Fairfield Porter's Secret Geometry

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Abstract

Fairfield Porter (1907-1975), an important American painter, is known as a painterly realist. He professed an intuitive and empirical approach to the subject matter and writings about his work usually claim there is no formal geometry to his composition. This paper traces influences on Porter's art that support his use of the golden section and dynamic symmetry and analyzes his painting to reveal a detailed geometric structure to even the most abstract of his works.

Introduction

Fairfield Porter (1907-1975), an important American painter, is receiving a lot of attention these days with two biographies, a Catalog Raisonné, and an exhibition that traveled across the country from the AXA Gallery, New York in 2000 finishing last year at the Mcnay Art Museum, Texas. The January, 2005 issue of *Art News* includes Porter in its list of "Great Underrated Artists".[1:105] Porter is well known as a painterly realist in a period when abstraction was in vogue (1950-1970s). He professed an almost Zen attitude to the experiential nature of the painting process. In fact, writings about Porter usually remark on his search for a 'naturalness', "to cease to exist" one self to therefore be receptive to the surroundings."[3:136] Or as, "an artist seeking a direct experience with his subject untrammeled by artifice … an art about perception, where the paint relays the empirical, perceptual experience and the artist is an objective observer."[9:103] Such comments might lead one to expect Porter to rely purely on intuition to compose his paintings. Paradoxically, and as part of the dualities and contradictions that seemed to define his art and life, Porter, however, seems to have employed a precise underlying geometric structure to even the most abstract of his works.

A basic prerequisite for most artistic composition is some form of continuity, visually connecting smaller units to larger units and helping to knit the whole structure together. So, how is geometric proportion involved in the design of art? In architecture where the rectangle rules the shape of most structures, the concern for the harmony of geometric proportion is more visible. But it is really not that much different in painting a picture. Since the pictorial space is normally a rectangle, it invites some system of geometrical proportioning which would provide a unifying invisible grid to guide the arrangement of the subject matter. The artist develops some systematic underpinning to allow for a variety of placement possibilities in accord with the subject or content of the work.

Golden Section

What division of space looks attractive? Which point on a line divides the line 'perfectly' so that the relationship of one part to the other is visually satisfying? Or, if one selects a rectangle where the height to width seems 'just right', that is having perfect proportion, most people select one where the shorter length

is to the longer, as the longer is to the whole. This aesthetically pleasing relationship is known variously as the Golden Section, the Golden Ratio, or the Golden Mean. The Golden Section ratio is an irrational number expressed as 1.6180 and known as Phi, (pronounced 'fee'), the twenty-first letter of the Greek alphabet. It is a canon of proportion explained in virtually every book on art and design fundamentals. Thought to be in use as far back as Stonehenge and practiced by artists and architects through the centuries; it occurs in Egyptian art, especially Greek art, the art of the Middle Ages, the Renaissance, and throughout much of Modern art. Past masters were all well acquainted with this system, the "divine proportion". The ratio is also well documented as occurring in living things, in music, and in scientific theory. The ratio, for some, has an almost mystical quality, and some would even say is a universal underpinning for the structure of the cosmos.[16]

   Although Porter's painterly brushwork and casual domestic subject matter may belie this formal division of space, his paintings demonstrate a carefully articulated arrangement of forms, many in accordance with the Golden Section system. Through sequential division of space, a geometric progression of parts, he achieved an analogous correlation between the rectangle of the whole picture plane and the grid of rectangles defined inside it. By this means his work has an asymmetrical harmony of parts, an architecture which houses his imagery in a unified whole. As the artist, Jacques Villon wrote, "the framework of a work of art is also its most secret and deepest poetry."[5:7]

Secrets

Porter, however, would seem to deny any formal construction or systematic order; "composition is contingent, which means that it doesn't conform to rules. The connection between the parts are *unscientific*, for one cannot isolate from them any system, rule or connecting thread that adequately describes the whole work."[8:276] In *Respect For Things As They Are*, Ashbery quotes him as saying, "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."[2:13] In the introduction to *Art In Its Own Terms*, Rackstraw Downes too, observes that Porter's philosophy was, "to keep as far away from any organizing principle or procedure that could put limits to his feeling for uniqueness. Composition, which he was taught to think meant looking for likenesses and repetitions he came to believe consisted in making distinctions."[8:23] Porter evidently agreed with that, using something the poet, Wallace Stevens said, "without imposing, without reasoning at all (one discovers) the eccentric at the base of the design."[8:6]

   How does one solve the dichotomy between these apparently divergent views of his art? Perhaps what is meant by the word "composition" in these statements is a generalization referring only to the organization of separate elements of imagery in the painting and not to the organization of the picture plane itself. (Porter's statements often seem philosophically generalized.) But perhaps too, as Berlind puts it, referring to Porter's communication of concrete experience, "Porter's stated esthetic did not entirely account for his practice". [3:140]

Historical Influences

Certainly, there are many historical examples of influences on Porter that would strongly support his knowledge of and use of a Golden Section system. The Greek revival house, which his architect father built, Fairfield thought was one of the most beautiful in the United States.[7] They even had life size replicas of the Parthenon frieze in the house. The Parthenon, in Athens, of course, is considered a canon of Western architectural beauty and the most frequently quoted as being designed on the Golden section system. Porter's brother, Eliot, noted that, (their father's) … "admiration of classical architecture was based on its purity of function and design expressed by the mathematical precision of Greek temple construction which he meticulously maintained in the features he incorporated in his house"[23:10] Porter was also aware of architect Le Corbusier, who used the Golden Section as a proportional theme ("The Modular") in his buildings.[7]

Porter was educated at Harvard (1924-8) where he took theory courses in art. One of his favorite professors there was Arthur Pope. According to Kenneth Moffet, "When studying with Arthur Pope or reading Bernard Berenson's books, Porter's taste for traditional structure and pictorial decorum was first confirmed". [2:10] Professor Pope taught composition as a part of the Drawing and Painting and Principles of Design course (that Porter was in) and was a disciple of Denman Ross.[22:23] Dr. Ross advocated Jay Hambidge's theories of geometric composition of which the golden section is an integral part. [12:49] Ross, wrote dogmatically that, "there is no art which can be satisfactorily and successfully practiced without constant reference and obedience to mathematical principles, systems and laws.'' Pope agreed; "in painting as in architecture a sound theoretical basis is necessary."[6:99]

It was author/illustrator, Jay Hambidge, who revived the use of proportional systems in American art at the time. On a trip to Greece in 1900, he noticed a common denominator of proportions in classical artifacts. Each section or area was sequentially positioned so that it had a proportional reciprocal relationship to the whole. He advocated using these principles of order based on root rectangles in compositions to create a universal system of beauty. The root five rectangle was a key element since it played a major role in the golden section ratio (root five plus one divided by two equals the golden number, 1.618). Another primary component of his theory was that a diagonal intersected by another diagonal from a corner at right angles would divide the picture plane into two rectangles, which then had a reciprocal relationship. Hambidge published *The Diagonal* (1919-20) at Yale, taught there, and also held a Sachs fellowship at Harvard. It was at Harvard, in 1918, that he gave influential weekly lectures on composition, which well-known artists, Robert Henri and George Bellows attended. (Bellows had studied painting with Henri at the Art Students League.) [20:127] Henri and Bellows became enthusiastic followers of Hambidge's ideas on composition. Coincidentally, Porter seemed to have special affinity for the work of both Bellows and Henri, which he saw with Prof. Pope at the Spaulding Collection in 1926. [22:28] So, it seems that Porter had a lot of opportunity to learn about this form of composition and at the very least he would have been taught composition by Pope, based both on past masters and Hambidge's theories. Porter, himself, said that at Harvard, "composition is the most important thing. And composition means they analyzed it."[7]

Hambidge's book, *Dynamic Symmetry in Composition*, in which Ross, Henri and Bellows are all quoted, with examples of their layouts, was published in 1923 by Yale University Press.[12] Hambidge's *The Elements of Dynamic Symmetry* (reprinted in 1926 from the *'Diagonal'*) was published posthumously.[11] *The Art of Composition* by Michel Jacobs, also printed in 1926, offered less daunting mathematical and more practical examples of the same proportional divisions of space for artists.[14] These books might have had some influence on Porter. It is certain that Porter did know about dynamic symmetry. Perhaps, he saw Bellows' paintings in those pages rather dryly described in terms of their rigid adherence to Hambidge's doctrines. He commented later he felt Bellows work suffered from too much art theory; "He applied theories of dynamic symmetry and of color and so on and so on instead of having a direct contact through his sensibility with the medium and with the picture."[7]

After graduating from Harvard in 1928, Porter went on to study at the Art Students League. For the next two years he studied with Thomas Hart Benton and Boardman Robinson. Benton's teaching emphasized structure and traditional composition.[7] Evidently, both Robinson and Benton were enthralled by the construction of composition and spent time together, "analyzing the old masters' compositions" to discover an esthetic system, an "order of procedure." Robinson even advocated to his students, presumably including Porter, that they borrow their composition from the Old Masters."[22:47] Porter certainly didn't lack the aptitude for planning out his paintings. He studied mechanical drawing at the Delehanty Institute and worked for an industrial designer, during the war years, designing ordinance for the Navy.[23:147]

Another major influence had to be the European masters that Porter studied on his trips abroad. But it was Edouard Vuillard and Pierre Bonnard, who are well documented as two primary influences on his work. [1:13] As members of the Post Impressionist group, the Nabis, they would have been involved with the Golden Section through Paul Serusier, who propagated these ideas to many artists at that time. There was even a Paris exhibition, organized by Jacques Villon, in 1912, tagged, "Section d'Or" (Golden Section). But it was Vuillard Porter liked most. Porter, as always the diligent intellectual, approached his work with an analytical mind, even though he was interested in perceptual realism. In Vuillard, "key lessons were to be

discovered … about the structure of insistent horizontals and verticals."[4] So, despite the sense of arbitrariness, "unconsciousness" or "artlessness" he cultivated in his work it seems reasonable that Porter would utilize the same kind of thoughtful structure that his favorite artist, Vuillard used to organize his paintings. And with all of his artist/teachers enthusiastically embracing the use of geometric composition, surely Porter was encouraged to do the same.

So why is this invisible structure a secret, hardly mentioned, or even denied? Well even for dedicated analysts the recovering the details of compositional structure can be difficult. Often, the exact system remains truly a secret of the art, hidden below the surface, only discernible by the sense of order it imparts to the pictorial elements. For the enigmatic Porter, perhaps discussing his use of a method of ordering his picture might run counter to his avowed 'naturalness'. Perhaps too, in the atmosphere of literature and poetry that surrounded Porter to engage in discussions of a system of organization based on geometry, was too foreign. But, the use of geometry in art, like any aspect of the design process is to produce some form of visual coherency, where there is variety within unity: "A work of art will fail unless it is schematic … a systematic disposition of parts according to some coordinating principle."[10:174]

Composition

If one is choosing a compositional system at all, then the archetypal proportions of the Golden Section can produce, perhaps, the most visually satisfying sets of relationships, an almost infinite variation and subdivision and is also logically associated with its diagonals. Some writers would suggest that many artists today might feel constrained to base their painting on a strict geometrical structure, which might stifle their creative freedom. But, in fact an analysis of contemporary art may well find a surprising number of artists whose composition is influenced by a geometric system. Intuition alone is a risky substitute for artistic awareness based on knowledge and critical analysis, the underpinning that often characterizes the satisfying aesthetic of master works. Instinct is best informed by intellect, and as every art educator is aware, theory informs intuition … "Feeling accommodates itself intimately to order and geometry is a component of expressive order". [13:57]

While it is unusual for most authors and reviewers of art to refer to any geometry of composition except in passing, there are some clues to Porter's mastery of it. Frank O'Hara, for example, in *Porter Paints a Picture*, said that, "Composition for Porter is a conscious procedure, an advance of decisions which become more and more irrevocable … (his) paintings stand or fall by their composition." [18:40] Jed Pearl called his larger works, "deliberately plotted. Here he reaches for some overriding order".[19] In Hilton Kramer's opinion, "The element of analysis in Mr. Porter's painting is very strong, however, the formal construction of his pictures is always a superb feat of aesthetic intelligence in itself".[15] It was James Schulyer, the poet, who resided with the Porters for over a decade, and therefore may have been the most discerning critic of his work, who 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."[23:261]

The proof of this thesis, however, lies perhaps less in anecdotal influences and in critical reviews but in the analysis of Porter's work itself. One discovers a partnership of both intuition and a deliberate, conscious organization.

Analysis

An analysis of the composition of a range of Porter's paintings (too many to document here) indicated his consistent use of Golden Section proportions. The measurements themselves are undeniable. (All inches were converted to millimeters and a full size canvas was created so that this wouldn't be a mere number juggling exercise. Reproductions vary slightly in the way they are cropped, but allowing for any slight discrepancy in measuring the original canvas, these results would still be within 3/16 inch.)

Yellow Sunrise was chosen as an example. It is a mature work completed a year before his death in 1975. It shows that Porter, even then, was still using the compositional techniques learned in his formative years as a painter. What is fascinating about the specific proportions of *Yellow Sunrise* (23" x 31") is that the canvas size is made up of two horizontal Golden Section rectangles, the top of which underlines the inner drawn circle of the sun. The most likely method of constructing the proportions of this canvas is with a compass at the width of the pre-determined short side and inscribing arcs from its ends (corners R and S). Then at the intersection of the arcs drawing a circle with a diameter of half the short side (i.e. half RS). The final canvas rectangle is then completed using these dimensions. (Fig. 1)

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

The Dynamic Symmetry method of using a diagonal of the canvas (BR), and from the opposite corner, a line drawn at right angles to it (AM), cuts the edge of the long side to form a Golden Section rectangle at the base of the picture. The upper rectangle, consequently, retains reciprocal proportional dimensions to the whole canvas. By this method, Porter employs the Golden Section ratios of the short side (23" divided by 1.618 is 14.2") transposed on to the long side, creating a 23"x14.2" golden section rectangle at the base. One of the special properties of a Golden Section rectangle, that is one with sides in a 1.618 proportion, is that is formed of a square and a reciprocal golden section rectangle, which can be divided again into square and Golden Section rectangle, and so on. It is these divisions and those vertical and horizontals created at the intersection of the diagonals that govern the composition (Fig. 2).

A technique commonly seen in master works is that of rebatement or folding the short sides over the long side to produce an overlapping interior square (ABON). Porter used this device as well as a rebatement of half the long side over the short (JBSV), which aligns the left edge of the dark island (Fig. 3). The Golden Section divisions from the short side are imposed on the long side with the rebatement. The resulting interior squares or rectangles are then divided into succeeding Golden Section rectangles, as the subject demands. For example, the base of the two distant islands is defined by the top horizontal of the primary Golden Section rectangle (LM). The right vertical of the square inscribed in it (UX) defines the overlapping junction of the right hand islands, the right hand edge of the reflections and the right hand bright yellow of the sun. The left vertical axis at the Golden Section point (W) defines the junction of the two right hand islands, and a small, seemingly incidental, promontory of the foreground shoreline.

Interesting Relationships

The following numerical proportions (approximated to whole numbers) can be measured directly on the scale image (157 x 215) mm. in Figure 3.

157 (short side) successively divided by golden ratio of 1.618 (Φ):   **97** : **60** : **37** : **23.**

215 (long side) successively divided by golden ratio of 1.618 (Φ):   133 : **82** : **50.**

157 minus **50** = **107** (BK, KS, HQ, VS).

215 (long side) ÷ 2 = **107** minus **97** gives offset of 10; **50** + 10 = **60.**

215 (long side) ÷ 2 = **107** minus **37** = **70.**

215 minus (97 + 97) **194** (two Φ sides DM and MS) = **21**.   194 ÷ 21 = **9.24**.

157 minus (70 + 70) **140** (short side Ag and Bq) = **17**. (Also **97** minus **60** = **17.)**   157 ÷ 17 = **9.24**.

85 (Ea, DK, yf) ÷ Φ = **52**, and 157 ÷ 3 = **52** (Ag, yH, Ga).

ABSR (215 x 157) and ABg (157 x115) are √1.37 rectangles.

Golden Section Rectangles: LMSR (157x97), CDML (157x97), LRW (97x60), MSX (97x60), DM/XS (97x60), CL/RW (97x60), EL/RV (82x50), QSX (60x37), UBF (60x37), PRW (60x37), HK/XS (60x37), QSY (37x23)

Same Size Squares:, JBK, KSV, HQV = 107: LRX, MSW, DMW = 97: MQ/SX, MQ/RW = 60: AE/Jq, GI/Jg, PR/WX, PR/XY =37.
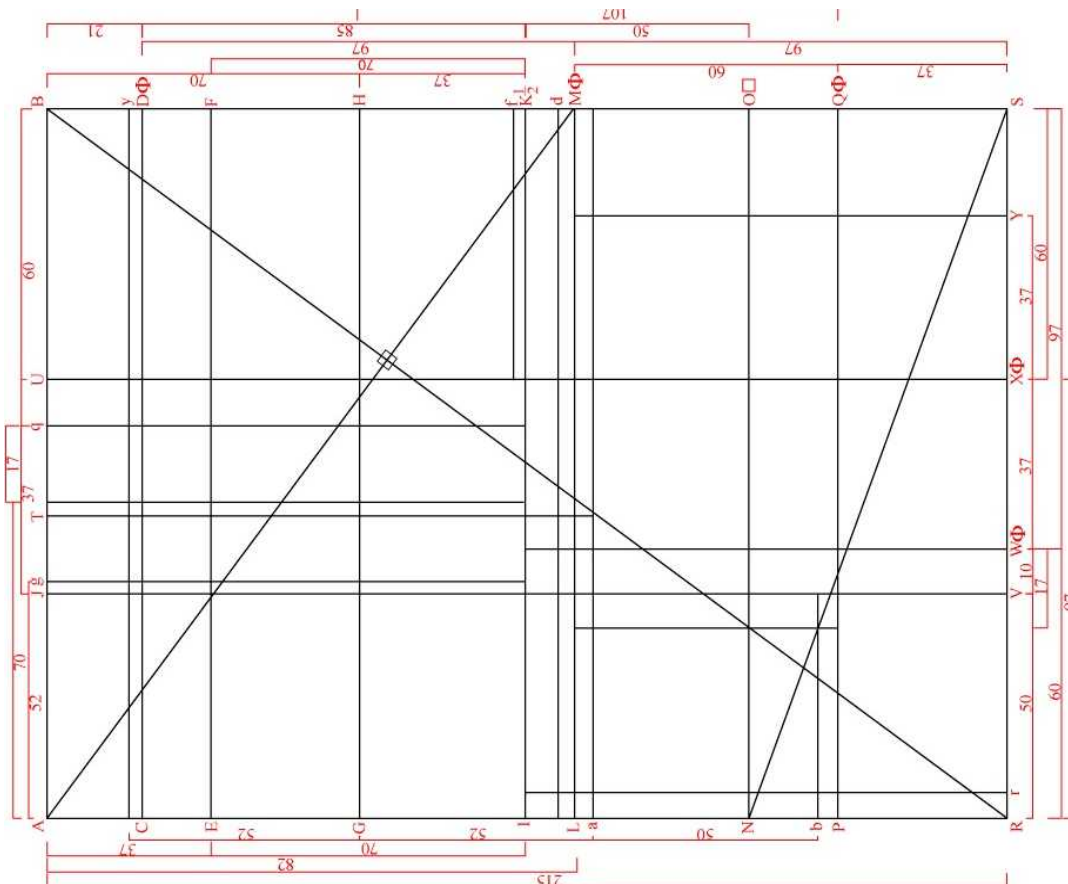

Figure 2: *The Golden Section grid governing the composition. The diagonals are left out but numerical similarities are indicated based on a dimension of 215 by 157.*
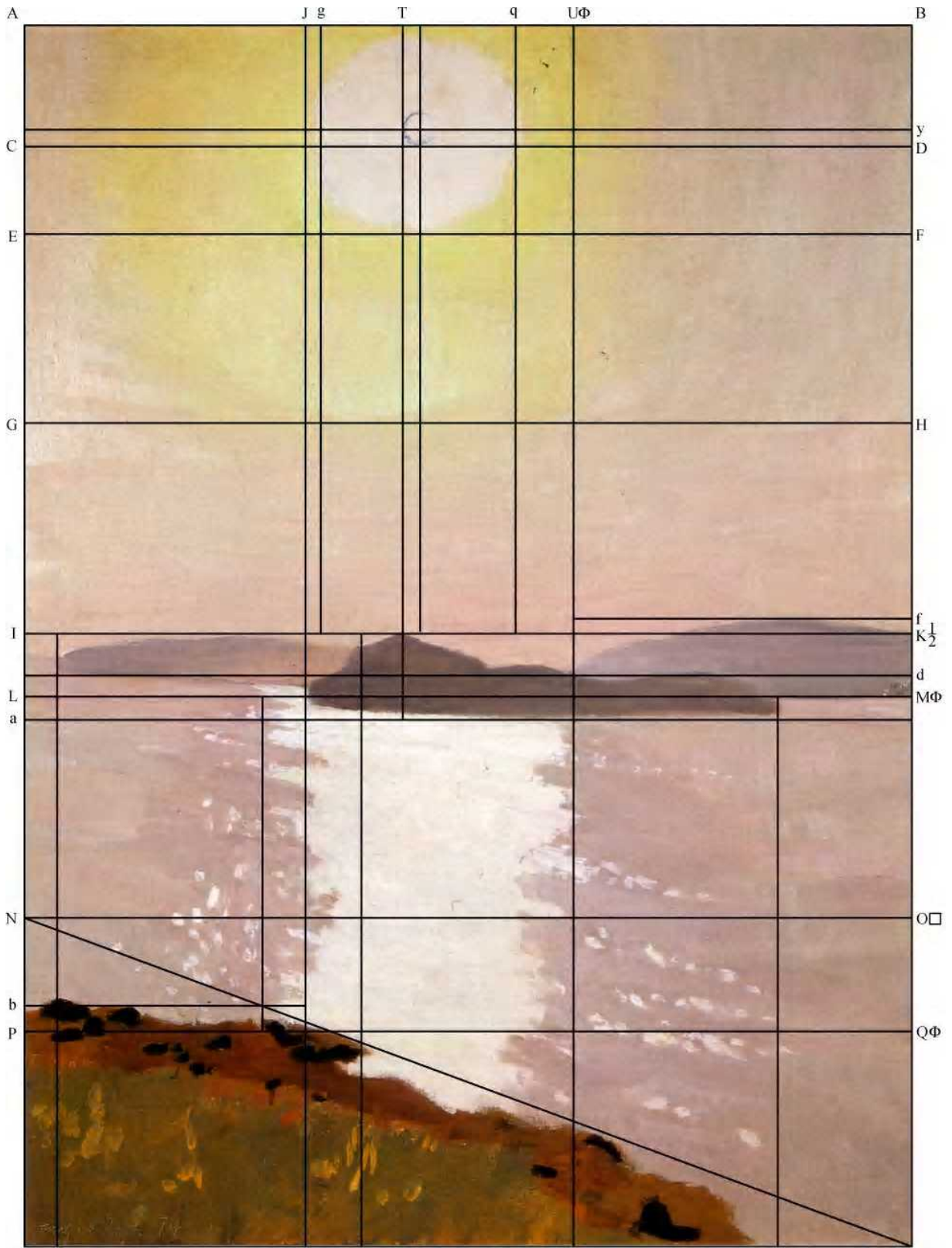
Figure 3: *Yellow Sunrise* 157 x 215mm (*Other relationships of structure with the iconography not mentioned are evident in the diagram*)

The grass stalks (which are bright yellow) in the foreground directly below the promontory also point to the left vertical Golden Section division (W). While the left edge of the sun's center circle Porter emphasized with a darkened line where it is on a vertical (T) with the peak of the middle dark island. This vertical (T) is constructed at the intersection of the diagonal of the folded short side and the main diagonal of the painting. Such subtle elements of the painting as these maybe perceived as arbitrary. But it is more likely Porter orchestrated these small keynote elements to act as markers or clues that emphasize the underlying armature governing the composition; angles of edges, heightened colors, and more vigorous brushstrokes. These passages are at key points in the composition marking golden section intervals or intersections, acting as geometric pointers, or following structural grid lines.

Porter's painting, then, becomes a medley of harmonic geometric divisions and sub-divisions each integrally related by shared proportions, varied, but unified into one composite whole. This structuring seems shrouded in mystery and yet is one of the principle reasons his work has such memorable qualities. His paintings show a real respect for traditional structure, but not to the point it hampered his quest for an immediacy of perception, to paint what was before him. Porter's reverence for Vuillard reflected his attitudes to his own work. And what he admired in Vuillard could be equally said about Porter "he had an ability to construct that surpasses the abstract painters." [8,17]

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