



CPSA Grant Supports Study

# New Efforts Prompt Hope for Petersburg's Battersea

by Leslie Naranjo-Lupold

Battersea, one of the earliest and finest examples of a five-part, Robert Morris-style Palladian house form in America, stands locked in a perilous struggle for survival. Fortunately, new initiatives are emerging to examine and develop survival plans for the languishing structure.

Begun in 1768 and completed on the eve of the American Revolution by Colonel John Banister, Battersea is situated on 37 acres of open land with perimeters of heavy woods on the bluffs above the Appomattox River in Petersburg, Virginia. Though contiguous to the city's most western residential districts, the setting retains its historic rural atmosphere.

Pattern books, such as those of James Gibbs and Robert Morris, were fueling the emerging taste for Palladian architecture in the period when Battersea was constructed. For example, the Harrison family's contemporaneous seven-part country home, Brandon, seems to be based directly upon Plate 3 of Robert Morris' *Select Architecture* (London, 1752). Battersea reflects a massing of forms in the Morris spirit, but Battersea's five-part profile--not explored by Morris--suggests a direct familiarity with Palladio's *Four Books* as well, though the identity of the individual who merged these two elements has never been established. Battersea is the oldest five-part house in Virginia and one of America's principal prototypes of the form.

"Mr. Banister's handsome country-house is really worth seeing."

MARQUIS DE CHASTELLUX,  
on his 1781 visit

Colonel John Banister, Battersea's patron, was a third-generation Virginian. Returning to Virginia after education in England, he achieved prominence in at least three fields: as an early colonial industrialist (flour, lumber, gunpowder), as a Revolutionary figure (officer and military supplier), and as a political leader and statesman (first mayor of Petersburg and signer of the Articles of Confederation). Perhaps, if later study shows he played a role in the design of Battersea, he will achieve posthumous prominence as an architect as well--like Thomas Jefferson, who was a cousin of Banister's third wife. For now, it is Jefferson whose name is most often advanced as Battersea's anonymous designer.

Battersea was continuously occupied from its construction until 1980 by a succession of six families:

Banister 1768-1824	Boisseau 1847-1870
May 1824-1841	Wright 1870-1905
Waring 1841-1847	Perkinson 1905-1980

Various changes have been made to Battersea through the years. The Banisters themselves replaced the original single bay portico on its façade with a massive two-level portico covering most of the center block. In 1824 owner John Fitzhugh May, a judge of the Virginia Supreme Court of Appeals and member of the General Assembly, added Federal style details to the house, reworking all porticos, installing sidelights and a fanlight at the main entrance, adding symmetrical Palladian windows on the pavilions, updating window sash, converting the east hyphen and pavilion into double parlors and replacing the mantels and trimwork in those rooms. The old trim was reinstalled in the west pavilion where a new second-floor space was added. Ornate plaster cornices were added to the formal rooms, and a Federal-style mantel was installed in the west hyphen. The doorway on the east hyphen was converted into a triple-hung window and the door was moved to the west pavilion. Perhaps it was also Judge May who applied a coating of stucco to the building's brick exterior (though the stucco may have been added by the Waring family who followed). Overall, the building took on a more refined layer of Roman Classical-inspired detailing, complementing the Palladian form.

The Wright family updated the house with gas lights and coal fireplaces and added a bathroom to the east end of the house. Electricity and central steam heat were brought to the



The outstanding Chinese lattice work stair railing in the entrance hall at Battersea is the principal original feature to have survived.

## Palladian Design Theory

Continued from page 5

the proportional relationships between room lengths and widths, he actually asserted that the use of ornamentation--and especially the orders--did not matter in Palladio's design process. This interpretation of Palladio supported the Modernist approach to design precisely in the years when the Modernist movement needed it the most, and, as I have argued elsewhere, it coincided with the commercial interests of architectural profession in the 1950s, which substantially contributed to the popularity of Wittkower's book. At the same time, even if Wittkower's interpretation were true, it really explains only Palladio's design procedures when it comes to the proportioning of individual rooms.

In other words, the question of whether Wittkower was right or wrong is ultimately an ephemeral one. Even if he was right, his approach accounts only for a minor segment of the design problems Palladio had to resolve in his work. A comprehensive proportional analysis of a Palladian villa must take much more into account. In his design work, Palladio had many other design problems to resolve besides the length-to-width ratios of individual rooms. Wittkower's theory did not even attempt to explain the totality of proportional relationships between room dimensions, such as the determination of room heights and mutual proportional correlation of individual rooms. Palladio said that the heights of rooms should be the arithmetical, geometrical, or harmonic means of the height and width, if the room is vaulted. If the room is square, its height should be 4/3 of the width, and if the ceiling is flat, the height should equal the width of the room. In Palladio's time, ground-floor rooms--the level at which a villa or a palazzo is entered--would typically have vaulted ceilings, whereas upper storeys would be covered with wooden beams and have flat ceilings. Palladio's plans usually consist of rows of rooms surrounding a sala (in the case of a

villa) or a central courtyard (in the case of a palazzo).

If we look at the plans presented in the *Four Books*, there are very few plans in which all room dimensions are different: usually a dimension of one room is repeated as the length or width of another room in the same row. Two neighboring rooms normally have either the same length, or the same width, or the length of one room is the width of another. In the *Four Books* Palladio mentioned the requirement that rooms in the same row should have equal heights and that consequently their proportions must be carefully coordinated.<sup>6</sup> It is thus necessary to select such length-to-width ratios that when we calculate the heights of rooms as arithmetic, geometric, or harmonic means of different lengths and widths, the resulting room heights are all equal. This rule can be called the "condition of concordance of heights", or CCH rule. It substantially delimits the possible proportional relationships between rooms in Palladio's designs.

If we assume that rooms in the same row have the same widths, and calculate room heights as the arithmetic, geometric, or harmonic means of room lengths and widths, we shall be able to conclude that coordination of room heights is possible if the height/width ratios are 5/4 and 4/3. If the height/width ratio is 5/4, then it will be possible to have a room with a length/width ratio 5/3 next to a room with a length/width ratio 3/2. The requirements for the CCH rule will be fulfilled and both rooms will have the same height if the height of the former room is the harmonic and the latter the arithmetic mean of length and width. If the height/width ratio is 4/3, the same will be possible for rooms with ratios 2/1 and 5/3. The height of the former would have to be calculated as the harmonic and the latter as the arithmetic mean of length and width. Also, a square room whose width equals the width of these rooms can be placed next to them, since Palladio said that height/width ratio of square rooms should be 4/3. Finally, a room with the length/width ratio  $\sqrt{3}/1$  can

be also have height/width ratios very close to 4/3--in the case they are calculated as arithmetic (1.367) or geometric (1.316) means. In Palladio's villa plans indeed one rarely encounters the situation that more than three rooms have been aligned in the same row. Very often, the third room is much smaller than the other two, has a mezzanine above, and a reduced height.

\* \* \*

### NOTES:

I should like to express my gratitude to Unitec Institute of Technology for financial support in preparing this address and to Karen Wise for help with its written English.

[1] For statistical analyses of the second book of Palladio's treatise see Deborah Howard and Malcolm Longair, "Harmonic Proportion and Palladio's *Quattro Libri*," *Journal of the Society of Architectural Historians* (1982) 41: 116-143, and Branko Mitrovic, *Learning from Palladio* (New York: W.W. Norton, 2004), 64-65, 190-198.

[2] Daniele Barbaro, *I dieci libri dell'architettura tradotti et commentati* (Milan: Il Polifilo, 1987, facsimile of 2nd ed., Venice 1567), 352-366.

[3] For the impact of Wittkower's book, see Henry Millon, "Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, Its Influence on the Development and Interpretation of Modern Architecture," *Journal of the Society of Architectural Historians* (1972), 31: 83-91, and Alina Payne, "Rudolf Wittkower and *Architectural Principles in the Age of Modernism*," *Journal of the Society of Architectural Historians* (1994), 53: 322-342.

[4] Barbaro, 124, 244, 282.

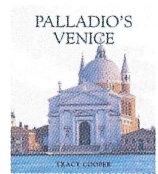
[5] Andrea Palladio, *The Four Books on Architecture*, trans. by Robert Tavernor and Richard Schofield (Cambridge, MA: MIT Press, 1997), 123.

[6] Palladio, 1.54.

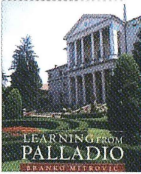
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**Branko Mitrovic**, Professor of Architecture in the School of Architecture, Unitec Institute of Technology, Auckland, New Zealand, is the author of *Learning from Palladio* (Norton: New York, 2004) and the editor, with Stephen R. Wassell, of *Andrea Palladio's Villa Cornaro in Piombino Dese* (New York: Acanthus Press, scheduled 2006), a book of measured drawings and related analysis.

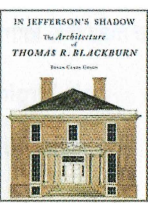
## The Palladian Bookshelf: Some Recent Books of Palladian Interest



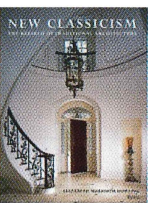
Tracy Cooper  
**PALLADIO'S  
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# Palladian Design Theory as a Puzzle in Three Dimensions

By Branko Mitrovic

This article is excerpted from Prof. Mitrovic's address, "Andrea Palladio's Villa Cornaro in Piombino Dese," delivered at "Nexus 2004: Relationships Between Architecture and Mathematics," Mexico City, June 2004.

\* \* \*

In his treatise [*The Four Books on Architecture*], Palladio listed his preferred room types: circular, square or rectangular with length-to-width ratios  $2/1$ ,  $3/2$ ,  $4/3$ ,  $5/3$  or  $\sqrt{2}/1$ . This list is commonly referred to as the list of Palladio's preferred room length/width ratios. Its interpretation and implications have been in the center of debates within Palladian scholarship for the past 50 years. In the second book of his treatise Palladio presented plans of forty-four buildings he designed; in these plans, room length-to-width ratios have been indicated for 153 rooms.<sup>1</sup> Eighty-nine of these 153 ratios--or 55%--indeed correspond to the ratios from Palladio's list. An analysis of the remaining 45% shows that some other proportional systems were used by the architect as well. The ratio  $\sqrt{3}/1$  appears in a number of plans -- most prominently in the plan of the Rotonda -- as well as ratios such as  $\sqrt[3]{2}/1$  and  $(\sqrt[3]{2})^2/1$ .

One may be tempted to speculate, but it would be impossible to prove, whether there could have existed some background theory which would have motivated the architect's choice of individual ratios, both those stated in the list and those not mentioned explicitly, but implicitly indicated in the plans of Palladio's buildings presented in the treatise. Could such a theory account for the remaining 45% of ratios which cannot be explained by Palladio's list? For instance, all three ratios I have just mentioned,  $\sqrt{3}/1$ ,  $\sqrt[3]{2}/1$  and  $(\sqrt[3]{2})^2/1$ , as well as one ratio from the list of preferred ratios,  $\sqrt{2}/1$ , can be seen as cube-derived.  $\sqrt{2}/1$  is the diagonal-to-side ratio of a square,  $\sqrt{3}/1$  is diagonal-to-side ratio of a cube.  $\sqrt[3]{2}/1$  and  $(\sqrt[3]{2})^2/1$  are the solutions to the Delian problem of doubling the cube.

\* \* \*

The Delian problem and methods for solving it were known to Palladio--for instance, they are discussed in Daniele Barbaro's commentary on Vitruvius on which Palladio collaborated.<sup>2</sup>

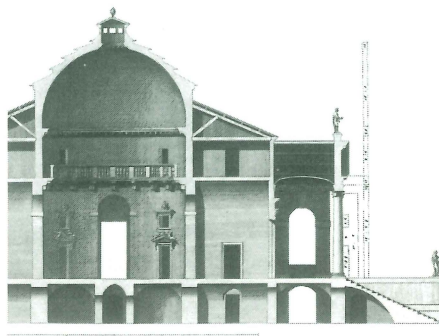
\* \* \*

Half a century ago, this kind of speculative search for the comprehensive interpretation of Palladio's proportional system received great impetus from Rudolf Wittkower's *Architectural Principles in the Age of Humanism* -- arguably the most influential twentieth-century book on Renaissance architectural theory.<sup>3</sup> Wittkower suggested that Palladio's choice of length/width ratios was derived from musical theory. He referred to the fact that ratios of certain musical intervals correspond to numerical relationships between the lengths of strings on a monochord. For instance, the ratio  $2/1$  is the octave,  $3/2$  is the fifth,  $4/3$  is the fourth, and so on.

\* \* \*

In his book Wittkower pointed out a number of Renaissance sources which made similar references directly or indirectly. In his commentary on Vitruvius, Daniele Barbaro stated several times that those ratios which are pleasant to the ears also delight the eyes.<sup>4</sup> Palladio himself, although he did not discuss this kind of belief in his treatise, referred indirectly to it in a memorandum pertaining to the Cathedral of Brescia.<sup>5</sup>

It is, however, important to differentiate between the derivation of certain proportional rules and their explanation. In the case of Palladio and Barbaro, their statements did not refer to musical proportions in order to deduce which proportions should be used, but



only in order to explain an already existing practice. When Wittkower emphasized the importance of the narrative about harmonic proportions for Palladio's architectural theory, he adopted the case-study method. In his book he analyzed only eight out of 44 Palladio buildings presented in the *Four Books*. These were the buildings which indeed best suited his interpretation. But if we look at the larger picture, Wittkower's interpretation can hardly explain Palladio's design process any better than the claim that Palladio simply used ratios from his list of preferred ratios. Out of 153 room length/width ratios from the building plans presented in the second book of Palladio's treatise, 97 can be interpreted as ratios which correspond to musical ratios according to Wittkower's theory; we have seen that this same number is 89 when it comes to the ratios from Palladio's list of preferred ratios. Also, the ratios which Wittkower's theory can explain are more or less the same as those from the list of preferred ratios: only one ratio from this list,  $\sqrt{2}/1$  cannot be explained as harmonic. At the same time, other ratios we have seen that Palladio used, such as  $\sqrt{3}/1$ , cannot have a harmonic explanation. Also, room length-to-width ratios are only room length-to-width ratios. The method by which Palladio decided about them cannot be taken for the only, or even the most important, part of his design procedures. A Renaissance architect would have many other design problems to resolve -- such as the composition of the façade, the use of the orders, mutual volumetric correlation of internal spaces, and so on. For instance, if we look at the canon of the five orders that Palladio presented in the first of his *Four Books*, we shall see that in some cases he adopted ratios for the individual elements from the Vitruvian tradition, but in other cases he had to formulate his own proportions for an element. The most significant element of the orders for which Palladio had to formulate his own proportions was the Corinthian entablature. A systematic comparison of all the proportional relationships on the Corinthian entablature shows that Palladio did not use harmonic proportions in determining its ratios.

Wittkower's was also an ideological position--something we must never forget: by emphasizing the importance of

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## Hope for Battersea

*Continued from page 2*

house by the Perkinsons, who also installed hardwood flooring in the saloon, converted the southeast bedroom into a bathroom, remodeled the kitchen, and added a new standing-seam metal roof. Virginia Perkinson, the last Perkinson owner, caused Battersea to be recognized as a Virginia Landmark and listed, in 1968, on the National Register of Historic Places. She zealously guarded Battersea's architectural integrity and promoted its historical significance in the community.

Upon Virginia Perkinson's death in 1980, her heirs undertook various repairs and then in 1985 conveyed the property to the City of Petersburg. The City acquired the property with ambitious plans for restoring the site and adding Battersea to its roster of local attractions. Matters began well, with the commissioning of a Historic Structures Report in 1988, followed by limited stabilization efforts, focused archaeological studies, dendrochronology, and paint analysis. Soon, however, the program was buffeted by personnel changes, shifting governmental priorities, and lack of

funding sources. As a result Battersea has been subjected to 15 years of deterioration in semi-abandonment.

In 2004 the Center for Palladian Studies in America, Inc. (CPSA) joined with the City and local preservationists to fund additional research by architectural historian Christopher Novelli and validate Battersea's unique importance in colonial American architecture. That study supported an application for Battersea to be designated on the National Register of Historic Places as a site of national significance, a stepping stone to National Historic Landmark status. Historic Petersburg Foundation, Inc., funded a concurrent assessment on the building's condition. Now local and state preservationists, with the cooperation and encouragement of the City, have formed Battersea, Incorporated, a non-profit organization designed to develop with the City a plan for restoration, study and creative use of Battersea and its grounds and outbuildings.

A great deal rides on the successful outcome of these efforts, including the fate of one of America's most innovative and historic structures.



Battersea, in Petersburg, Virginia, was constructed in 1768.

LESLIE NARANJO-LUPOLD, Executive Director of Battersea, Incorporated, served the City of Petersburg as historic preservation planner from 1985 to 1995.

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# Palladian concepts thrive in modern teaching, practice

by Elizabeth Meredith Dowling

Andrea Palladio has continuously provided inspiration for new residential and ecclesiastical architecture ever since he designed his own reserved and stately 16th century buildings and explained his methods in *I Quattro Libri dell'Architettura* (1570).

Yet as recently as 20 years ago classical and traditional design seemed perilously close to capitulating completely to modernism. As in periods of changing taste in earlier centuries, however, the appeal of classical and traditional motifs and proportions has persisted. Now a fresh wave of classicism is emerging.

A new residence in the Buckhead area of Atlanta provides an excellent recent example. The design is by Harrison Design Associates, a 70-person architectural firm with offices in Georgia and California, which supports classical design not only in its own work, but in academic programs as well. Headed by William H. (Bill) Harrison and Gregory L. Palmer, the firm sponsors a visiting design faculty position in Historic Preservation at Georgia Tech's College of Architecture in Atlanta. The program has profoundly influenced both graduate and undergraduate students by offering them the opportunity to learn architectural orders and elements, how to design in a historic context, proportional systems, and traditional presentation techniques—areas that might not otherwise be covered in a predominantly modernist program.

Bill Harrison, speaking for the firm's design team, recently responded to some questions I posed about the new home in Atlanta's Buckhead area and the design process that Harrison Design Associates brought to it. The overall design of the entry façade is founded on the rhythmic organization of Palladio's preferred five-bay organization expanded through the Beaux-arts concepts of Richard Hunt's Newport mansions. Although Palladio suggested that only certain building elements required stone carving, the façades of this house, as well as its solid-shaft columns, are made of Indiana limestone. The interiors include floors of *Giallo Siena* and columns of *Rouge de Roi* marble.

*DOWLING: Palladio's Four Books of Architecture was a major influence on eighteenth- and nineteenth-century American architecture. Do you think his book and his work continue to influence American architecture?*

*HARRISON: I Quattro Libri dell'Architettura* was first published in 1570 and was available to only a select few. Dover Publishing has, since 1965, made the *Four Books* available to a wider arena. Translated into every major European language, it is a must for

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## Palladian Concepts Thrive

Continued from page 4

any classical library. We have many well-worn volumes and they can often be found residing at our architects' desks. Personally, I re-read it probably once a year, as I consider it to be an inspiration and foundation for classical architecture. It re-confirms or re-roots some of my past inspirations from experiences with Palladio's designs. I get a kick out of the discussions he has relative to building staircases and basic functional elements that make so much sense.

*DOWLING: When you and your firm design a residence that has Palladian references, what form do these take in your firm's work?*

*HARRISON: Proportions and symmetry are extremely important. We use his ratios and proportions as a guide -- not necessarily as a must. They promote spaces with harmonic values and human scale. They are helpful in proportioning rooms, windows, door openings. In fact, we use most of the room proportions specified in *The Four Books*, as well as*

the ceiling heights that he defines as arithmetical, geometric and harmonic. Working from the mathematical proportions as a base, one can certainly introduce his or her own ideas. Symmetry and order in the residence are fundamental in design.

*DOWLING: Does your firm study the designs of his villas as you plan new houses?*

*HARRISON: Yes, we are constantly studying his villas' elevations, plans and designs. His villas have been used as an inspiration for several of our projects, both in past years and in designs being built right now. My own home is Palladian in style and we used his suggestions for proportions of interior rooms. The specific inspiration came from Villa Poiana. We used the Poiana entry façade with the Serliana and circular windows for an interior wall composition which frames a major view. Using Palladian proportions creates very tall rooms that are both extremely pleasant and distinctly different from those more frequently used in modern interiors.*

We've also gained direct inspiration from Villa Barbaro, for example, and have used the organization of the salon from Villa Cornaro in a past project.

*DOWLING: What aspect of Palladio's work do you find most beautiful and/or useful?*

*HARRISON: His ability to produce symmetrical, beautiful architecture that is not stale but has lively proportions and life; almost a living, breathing entity, it has such a good sense of human scale and proportion. It is well grounded in purpose and function, which are inspirations of architecture in any style. It is timeless, as relevant today as in the 1500s.*

Elizabeth Meredith Dowling, Professor of Architecture in the College of Architecture, Georgia Institute of Technology, is the author of *New Classicism: The Rebirth of Traditional Architecture* (New York: Rizzoli, 2005).

Photos: John Umberger, p. 4; Sally Gable, p. 5.



The twenty-first century Atlanta residence designed by Harrison Design Associates displays a five-part profile with antecedents in eighteenth-

century Battersea (pp. 2-3) and Palladio's own sixteenth-century Villa Barbaro and Villa Emo.