Painting by the Numbers: A Porter Postscript

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Abstract

At the 2005 Bridges conference the author presented a paper titled, "Fairfield Porter's Secret Geometry". Porter (1907-1975), an important American painter, is known for his "naturalness" and seems to eschew any system of proportioning. This paper briefly traces other influences on Porter's use of geometry in art and offers an analysis of two more of his paintings to reveal detailed and sophisticated geometric structures based on the Golden Ratio and Dynamic Symmetry.

Introduction

Artists throughout history have sought a key to beauty in proportioning systems in composition, a procedural method for compositional structure. Starting in the late 19th century there was a general resurgence of interest in geometrical structure as a basis for painting. Artists were researching aids to producing analogous and self-similar areas and repetitions of ratios in assigning the elements of a painting. In the 1920's in America compositional methods gained new popularity fueled by Matila Ghyka and Jay Hambidge such that Milton Brown was prompted to title a critical article in the *Magazine of Art*, "Twentieth Century Nostrums: Pseudo-Scientific Theory in American Painting". [1]

More recently there have been growing circles criticizing the hegemony of the Golden Mean as a universal aesthetic panacea. [2] The principle of beauty underlining the application of the Golden Ratio and Dynamic Symmetry proportioning in a composition is not irrefutable, but what seems like a more useful exercise than to debate research in perception of elegant proportion is to look at the works of artists who seem to have fallen under its spell. Certainly, every book on the fundamentals of art and design refer to systems of organization, and most point to the Golden Ratio. Following what seems to be an art historical precedent, art instructors teach Golden Ratio methods of utilizing proportional ratios in composition. An important principle of design and composition is repetition, so creating any structure such that the elements of a painting are aligned within self-similar areas and consequently at repeating measures from each other would satisfy the goal of unity It is the thread that holds together an otherwise loose tapestry of forms in space and provides a structure of harmonizing ratios of distance.

Fairfield Porter

Fairfield Porter (1907–1975) is a highly respected art critic and painter of his time, with a circle of famous painter and poet friends. He makes an interesting example to demonstrate the use of sophisticated geometry in composition just because he seemed to deny any system of organization. In *Respect For Things As they Are*, Porter is quoted as remarking, "Order seems to come from disorder, and awkwardness from searching for harmony or likeness, or the following of a system. The truest order is what you already find there, or that will be given if you don't try for it. When you arrange you fail."[3]

And yet paradoxically, James Schulyer, the Pulitzer Prize winning poet, who resided with the Porters for over a decade, (and so may have been the most discerning critic of his work), wrote a definitive observation; “part of Porter’s originality lies in a complete reliance in the freedom of his hand … Also, there is his almost invisible mastery of structure, of composition … This gift he may have acquired from his father … a Chicago architect … whose houses combined an originality of plan with an exactitude of detail.” [4]

Porter’s father, James, was an all-important influence on Porter’s love of Greek art and architecture, and since Hambidge's theories of Dynamic Symmetry were based on studies of Greek Art, it would follow that Porter would fall under their influence. In 1928 Porter attended the Art Students League after graduating from Harvard University, and there was surrounded by artists who were enamored with Hambidge’s ideas, including Robert Henri and George Bellows. Porter’s favorite professor at Harvard was Arthur Pope who subscribed to Dr. Denman Ross’s principles of organization based on Dynamic Symmetry. Ross, Bellows and Henri were all contributors to Hambidge’s *Dynamic Symmetry In Composition, As Used By Artists*, published in 1923. [5] It’s also noteworthy that at Harvard, Porter had shown a particular “enthusiasm for Kent and Robert Henri and George Bellows.” [6]

In the same year (1924), that Porter began his studies at Harvard Alfred North Whitehead joined the Philosophy faculty. Whitehead's metaphysical vision was rooted in the primacy of experience of the world and had a significant influence on Porter’s approach to his art. Whitehead had come directly to Harvard from his position of Professor of Applied Mathematics at the Imperial College of Science and Technology in London. It is therefore interesting to speculate that Porter’s affiliation with Whitehead’s ideas was not limited to his philosophy but also to his sophisticated mathematics. Porter must have found mathematical ideas intriguing. His reading included G. H. Hardy’s *A Mathematician’s Apology* and the challenging *Laws of Form* by G. Spencer–Brown.

Also of note is that Matila Gyhka’s influential books were published in Porter’s early years, including *Le Nombre D’Or* (1931). Porter was reasonably fluent in French, even translating some of Stephane Mallarmé’s symbolist poems [7] There’s also the cross correspondence of Porter’s composition and a metrical relationship with Stephane Mallarmé’s poetry, which entailed “the strictest organizational vigilance, an ideal orchestration that attains to an internal harmony, a rhythmic self-containedness, and symbolic self-logic”[8] and in composing his poetry, “taking a singularly complicated initial idea, [Mallarmé] refines upon it mathematically”. [9] Porter socialized with the members of the so-called New York School of Poets, a virtual Harvard University alumni club of literary prowess. Porter himself as an esteemed art writer of the day was well versed in literature. One of his favorite writers, Wallace Stevens in *The Necessary Angel*, in a chapter on “The Relations between Poetry and Painting” refers to the art collector, Leo Stein, who according to Stevens thought that composition was the “common denominator of poetry and painting” and “a formally complete picture is one in which all the parts are so related to one another that they all imply each other”. [10]

With his interest in architecture, Porter may have also been aware, like Le Corbusier, of Matila Ghyka’s “Esthetique des proportions dans la nature and dans les arts” (Paris: Gallimard, 1927) [11] the Golden Ratio and Fibonacci numbers, of course, becoming the important theme of Le Corbusier’s later modular theories. It would seem then that Porter was surrounded by influences that would make a case for his use of compositional geometry. There is even some physical evidence of his use of a compositional grid using the diagonals in the first page of a sketchbook drawing (ca 1950) from the Fairfield Porter papers 1888-1996, in the Archives of American Art. Also his painting stored in the Smithsonian Museum of American Art, *Boathouses* (1962), where a strongly visible is a vertical charcoal line showing through the paint at the Φ division.

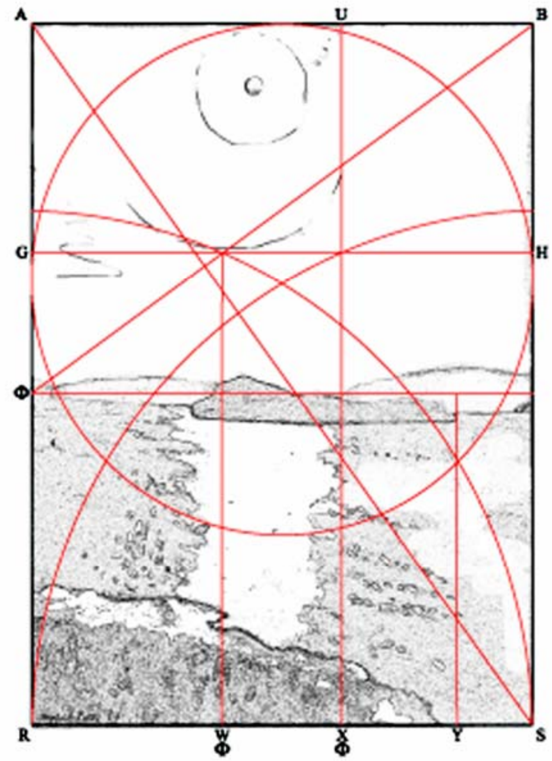

Figure 1. Construction of the dimensions of the canvas for *Yellow Sunrise*.

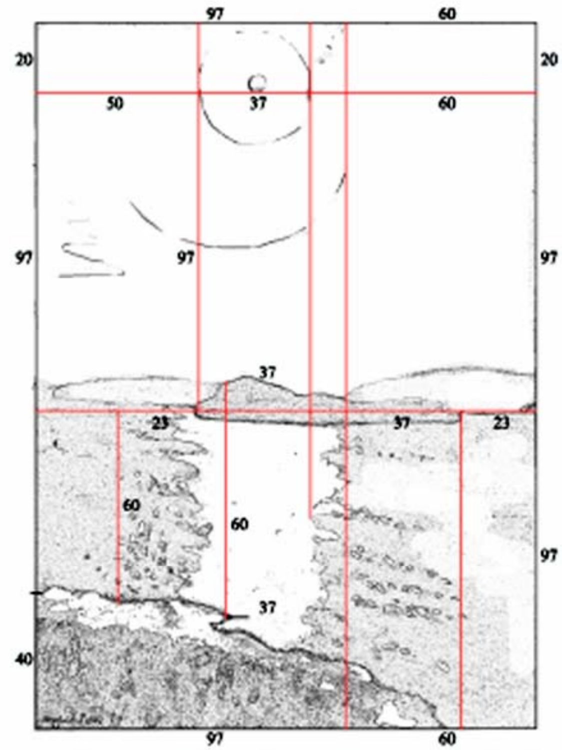

Figure 2. *Yellow Sunrise (1974)* with **Φ** analysis.

Postscript

In *Yellow Sunrise* (1974) the composition is also governed by two horizontal Φ rectangles on top of each other but with another space above, and then further divided into Φ sections. The islands on the horizon sit on the contiguous line of the two rectangles and the center of the sun is positioned on upper horizontal of the top rectangle and a Φ distance in from one side. The islands overlap at the Φ division of the short side, and so on. **Figure 1.** Figure 1 demonstrates the composition by showing the distances based on the size of the original reproduction in millimeters 157x215. Dividing each side by 1.618 yields the harmonic divisions: 157, 97, 60, 37, 23 and 215, 133, 82, 50 and indicates that Porter used these repeating measures of 97, 60, 37, 23 and 50.

The author presented this analysis in great detail at the Banff Bridges Conference 2005 and presented a geometric method for constructing this rectangle, but at the time was still at a loss as to explain why the Dynamic Symmetry perpendicular to the diagonal cut the canvas to create a reciprocal Φ rectangle. [12] **Figure 2.** However during the conference the author realized it is was probably produced by a cut down Φ rectangle (eureka) but still couldn't fathom a method to demonstrate this.

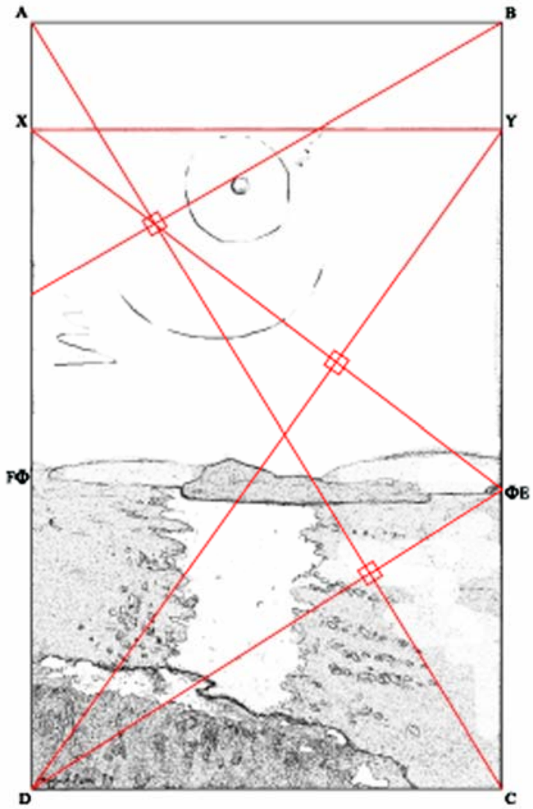

Figure 3. New construction from Φ rectangle.

This postscript proposed a method that may have been used:

Construct a 1:1.618 rectangle ABCD. At right angles to diagonal AC and from the corners construct DE and BF. Each will divide the rectangle into a square and a Φ rectangle From E through the intersection of AC/BF draw EX. The diagonal of the new rectangle XYCD is at right angles to EX.The XYCD rectangle becomes the canvas proportions. Figure 3. draw EX. The diagonal of the new rectangle XYCD is at right angles to EX. The XYCD rectangle becomes the canvas proportions. **Figure 3**

Other Examples

For *July Interior* (1964), a six feet portrait of his poet wife Anne sick in bed, Porter used a √Φ rectangle for his composition. [13] Right angles, dynamic symmetry and the √Φ form the regulating lines of this composition. The short side, the long side and the diagonal are in a harmonic geometric progression of 1, √Φ, Φ**,** This focal point is found by using the diagonal of the canvas, (which runs through Anne's face, the pillow point, the headboard, and the base of the window) and a diagonal drawn at right angles to it from the opposite corner (which positions the photo, the left window, and the bedside table. Unique to this √Φ rectangle is that the vertical and horizontal lines drawn at this focal point bisect the short and long sides of the picture at their Golden Ratio divisions. Porter appropriately places Anne's face at this intersection and reinforces it with the dark vertical of the bedpost. Successively dividing by 1.272 (√Φ), gives a numerical sequence of 233 (the diagonal): 183: 144 (the painting's short and long sides within 1cm.): 113: 89: 70: 55, forming the compositional grid and self-similar measures between the primary elements of the subject. The rectangle can be divided "*ad infinitum* into similar rectangles forming a geometric progression of ratio 1/ Φ (this being an illustration of the Greek notion of "Dynamic Symmetry" or *commensurability in the square* as rediscovered by J. Hambidge)". [14] **Figure 4.**

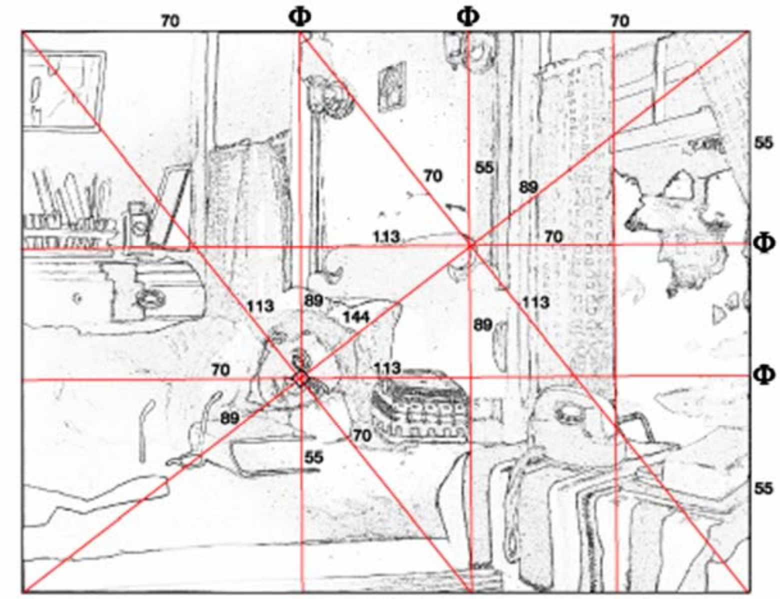

Figure 4. July Interior (1964)

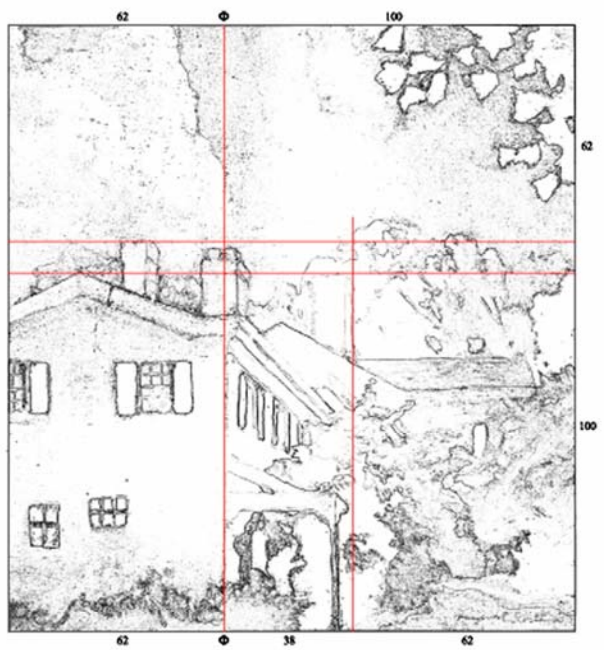

Figure 5. House with Three Chimneys, (1972)

House with Three Chimneys, (1972) is the colorful cover of Spike's biography, *Fairfield Porter: An American Classic* [15], It's a near square, 21 x 22 inches divided into Φ sections. The corner of Porter's Southampton house forms the primary vertical division, which is at the same Φ distance from the left side as, the tallest of the three chimneys. Similarly the sunlit side of the shorter chimney is the same distance from the right edge. Porter also uses the principle of rebatment or folding the short side over the long, and using the short side Φ proportions to determine key divisions. **Figure 5** (based on a reproduction, 162 x 172 mm. with dominant Φ numbers quoted in millimeters 162,100, 62)

Analysis

In attempting geometric analysis of a painting it must be realized that contemporary artists are not under any mathematical obligation to follow even their own structure blindly. Indeed, Fairfield Porter pointed out in a review of Jane Freilicher's exhibition, "When she has to choose between the life of the painting and the rules of construction, she decides to let the rules go". [16] Artists make decisions in a dialogue with the work in progress. Frank O'Hara, watching Porter working on a painting, observed, "composition, for Porter is a conscious procedure, an advance of decisions which became more and more irrevocable as the work goes on"…". [17]

Porter eschewed the use of a golden ratio rectangle for the overall canvas in favor of a number of other proportions. But he did use golden ratio proportions or derivations thereof in the division of space that forms the compositional grid. In reviewing his canvas dimensions, Porter's rarely approach 1:1.618 (Φ), the golden rectangle. But besides the square, Porter did frequently use a half √5 and a √Φ. He did seem to favor canvas proportions where half the short side virtually equals the Φ of the long side (1:1.236) This may be chosen because of it's relation to the √5 rectangle (1: 2.236) because it can be divided in half into two Φ rectangles one above another, which can then be divided successively into a square and Φ rectangle.

References

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[5] Jay Hambidge, *Dynamic Symmetry In Composition*, (New Haven, Yale University Press, 1923).
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[7] Spring, 201.
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[9] Guy Michaud, *Mallarmé*, (N.Y.: New York University Press, 1965), 108.
[10] Wallace Stevens, *The Necessary Angel*, (N.Y.: Vintage Books, 1951), 162.
[11] Michael J. Ostwald, "Review of *Modular* and *Modular 2* by Le Corbusier (Charles Edouard Jeanneret)", *Nexus Network Journal*, vol. 3, no. 1 (Winter 2001).
[12] Christopher Bartlett," Fairfield Porter's Secret Geometry", *Bridges Proceedings*, 2005,17-24.
[13] Christopher Bartlett, "Decoding Fairfield Porter's July Interior", (Chicago; University of Chicago Press/Smithsonian American Art Museum, *American Art*, Spring 2007) 98-101.
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