APPENDIX 2

Grace Crowley *Painting* 1950

Geometric and mathematical analysis

with

animated CD and text
Notes to the figures concerning Grace Crowley’s *Painting 1950*

- The red bar lies at the junction of the upper and left vertical thirds of the painting.
- The green circle is centred on the lower third of the painting
- The blue circle rests at a tangent point upon the upper third of the painting
- The orange circle (lower right) cuts the triangle in two points, one of which is coincident with a diagonal at $L$
• The vertical height of the dominant triangle $ABC$ is three red bars in length
- Point $N$ bisects the lower edge (diameter) of the painting
- The length $TZ$ is the same as the painting height thus forming an imaginary square
- Point $B$ of the triangle lies at the intersection of $NZ$ with the diagonal $VW$
- $TX/ZX = \phi$, the Golden Ratio
- Points $A$ and $C$ of the triangle lie upon the line $XC$ and are at the junctions of this line with the two dashed lines which predetermined the height of the painting (refer figure 2)
- $AE = EK = KC$
• The dashed lines in the figure correspond to the upper and lower thirds of the painting
• The blue circle touches the upper line of the third at the eight-ninths position
• The red bar is centred on the upper line of the third and is two ninths of the painting diameter
• The blue circle is one eighth of the painting diameter as illustrated by the string of blue circles
• The orange circle is one quarter of the painting diameter establishing the ratio of 1:4
• The green circle is tangent to the side of the triangle at point $K$ and, together with the red bar, divide the side $AC$ of the triangle into thirds
• The green circle's diameter is five times the diameter of the small yellow circle
• The yellow circle is situated one-eighth from the left side of the picture format as illustrated by the dotted red crosshairs
• Points D, P, and E on the red bar are coincident with lines emanating from the top right corner (W) and which skim and neatly accommodate at tangents (or near tangents) the yellow and green circles
• $MC/LM = \phi; \ LC/BL = \phi; \ OL/LR = \phi; \ XT/XZ = \phi$
Painting 1950, Grace Crowley

The red bar appears to be key to an understanding of the composition for several reasons:

1) its primary red colour
2) its horizontal straight form
3) its midpoint which lies exactly at the junction of the upper horizontal and left vertical thirds of the painting

This pivotal role of the red bar as a unit of measure and position in the painting is confirmed in a number of ways. One being for example that the vertical height of the triangle in the painting is exactly three red bars in length. These limits help define the points of the triangle as we shall see so we’ll leave them marked for now as dashed lines.

We’ll attempt to show how Crowley may have proceeded in constructing this fascinating composition, one step leading naturally into another, thus imbuing the entire work with an enigmatic balance and refined sense of proportion.

Firstly find the mid point of the baseline of the picture format. Second, mark a point on the top edge of the picture so that it forms a square with the height of the painting. Draw a line connecting these upper and lower points.

Now find the Golden Proportion along this upper side of the square just formed and mark the point. Draw a straight line from this Golden point down to meet the first line where it is intersected by the lowermost dashed line. Now mark the point where it intersects the uppermost dashed line. Draw in the diagonals of the picture format. To complete the sides of the triangle find the point where the upward-sloping diagonal crosses the line we drew in first. Finally, simply join the upper intersection points as shown.

We have now defined the triangle’s exact size and position in the painting in terms of proportions and relative measures including the Golden Ratio and ‘the unit of the red bar.

The green circle is centred on the lower third of the painting and touches the triangle side at a point between the middle and lower thirds of the triangle side. The length of the red bar divided by the diameter of the green circle is phi (the Golden Ratio).

The Golden Ratio appears several more times as illustrated formed by various intersections of the triangle and diagonal with the open orange-red circle.

The small yellow circle fits neatly between two lines projected from the top right-hand corner of the picture which are collinear with keypoints on the red bar as shown.

The blue circle’s diameter is one eighth of the painting’s width and rests on the horizontal line of the third touching it as a tangent eight-ninths of the way along that line. The red bar is two ninths the width of the painting and its midpoint is at the three ninths vertical position along this upper third line.
It has been known since the time of the Pythagoreans that, in music, the difference between the fourth and fifth notes of the scale was in the ratio of $9 : 8$, and this was one of the most fundamental intervals of the musical scale known as *one tone*.

Thus the luminous geometric forms of Painting 1950 reveal Crowley as a pioneer of abstraction in Australian art in which she draws together Classical, Renaissance, Modernist and Abstract principles within a single iconic work.