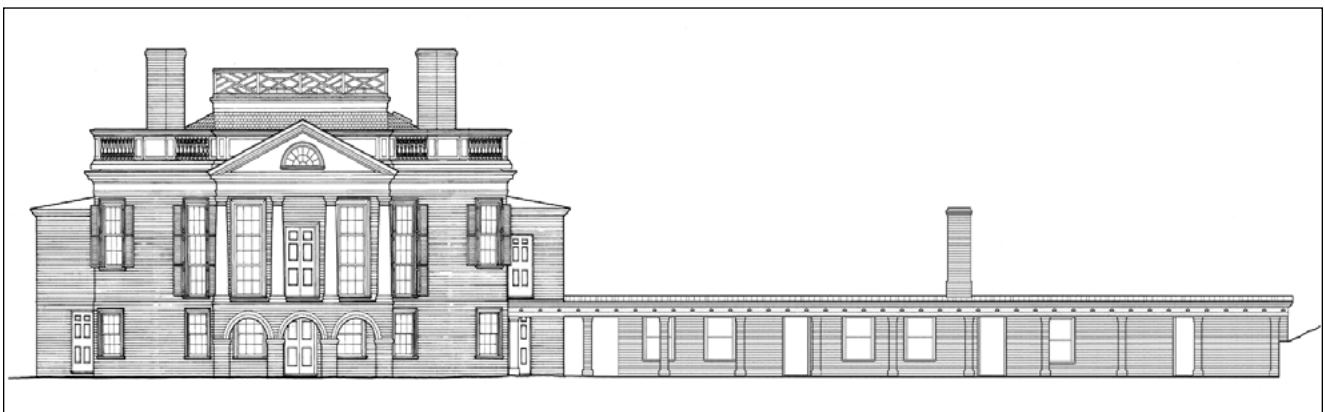


Figure 10. South elevation drawing. (Mesick Cohen Wilson Baker Architects.)



Figure 11. North-south section. (Mesick Cohen Wilson Baker Architects.)

Its two principal elevations on the north (front) and the south are defined by Tuscan porticos. Seen from the north, the entrance portico appears to be attached to a one-story house whose more public walls are characteristically solid and closed.⁵⁶ The south portico, raised on its sturdy Roman arches, announces the importance of the parlor on the private side of the house (Figure 10). The absence of stairs on this portico reflects its inaccessible private nature as an “outdoor room” from which to engage the man-made landscape. The parlor’s south-facing wall is boldly pierced with four triple-sash windows of over-sized glass and a glass door, opening the brick wall as much as structurally possible to connect the indoors and out, imparting a very modern French feeling. The south portico’s vertical composition of arcade, columns, and pediment is not a Palladian ensemble but one borrowed from the British Palladians. The roof of the protruding east and west stair pavilions drops below the Tuscan entablature and features only a cornice that befits their status. The pavilions do, however, have large lunette windows that serve to light the small winding stairs and to allow views out to the landscape.⁵⁷ The Tuscan entablature bypasses the pavilions to wrap around all the octagonal walls, extending seamlessly outward north and south into the pedimented porticos. The Doric order balustrade, hierarchically above the Tuscan order entablature, also serves to visually tie all the octagonal

wall facets together on the roof. The importance of the central cube room is indicated at the top of the roof where the multi-faceted hip roof terminates at a raised square form. This is the twenty-foot-by-twenty-foot square-shaped Jeffersonian “terras” roof deck bisected by its east-west skylight. The Chinese railing around the square deck is an “extra” touch that finishes off the central mass like a crown in this truncated pyramidal composition of the whole design. Like Monticello, the taller and more private rear elevation of Poplar Forest is visually more imposing than the lower public front façade. In both buildings Jefferson chose a Janus-like difference for the front and back. Their rear elevations display more of an ancient face with the Roman arches at Poplar Forest and the Roman dome at Monticello while the front facades appear more condensed and modern, like Parisian townhouses.

The most significant—and arguably most abstract—Palladian feature of Poplar Forest is the central cube room (Figure 11). This is undoubtedly related to the final solution of an idealized geometrical plan that created interior octagons within the greater outer octagon, but it was much more. The tall room, a central Palladian “sala,” surrounded by shorter symmetrically placed rooms, made this Jefferson’s personal version of a rotunda house.⁵⁸ Twice he had attempted a literal copy of the Villa Rotunda without success in Richmond and Washing-

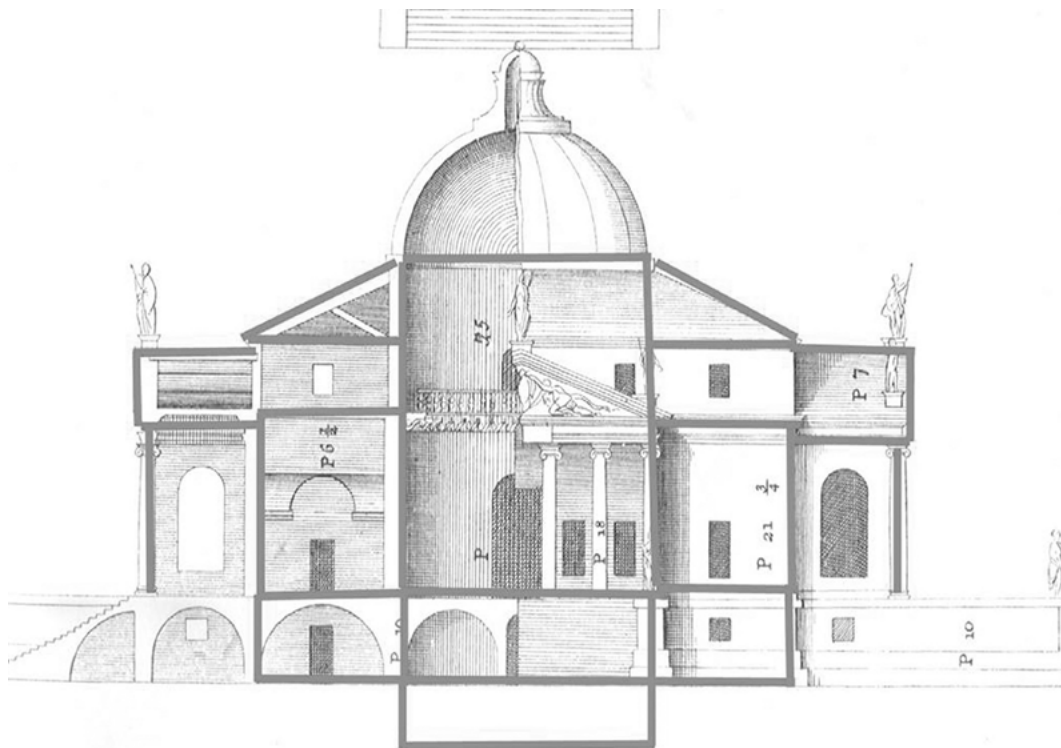


Figure 12. Palladio's Villa Rotunda, with an overlay of Poplar Forest adjusted for size. (Thomas Jefferson's Poplar Forest.)

ton. If Poplar Forest was to be his “dream house,” this was one long-awaited wish for his own Villa Rotunda. Where Palladio placed a dome over the central space, Jefferson made it personal with his own invention, the suppressed “serrated” roof that allowed for the skylight and a flat deck from which he could view the mountains and larger scope of nature.⁵⁹ A cross section of Poplar Forest laid over one of the Villa Rotunda, adjusted for size without the mezzanine floor, shows a remarkable similarity in mass (Figure 12), as does the transverse section of Monticello looking south with the same shape and mass topped by a Chinese railing. Like its Palladian prototype, the high central space with an opening to the sky was perhaps a reference to the ancient Roman “domus” house described by Vitruvius with rooms surrounding the central atrium open to the sky.

Other more obvious Palladian features at Poplar Forest include an entrance on the north through a “loggia” (the Tuscan portico). The private south portico “loggia” was the “outdoor room” off the parlor. Jefferson imitated Palladio’s technique of covering the brick columns with plaster to resemble stone.⁶⁰ As recommended by Palladio, the main living area is on one single floor for an efficiency of steps for older people and for maximum light and air. The lower level was appropriately for services. The stairs are tucked away with economy of cost and space as in Palladio’s villas. Palladio advised that beds should

not be placed too close to fireplaces or windows. Jefferson happily took this advice by using his favorite French bed alcove, which also conserved the extra octagonal wall space he preferred to use for a doorway, fireplace, or window.

The authority of antiquity is easily seen in all of Jefferson’s designs. From his earliest designs as a college student (1760s), to his creations at Monticello (1760s-1809), and until his last work at the University of Virginia (ca. 1810-26), he adhered to the classical “*all’antica*” principles of design and classical proportions set down by Palladio. At Poplar Forest, all the vertical dimensions and proportions of the house are minutely Palladian, even for the exterior domed privies. The exception is the height of the perimeter rooms, which according to Palladio should be based on the width of a room. Still, as John Mesick explains, the height of the perimeter rooms was determined by the 2/9 roof pitch favored by Palladio with rafters spanning from the top of the cube room walls to the outer perimeter walls. This gives a twelve-foot ceiling height that works perfectly with the three-foot, three-inch chair rail height, the six-foot, six-inch window height, the six-and-a-half-inch window architrave size, and the one-foot, nine-inch Tuscan entablature size, with the entablature then passing over the top of the windows (Figure 13).⁶¹ The interior Tuscan, Doric, and Ionic entablatures are proportioned from those orders using the chair rail acting as the plinth, and with the plaster ground at the top of the

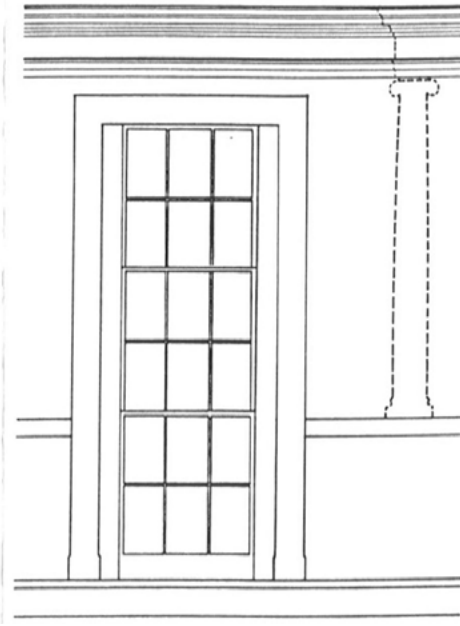
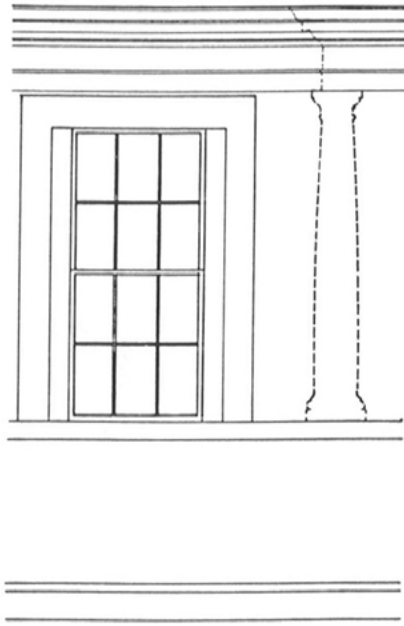


Figure 13. Perspective of the west chamber showing Jefferson's use of European alcove beds that divided the octagonal room into half-octagons. (Mesick Cohen Wilson Baker Architects.)



Figure 14. Jefferson proportioned the interior trim and entablatures using proportions from Palladio's Orders with the chair rail as the base. (Mesick Cohen Wilson Baker Architects.)

twelve-foot-high wall able to accommodate the different size entablatures (Figure 14). Door and window architraves are the typical Palladian 1/6 of the opening. Like Palladio, Jefferson chose his favorite classical molding details, his “vocabulary,” and then used them repeatedly as his “grammar” in different places, but always with a proper hierarchical arrangement.⁶² From the exterior Tuscan Order you entered the passage with a Tuscan order entablature and proceeded on axis into the Doric order central dining room and finally into the southern octagonal parlor with its Ionic order entablature taken from the Temple of Fortuna Virilis. Jefferson’s design “tool kit” was not strictly Palladian but included James Gibbs’s Roman molding profiles, and at Poplar Forest, entablature ornaments from Fréart de Chambray.⁶³ Decorum, described by Vitruvius as the proper use of details for the proper space, is most telling in the center cube room. The large Doric order entablature, scaled for an imaginary sixteen-foot-tall column, was based on the Baths of Diocletian, and used by Jefferson both before and after Poplar Forest. In this case, however, Jefferson told the English sculptor in New York City that he was adding the bucrania to the faces of Apollo in the frieze because “...in my

middle room at Poplar Forest I mean to mix the faces and ox-skulls, a fancy which I can indulge in my own case, altho in a public work I feel bound to follow authority strictly (Figure 15).”⁶⁴ This was the “extra” part of bending the rules that Palladio suggested could create unique and beautiful buildings.

The villa, as Ackerman noted, “is typically the product of an architect’s imagination and asserts its modernity.”⁶⁵ The nature and function as an occasional retreat allowed Jefferson an opportunity to create something not only personal, but very modern for its time and place. In addition to all of the Palladian features, and those from ancient Roman sources, Jefferson had collected and blended ideas from the contemporary world, especially late eighteenth-century France. Many of his choices added up to a different type of American house: European style floors of polished oak, varnished Virginia walnut for the window sash and doors, innovative fireplaces, alcove beds, a rare skylight, an innovative tin roof covering, large glass doors, double and triple hung sash windows with unusually large glass, the flat deck of the wing and roof, and the whole feeling of a light and airy building (Figure 16). One of the few non-family visitors to Poplar Forest, Englishman George

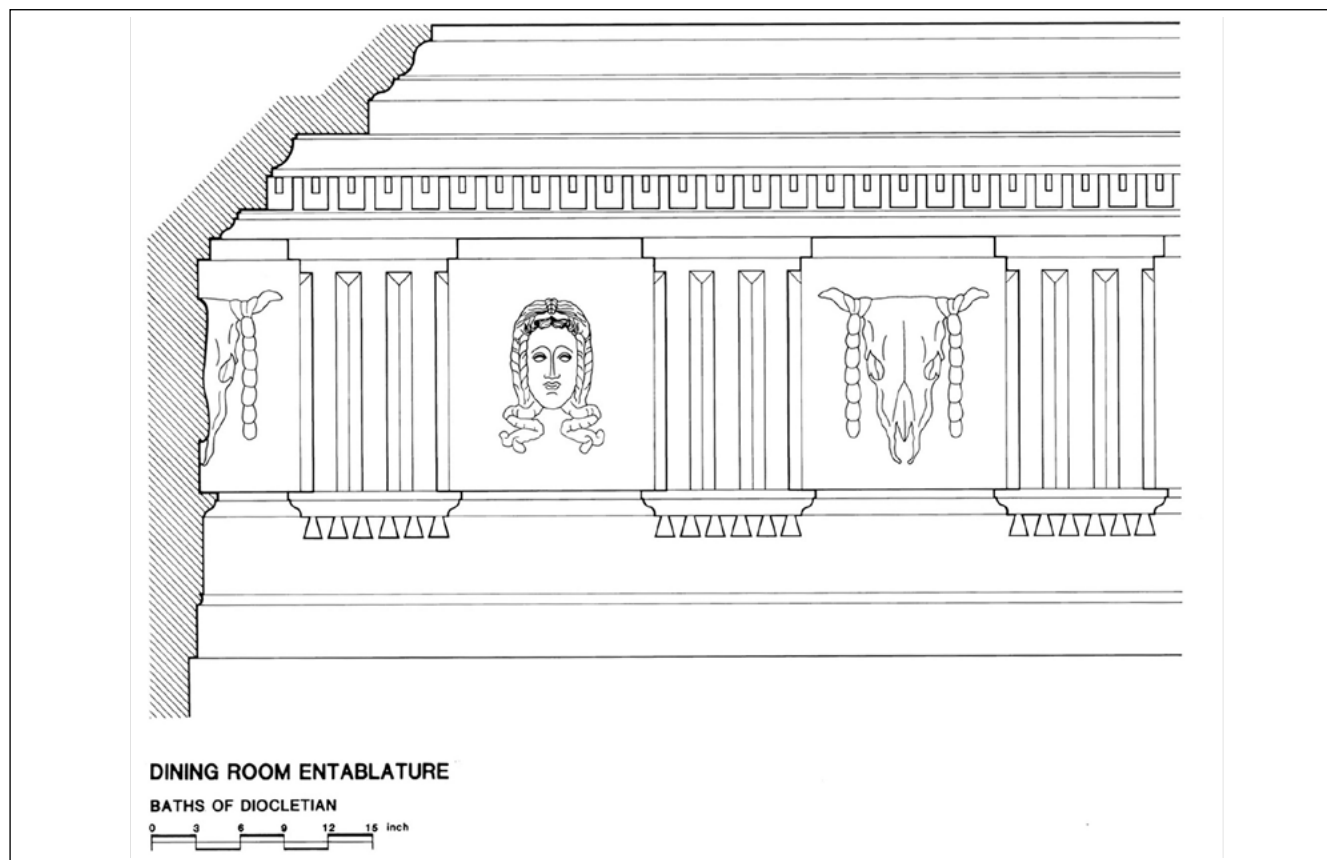


Figure 15. Dining Room entablature from the Baths of Diocletian Doric Order, with Jefferson’s addition of the bucrania. (Mesick Cohen Wilson Baker Architects.)

Flower, who visited in 1816, saw it not as American, but “like a French chateau.”⁶⁶ This unfamiliar modernity caused the house to be so drastically changed in the 1840s—making it more of a typical farmhouse—and then again in the 1940s when it became a contemporary “country house” with all of the modern conveniences.⁶⁷

AN IDEALISTIC WORK

The Renaissance authority of reason, through mathematics, is always embedded in Thomas Jefferson’s architecture. He believed that ancient classical forms might best be adapted to public buildings while the circumstances of modern needs dictated something else for private buildings. The State Capitol and the Rotunda at the University of Virginia are examples of the former and Monticello an example of the latter. For his most intimate work at Poplar Forest, the function of an occasional retreat allowed for a more idealized program where reason ruled supreme. Much has been written about the ancient harmonic proportions used by Palladio and other Renaissance architects. Whether Palladio used whole number

golden ratios exclusively, dynamic root symmetry equations, or a more straightforward geometric process, a mathematical system of design using numbers has always been important. Numbers, measures, arrangements, and proportions were critical components of architecture from the Greeks, to the Romans, through the Renaissance, and onward. Jefferson’s design for Poplar Forest was very much determined by the authority of geometry and by the genesis of the octagon plan.⁶⁸ Jefferson’s determined use of the octagonal shape imposed a challenge of functional idealized spaces that only worked as an occasional retreat. His drawings show that he first designed a centralized octagon that began as a pure form before the addition of the stair pavilions and the porticos. John Mesick noted that the roughly fifty-four-foot diameter of a circular retreat Jefferson designed while in Paris, undoubtedly related to the Désert de Retz folly he had seen, was the same size as the Poplar Forest octagon. Mesick believes that Jefferson’s geometry and proportional use of the orders would result in the octagons-within-octagon plan with the center square.⁶⁹ Rachel Fletcher proposes that some of Palladio’s designs are more than whole number golden ratios and used



Figure 16. The south parlor/library room was as open to the exterior as possible, with four triple-sash windows and a glass door that led onto the “outdoor” room of the south portico. (Thomas Jefferson’s Poplar Forest.)

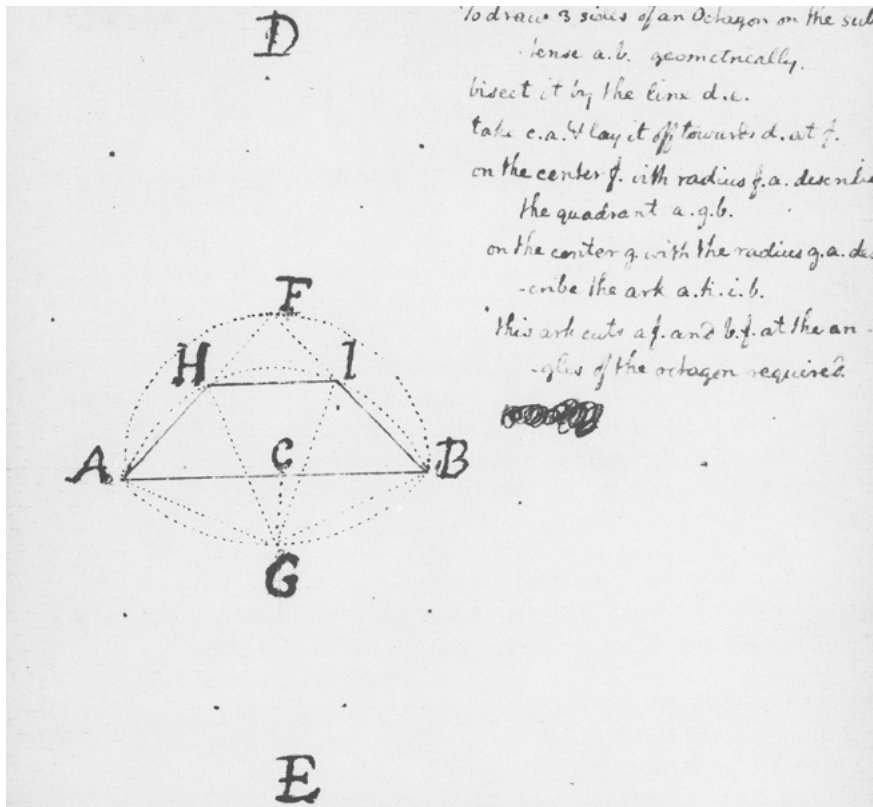


Figure 17. Thomas Jefferson's illustration of how to draw the sides of an octagon. (Coolidge Collection, Massachusetts Historical Society.)

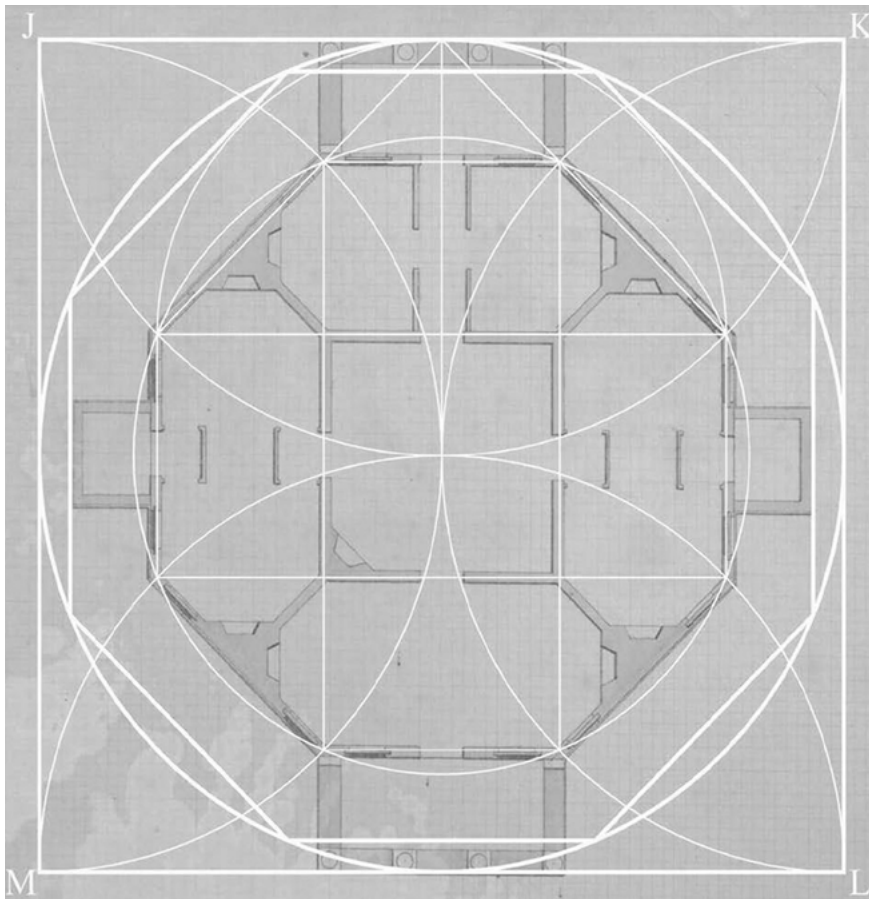


Figure 18. A root-two ratio demonstration by Rachel Fletcher for how Jefferson might have determined the elements of the Poplar Forest plan. (Rachel Fletcher.)

a more complex dynamic symmetry and root ratios.⁷⁰ She notes that Jefferson was proficient in arithmetic, algebra, geometry, trigonometry, Newtonian calculus, and other natural and mechanical mathematical applications—but that geometry was his special interest (Figure 17). Jefferson's notebooks show his drawings and two different calculations of how to draw the sides of an octagon. From the initial octagon shape, Fletcher demonstrates how the Poplar Forest internal plan can be determined by a root-two ratio process. Starting with the outer size of an octagon, a circle, this process can determine sides of the outer octagon walls (twenty-two feet), the size and placement of the cube room (twenty feet square), the entrance passage, the width of the perimeter rooms (twelve feet), the octagonal ends of the perimeter rooms, the fireplace masses that define the octagonal perimeter rooms, the stair pavilions, and the north and south porticos (Figure 18).⁷¹

Jefferson was continuing the quest for the pure and perfect building that the ancients had reserved for temples. This quest had continued in the Renaissance through Serlio's centralized domestic forms that in turn had influenced Palladio to create his masterful Villa Rotonda as an idealized Vitruvian statement of man fitting into nature. Jefferson seemed to relish his love of mathematics even more as he grew older and had time in retirement to get back to the basics. In 1811, he wrote to his good friend Benjamin Rush: "Having to conduct my grandson through his course in mathematics, I have resumed that study with great avidity. It was ever my favorite one. We have no theories there, no uncertainties remain on the mind; all is demonstration and satisfaction."⁷² In 1814, when Jefferson offered his own lovingly created library to Congress, he stated he might only retain books that were classical or mathematical.⁷³ He had, in fact, created a retirement library at Poplar Forest of about one thousand books he could still rely on, as he confided to John Adams: "I have given up newspapers in exchange for Tacitus and Thucydides, for Newton and Euclid, and find myself much the happier."⁷⁴ To another friend in 1819 he confirmed his retirement favorites: "With one foot in the grave...my business is to beguile the wearisomeness of declining life, as I endeavor to do, by the delight of classical reading and of mathematical truths..."⁷⁵

Jefferson could dream of mathematical truths in the classical serenity that surrounded him at his retreat. Sitting at his octagonal table in the central cube room, he was surrounded by geometries: perimeter octagonal rooms within the outer octagon, a circular ring road that was in turn contained within a ten-acre square yard, and that in a sixty-

one-acre rectangular curtilage yard. If the ancients considered the circle to represent perfection, infinity, and the deity, and the square to represent the physical and materialistic world, the squared circle of an octagon was thought to bring a divine presence into worldly reality—or, for Jefferson, perhaps heaven on earth—a world of supreme clarity and harmony where he wished to retire. In theological symbolism an octagon is seen as representing rebirth. What better geometrical symbol then for Jefferson's refreshed and stimulated life in retirement at his villa retreat. The use of the Baths of Diocletian order for the dining room might even have been a reference to the only Roman emperor who retired from public life and power to work in his garden at his villa retreat.

THE PURSUIT OF HAPPINESS

We cannot underestimate the serious, yet abstract, classical and Renaissance notion and concern with nature, virtue, and, subsequently, the attainment of happiness. This revived concept of "virtu" in Palladio's time was intimately associated with civic humanism and the moral life lived by a liberal arts-educated person. Over the doorway of Trissino's Villa Cricoli were the words carved in stone, perhaps by Palladio himself, "Study, Arts, Virtue." Palladio's frontispiece for his books even featured the figure of "Regina Virtus", Queen of Virtue. Jefferson was strongly attracted to the sources of these philosophies: the practical morality of the Stoic writers and the doctrines of Epicurus, all of whom provided a guide to individual peace of mind.⁷⁶ The Stoics thought that a virtuous and wise person lived in harmony with nature. Alberti had advised "there is nothing to which a man should devote more care, more effort and attention than to virtue."⁷⁷ Jefferson has been called "a thorough embodiment of classical virtue."⁷⁸ His long and deep readings of classical philosophy are filled with the idea of "virtu."⁷⁹ Jefferson stated that "happiness is the aim in life and virtue is the foundation of happiness."⁸⁰ This was a reference to his lifelong reading of Epicurus, who believed that "happiness consists of attaining tranquility of mind, an attainment achieved by a proper understanding of Nature," and that learning the nature of the universe and withdrawing from the turmoil of public life could lead to happiness.⁸¹ Jefferson referred to Epicurus as "our master" and stated "I too am an Epicurian."⁸² And indeed late in life Jefferson confided to John Adams: "The supreme good for me is now truly epicurean, ease of body and tranquility of mind, and to those, I wish to assign my remaining days."⁸³

Jefferson had created an ideal Palladian retreat for his



Figure 19. Poplar Forest from the south. (Thomas Jefferson's Poplar Forest.)



own enjoyment based on the precision and power of numbers he so loved (Figure 19). While the villa is said to give shape to universal concerns, it was also a world made possible by enslaved people in an economic system Jefferson could not escape. The architectural perfection Jefferson retreated into for his own pursuit of happiness had ironically been made by enslaved craftsman John Hemings and his apprentice nephews, the likely children of Jefferson and John's sister Sally. Hemings no doubt derived some measure of his own happiness by what he created for his master. Perhaps blinded by the daily micro details kept in his Memorandum Book, Jefferson was good at seemingly ignoring harsh and cruel macro realities around him on the plantation, the historical and moral paradox of life, liberty, and the pursuit of happiness. We can imagine that Thomas Jefferson could more easily escape the specter of his bleak fiscal reality and the economically related horror of slavery while at Poplar Forest, since the mythical nature of villa ideology "accommodates a fantasy which is impervious to reality."⁸⁴ There, in that idealized and isolated setting, Jefferson focused on one final personal and public project, what he called the hobby of his old age: the creation and completion of the University of Virginia.

We might say that Poplar Forest represents in architecture what Arthur Bestor referred to as "a blueprint of his mind," in describing Jefferson's classification system for his library.⁸⁵ Jefferson's classification system divided books into history, philosophy, and fine arts, based on Francis Bacon's three faculties of the human mind: memory, reason, and imagination. At Poplar Forest, memory represents Jefferson's historical passion for the classical world; reason represents Jefferson's life of scientific precision and mathematical formulation; and imagination represents the modernity made possible by the ideological nature of the villa. Inspired by Palladio, Jefferson's journey as an architect was also a fulfillment of what Vitruvius had hoped would make good and lasting works of architecture.

At the end of his long and productive public life, Jefferson finally found the liberty to pursue his own happiness at his retreat, a modern villa in the original sense of what we call Palladian. Andrea Palladio and Thomas Jefferson each strove to reform the architecture of their time, both in public and in private works. It is in the private works where the affinity seems greatest. As one scholar has said about Jefferson's ability to translate foreign languages, but which also seems true of his concerted effort to learn from Palladio: "Jefferson attempted to unearth the original and exact truth beneath the accumulated strata of later transformations and reflec-

tions.”⁸⁶ Jefferson understood, perhaps more than anyone of his age, the real essence of Palladio’s genius. They each created something in the same spirit; looking back at the past, learning from the present, and creating something new for the future that in Daniele Barbaro’s words would be a “marvel for posterity.”⁸⁷ Yet in that Renaissance manner in which

imitation was considered an essential art, we might say that the most Palladian thing about Poplar Forest is that it is not Palladian, but Jeffersonian.

Travis McDonald is the Director of Architectural Restoration at Thomas Jefferson’s Poplar Forest.

ENDNOTES

1. Quoted in Joan L. Horn, *Thomas Jefferson’s Poplar Forest: A Private Place* (Forest, Virginia: Corporation for Jefferson’s Poplar Forest, 2002), 129. This article was in the final stages of editing when Vincent J. Scully, Jr., died in Lynchburg, Virginia, on November 28, 2017. I humbly dedicate this article in memory and appreciation of him.

2. Fiske Kimball, *Thomas Jefferson Architect* (Boston: privately published, 1916; reprint, New York: Da Capo Press, 1968), 71. Kimball’s 1916 landmark publication not only documented Jefferson’s lifelong role as an architect, but also established insights into his development.

3. An initial version of this paper was read at the Southeast Chapter of the Society of Architectural Historians annual meeting in New Orleans, October 2016.

4. Kimball, *Thomas Jefferson Architect*; Giles Worsley, *Classical Architecture in Britain* (New Haven: Yale University Press, 1995); Hanno-Walter Kruft, *Architectural Theory from Vitruvius to the Present* (London: Zwemmer; New York: Princeton University Press, 1994), 346.

5. A corruption of what is understood as “Palladian” is unsurprising for an influence that spans hundreds of years. Any number of books and articles referring to this tradition in America show the typical imitative stylistic results of Palladian massing or the use of Palladian facade elements. Neo-Palladian works might be seen as the outcome advocated by Vitruvius and Palladio, of using antique forms and elements for contemporary solutions, but the full essence of Palladio’s theory and practice was easy to superficially imitate but hard to fully achieve. That is why understanding Poplar Forest in its full Palladian spirit is important.

6. Howard Burns, “Making a New Architecture,” in *Palladio*, ed. Guido Beltrami and Howard Burns (London: Royal Academy of Arts, 2008.)

7. Key to Trissino’s education for Palladio was a thorough study of Vitruvius, whose first-century

work *De Architectura* had been discovered in a Swiss monastery in the early fifteenth century. Among other things, Vitruvius carefully described both the theories and the practice of Greek and Roman architecture and construction. Vitruvius’s rational system of interrelated proportions, called *symmetria*, was adopted by Palladio for his rational principle of design. This approach to the classical principles of design was called *all’antica*, or “in the antique manner.” Trissino’s work as a scholarly linguist is said to have shaped Palladio’s formulation of an architectural vocabulary as much as Trissino’s Villa Cricola helped develop Palladio’s typology of room plans.

8. Palladio’s later patron, Daniele Barbaro, is known for his important 1556 translation of Vitruvius, in which he states about Palladio: “his buildings rival those of the ancients, light the way for the moderns, and will be a marvel for posterity” (Beltrami and Burns, 265). For Barbaro, what distinguished Palladio from all other Renaissance architects was his close study and measurements of ancient architecture, whose principles and forms had to be the basis for contemporary architecture. Even more important to Palladio than Vitruvian theory was his parallel study of what he described as the ‘stupendous ruins’ of Rome. His extensive field notes and drawings are both impressive and beautiful. See Douglas Lewis, *The Drawings of Andrea Palladio* (Martin and St. Martin, 2000). Palladio stated that he learned more from the ancient buildings than from “my master and guide Vitruvius” (Andrea Palladio, *The Four Books on Architecture*, Robert Tavernor and Richard Schofield, translators [Cambridge: MIT Press, 1997] 5.) Palladio’s reputation with the general public for hundreds of years actually came from his extremely popular tourist guidebooks (1554) on Roman ruins and Roman churches that had resulted from his architectural fieldwork. (Vaughan Hart and Peter Hicks, eds. *Palladio’s Rome* [New Haven: Yale University Press, 2006].) Palladio also studied and was influenced by the contemporary architecture of Bramante, Sansovino, Falconetto, Sangallo, Raphael, and Serlio. (See Beltrami and Burns.)

9. Ingrid D. Rowland and Thomas Noble Howe, *Vitruvius, Ten Books on Architecture* (Cambridge: Cambridge University Press, 1999), 16.

10. Rowland and Howe, *Vitruvius*, 18.

11. Isaac Coles to John H. Cocke, 23 February 1816, Cocke Papers, Special Collections Library, University of Virginia.

12. The proliferation of books interpreting Palladio and showing his works makes it unnecessary to summarize those here. Classics like James S. Ackerman’s *Palladio* (Penguin, 1966) and Robert Tavernor’s *Palladio and Palladianism* (Thames and Hudson, 1999) have been joined by many excellent works, especially the translation of the *Four Books* and essay by Robert Tavernor and Richard Schofield (Cambridge: The MIT Press, 1997). I am also indebted to Guido Beltrami, Director of the Palladio Museum, and Howard Burns, who taught me many things at the Palladio Museum Study Course in Vicenza, Italy in 2016. These two authorities have defined the field of Palladian scholarship with publications like: Burns, *Andrea Palladio 1508-1580* (The Arts Council of Great Britain, 1975); Burns and Beltrami, *Andrea Palladio: The Complete Illustrated Works* (New York: Universe, 2001); Beltrami and Burns, *Palladio* (London: Royal Academy of Arts, 2008); Beltrami, *The Private Palladio* (Zürich: Lars Muller Publishers, 2012); Beltrami et al., *Palladio and His Legacy: A Transatlantic Journey* (Venice: Marsilio, 2010); Beltrami et al., *Jefferson and Palladio: Constructing a New World* (Vicenza: Centro internazionale di studi di architettura Andrea Palladio; Milano: Officina Libraria, 2015). Other notable works are Bruce Boucher’s *Andrea Palladio: The Architect and His Time* (New York: Abbeville Press Publishers, 1998); *Palladian Design: The Good, The Bad, and the Unexpected* (RIBA Publishing, 2015); Tracy Cooper, *Palladio’s Venice: Architecture and Society in a Renaissance Republic* (Yale University Press, 2005); Vincent Scully and Philip Trager, *The Villas of Palladio* (Boston: Bulfinch Press, 1992); Joseph Rykwert and Roberto Schezen, *The Palladian Ideal* (New York: Rizzoli, 1999); Manfred Wundram et al., *Andrea Palladio, 1508-1580: Architect Between*

the Renaissance and Baroque (Köln; Los Angeles, Calif.: Benedikt Taschen, 2004); and Douglas Lewis, *The Drawings of Andrea Palladio* (New Orleans: Martin and St. Martin, 2000).

13. Beltrami and Burns, *Palladio*, 276.

14. Palladio's system is described in the many published works by Howard Burns.

15. Kimball, *Thomas Jefferson Architect*, 83.

16. Stephen R. Wassell, "The Mathematics of Palladio's Villas," *Nexus II: Architecture and Mathematics* (1998): 173-186.

17. Meyer Reinhold, "The Classical World," in *Thomas Jefferson: A Reference Biography*, ed. Merrill D. Peterson (New York: Charles Scribner's Sons, 1986), 155-156.

18. William B. O'Neal, *Jefferson's Fine Arts Library* (Charlottesville: University of Virginia Press, 1983). Jefferson owned works by Vitruvius (three editions), Alberti, Serlio, Vignola, Palladio (Leoni 1715, Leoni 1721, Leoni 1742, Fréart 1650, Cipriani 1801, Le Muet 1663-1733, and Jombert 1764), Scamozzi, Chambray, Desgodetz, and Perrault.

19. Jefferson owned books by James Gibbs, William Kent, Robert Morris, and William Ware.

20. Among the many works that treat Jefferson as a designer are: Fiske Kimball, *Thomas Jefferson, Architect*; Frederick D. Nichols, *Thomas Jefferson's Architectural Drawings: Compiled and with a Commentary and a Check List* (Charlottesville: Thomas Jefferson Memorial Foundation and University of Virginia Press, 1961), and "Jefferson: The Making of an Architect," in *Jefferson and the Arts: an Extended View*, ed. William Howard Adams (Washington, D.C.: The National Gallery of Art, 1976); William L. Beiswanger, *Monticello in Measured Drawings* (Charlottesville: Thomas Jefferson Memorial Foundation, 1998, revised 2011); William Howard Adams, *The Eye of Thomas Jefferson* (Charlottesville: University of Virginia Press, 1981); William Howard Adams, *Thomas Jefferson's Monticello* (New York: Abbeville Press, 1983); William L. Beiswanger, "Essay in Architecture," in *Thomas Jefferson's Monticello* (Charlottesville: Thomas Jefferson Memorial Foundation, 2002); Charles E. Brownell, "The Classical Tradition and Virginia Architecture, 1770-1870," in *The Making of Virginia Architecture*, ed. Charles E. Brownell, Calder Loth, William M.S. Rasmussen, and Richard Guy Wilson (Richmond: Virginia Museum of Fine Arts, 1992); Richard G. Wilson, ed. *Thomas Jefferson's Academical Village: The Creation of an American Masterpiece* (Charlot-

tesville: Bayly Museum and University of Virginia Press, 2001); Hugh Howard, *Thomas Jefferson Architect* (New York: Rizzoli, 2003).

21. See William Howard Adams, ed., *The Eye of Jefferson* (Charlottesville: University of Virginia Press, 1981); William Howard Adams, *The Paris Years of Thomas Jefferson* (New Haven: Yale University Press, 1997); William Howard Adams, ed., *Jefferson and the Arts: An Extended View* (Washington, DC: National Gallery of Art, 1976); Howard C. Rice, Jr., *Thomas Jefferson's Paris* (Princeton: Princeton University Press, 1976); and Douglas L. Wilson and Lucia Stanton, eds., *Jefferson Abroad* (New York: The Modern Library, 1999).

22. William B. O'Neal, *Jefferson's Fine Arts Library* (Charlottesville: University of Virginia Press, 1983).

23. Travis McDonald, "The East and West Wings of the White House: History in Architecture and Building," in *White House History* 29 (Summer 2011): 44-87.

24. Paolo Gualdo, 1616, quoted in Douglas Lewis, *The Drawings of Andrea Palladio* (Washington, D.C.: International Exhibitions Foundation, 1981), 4.

25. Jefferson's building practices are discussed in Travis C. McDonald, Jr., "Constructing Optimism: Thomas Jefferson's Poplar Forest," in *Perspectives in Vernacular Architecture 8: People, Power, Places*, ed. Sally McMurtry and Annmarie Adams (Knoxville: University of Tennessee Press, 2000), 176-200; Travis McDonald, *Thomas Jefferson Builder* in Guido Beltrami and Fulvio Lenzo, eds., *Jefferson and Palladio: Constructing a New World* (Milan: Palladio Museum and Officina Libraria, 2015), 136-143; and Travis McDonald, "Thomas Jefferson, Builder," *Palladiana: Journal of the Center for Palladian Studies in America* 11, no. 1 (Fall 2016): 10-13. The most authoritative history of the construction of the University of Virginia is found in Frank E. Grizzard, Jr., *Documentary History of the Construction of the University of Virginia, 1817-1828* (Ph.D. diss., University of Virginia, 1996).

26. Reinhold, "The Classical World."

27. Robert Castell, *The Villas of the Ancients Illustrated* (London, 1728).

28. James Ackerman, *The Villa: Form and Ideology of Country Houses* (Princeton: Princeton University Press, 1990), 13.

29. Ackerman, *The Villa*, 9.

30. Cited in Howard Burns, "Between the Lines: Palladio's project and Palladio's drawings," in

Charles Hind and Irena Murray, eds., *Palladio and His Legacy: A Transatlantic Journey* (Venice: Marsilio, 2010), 18, endnote 48.

31. Jefferson came to Poplar Forest between two and four times a year, from two weeks to two months at a time.

32. Ackerman, *The Villa*, 18.

33. Travis McDonald, "The Private Villa Retreat of Thomas Jefferson," *White House History* 18 (Spring 2006): 4-23.

34. For a general history of Poplar Forest see S. Allen Chambers, Jr., *Poplar Forest and Thomas Jefferson* (Forest, Virginia: The Corporation for Jefferson's Poplar Forest, 1993); Travis McDonald, "The Private Villa Retreat of Thomas Jefferson," *White House History* 18 (Spring 2006): 4-23; and Travis McDonald, "Synthesis of a Lifetime," *Notes on the State of Poplar Forest* (Lynchburg, VA: Corporation for Jefferson's Poplar Forest, 1994), 107.

35. Ackerman, *The Villa*, 20.

36. Beltrami and Burns, *Palladio*, 268-69.

37. Vincent Scully, *Architecture: The Natural and the Manmade* (New York: St. Martin's Press, 1991), 315.

38. The name "Poplar Forest" preceded Jefferson's 1773 ownership to at least the 1740s and referred to this majestic stand of tulip poplar trees, which Jefferson referred to as the "Junos of our groves." When people of Jefferson's time and afterwards referred to "the Forest," it was understood which one.

39. For a discussion of Jefferson's engagement of nature at Monticello see William L. Beiswanger, "Thomas Jefferson and the Art of Living Outdoors," *Antiques Magazine* (April 2000): 594-605.

40. C. Allen Brown, "Poplar Forest: The Mathematics of an Ideal Villa," *Journal of Garden History* 10, no. 2 (1990): 117-139. See McDonald, "The East and West Wings of White House" for the similar landscape plan Jefferson proposed for the President's House. See also Frederick D. Nichols and Ralph Griswold, *Thomas Jefferson Landscape Architect* (Charlottesville: University of Virginia Press, 1978). Allan Brown first pointed out how the core area landscape and its features at Poplar Forest were proportionally designed and related to both classical and European traditions.

41. In addition to grouping many of the supporting service functions in the lower level of the U-shaped wings, Jefferson grouped other buildings and quarters

along Mulberry Row between the house and the large vegetable garden.

42. McDonald, "East and West Wings of the White House."

43. The various designs for Jefferson's serrated roof system are found in Mesick Cohen Wilson Baker Architects, Historic Structure Reports for Monticello, Poplar Forest, and the University of Virginia.

44. Benjamin Latrobe, whom Jefferson hired to work on the President's House and the U.S. Capitol, and who knew European systems of construction, called this type of roof Jefferson's design (McDonald, "East and West Wings of the White House").

45. Certainly there were other Renaissance architects who designed gardens with their villas as well as many examples of French, European, and English garden landscapes, the last of which Jefferson famously toured with John Adams.

46. While there were octagon buildings in America, there were no full-size octagon houses. The so-called Octagon House in Washington, D.C., ca. 1800, was not a true octagon in shape.

47. James Gibbs, *A Book of Architecture* (London, 1728); William Kent, *The Designs of Inigo Jones* (London, 1727); Robert Morris, *Select Architecture* (London, 1755). Although some full octagon house designs are seen in these eighteenth-century books, none seem to have been executed.

48. The evolution of the Poplar Forest design, and the many other Jeffersonian traditions that end up at Poplar Forest, will be treated in a forthcoming publication.

49. Palladio was known to use full size templates so that his stone carvers would be able to produce exact profiles.

50. Jefferson last used the house in 1823, the year he gave it over to his grandson Francis Eppes. Jefferson still directed the completion of the house until just before his death in 1826, instructing John Hemings to install the final part of the interior trim, the Ionic entablature in the parlor.

51. Travis C. McDonald, "Constructing Optimism," 176-200; and Travis C. McDonald, "The Brickwork at Poplar Forest: Thomas Jefferson Builds His Dream House," *Association for Preservation Technology Bulletin* 27, nos. 1-2 (1996): 36-46.

52. Some American architectural style books even devote a chapter to the Jeffersonian, or

Jeffersonian Classicism style.

53. Kimball, *Thomas Jefferson*, 83.

54. Before his two teenage granddaughters started accompanying Jefferson to Poplar Forest, food could come from a detached kitchen up the east stair pavilion, through the east chamber with its central alcove bed, and into the central dining room. After the east wing was constructed in 1814, the south side of the east chamber's alcove bed was closed so that Jefferson accessing the wing deck through the east chamber, and food coming up the east stairs, did not violate the privacy of the granddaughter's space. This south side of the east room was later described as a "pantry."

55. This is expressed in the inner walls of brick rather than wood; in the filling of wood walls, floors, and ceilings with brick to make them fireproof; in leaving the wooden arched lintels in place after the brick arch was constructed; and in a system of arched ironwork under the brick arch of the hearth stone support.

56. Jefferson even remarked that the lower sash half-louvered blinds on the north wall under the portico were not for protection from the sun but for privacy.

57. On Jefferson's west side suite, the lunette window also throws light through a transom window above the vestibule doors into the closet space above his alcove bed.

58. Fiske Kimball commented on this as a "rotunda" house (*Thomas Jefferson, Architect*, 106) as did Thomas Waterman, *The Mansions of Virginia* (Chapel Hill: University of North Carolina Press, 1945), 14.

59. McDonald, "East and West Wings of White House."

60. This was a practice that went back to the Romans. It is our modern sensibility that believes the material of the column should match that of the base and capital. There are many examples where the contrasting material and color was common in the Renaissance and in Palladio's work, such as the Convent of Santa Maria della Carita in Venice, and remnants of red wash on interior columns at San Giorgio Maggiore in Venice, on exterior columns at the Villa Malcontenta, and on the Capitaniato Loggia columns in Vicenza. The rendered brick columns at the University of Virginia of tan color, did not match the white marble Corinthian capitals used on some Pavilions. The local Virginia stone for simple bases and capitals on The Lawn was more of a match. At

Barboursville, local stone bases and capitals are a perfect match for the rendered shaft, or vice versa. Kristen Fetzer wrote a master's thesis at University of Pennsylvania in Architectural Conservation in the 1990s that compared the column render at Poplar Forest with that at UVA (Pavilion VIII) and Barboursville and concluded that the "stone color" was intentional and that the render contained a pozzolanic agent brick dust, another Roman technique for strengthening the material. This column render treatment was done also at Montpelier. At Poplar Forest even the base and capital were made in shaped brick. For a discussion of brickwork at Poplar Forest see McDonald, *Brickwork*.

61. John Mesick, email message to author (11 April 2017).

62. Jefferson preferred Roman moldings for base, chair rail, architraves, and balustrades out of James Gibbs, *Book of Architecture*. At the University of Virginia Jefferson instructed a worker to make some moldings simpler, "finding the simplicity of those in Palladio preferable." Cited in William B. O'Neal, *Jefferson's Fine Arts Library* (Charlottesville: University of Virginia Press, 1976), 119.

63. Roland Fréart, Sieur de Chambray, *A Parallel of the Ancient Architecture with the Modern* (London: John Evelyn Edition, 1664).

64. Thomas Jefferson to William Coffee, July 10, 1822 (Massachusetts Historical Society).

65. Ackerman, *The Villa*, 9.

66. Chambers, *Poplar Forest*, 106.

67. The Cobbs family bought the house from Francis Eppes in 1828 two years after Jefferson died. The Cobbs/Hutter family then owned the house for 117 years. After a devastating fire in 1845 the Hutters rebuilt the house in 1846 in a generic Greek Revival style with architectural changes that made the house more conventional as a farmhouse, rather than a modern occasional retreat. The Watts family, who lived in the house from 1946-1979, remodeled the house for modern living with up-to-date bathrooms, kitchen, and mechanical systems. The house was purchased as a non-profit museum in 1983.

68. Two works that described Jefferson's geometries at Poplar Forest—both done before the restoration—are E. Kurt Albaugh, "Thomas Jefferson's Poplar Forest: Symmetry and Proportion in a Palladian Summer House," *Fine Homebuilding* 42 (October/November 1987): 74-70; and Alvin Holm, "Poplar

Forest: Jefferson's Solar Calendar," *NEARA Journal* 30, Nos. 1 and 2 (1996): 1-5.

69. John Mesick, email message to author (11 April 2017).

70. Rachel Fletcher, *Infinite Measure* (Staunton, Virginia: George F. Thompson Publishing, 2013).

71. Fletcher noted that on the "Neilson" plan of Poplar Forest there is a line inscribed inside the thickness of the outer walls, providing for a 22-foot sided octagon and a 20-foot side for the cube room. Fletcher, email message to author (13 April 2017).

72. Thomas Jefferson to Benjamin Rush, 17 August 1811 (Thomas Jefferson Papers, 1606 to 1827, Library of Congress).

73. Thomas Jefferson to Samuel H. Smith, 21 September 1814. (Thomas Jefferson Papers, 1606 to 1827, Library of Congress.) Jefferson was offering and sacrificing his personal library to replace the Library of Congress that the British has burned in Washington in 1814. He needed the money but refused to put a value on his books, which were eventually valued at about a quarter of their real value.

74. Thomas Jefferson to John Adams, 21 January 1812. (Thomas Jefferson Papers, 1606 to 1827, Library of Congress.)

75. Thomas Jefferson to William Short, 31 October 1819. (Thomas Jefferson Papers, 1606 to 1827, Library of Congress.)

76. Reinhold, "The Classical World," 152.

77. Tavernor, *Palladio*, 20.

78. Tavernor, *Palladio*, 209.

79. Reinhold, "The Classical World," 135-156.

80. Tavernor, *Palladio*, 204.

81. M. H. Howatson and Ian Chilvers, eds., *Oxford Companion to Classical Literature* (New York: Oxford University Press, 1993), 205.

82. Thomas Jefferson to William Short, 31 October 1819, Library of Congress.

83. Thomas Jefferson to John Adams, 27 June 1813, Library of Congress.

84. Ackerman, *The Villa*, 9.

85. Douglas L. Wilson, *Jefferson's Books* (Thomas Jefferson Memorial Foundation, 1996), 35.

86. Karl Lehman, *Thomas Jefferson: Humanist* (Charlottesville: University of Virginia Press, 1985), 19.

87. Burns, *Palladio*, 265.