Albrecht Durer's '*Melencolia 1*' & 2?

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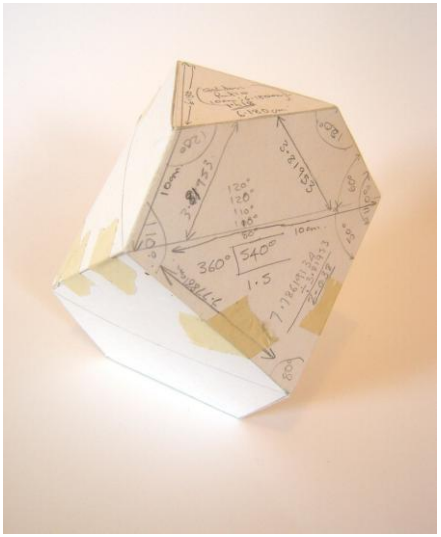
Albrecht Durer's *Melencolia 1 & 2?*

Albrecht Durer's *Melencolia 1* c1514 has for nearly 500 years been a perplexing mystery to art historians and mathematicians, each pondering over the symbolism of the geometrical object in the mid-foreground. Many have attempted to recreate *Durer's Solid*, but all have failed. It has an intriguing shape, since its three-dimensionality is so tantalizingly real.



Photograph showing an attempt to create Albrecht Durer's Solid

Models of the *Solid* have been attempted but are always incorrect. If the etching is carefully studied it can be seen that the *Solid* cannot be created in the real world. Look carefully at the *Solid's* lower shaded lozenge and compare it to the upper, the perspective is very slightly different on each, and therefore they are not similarly shaped polygons. Durer's abilities as an artist are beyond reproach, therefore once the variation is realised trying to construct the *Solid* is pointless. Other artists have also used the subtleties of two dimensions to fabricate a world that cannot exist in three dimensions. M.C.Escher's work comes to mind in particular his detailed drawings of un-constructible stairways. Therefore how *Melencolia 1* is perceived is extremely important.

As Durer states,

> '*The lie is in our understanding, and the darkness is firmly entrenched in our mind that even our groping will fail*'
>
> (From National Gallery of Art Washington - www.nga.gov)

Perception is now a major field of study, however historically a group of German psychologists, amongst others, laid the subject's foundations at the turn of the eighteenth century. The theories

they worked on became known as Gestalt psychology. It argues that our brains will always attempt to read the available visual information in the simplest possible way. The artist can use this knowledge to ensure the viewer focuses on only one quality of the composition. In the case of *Melencolia 1* it is the perceived three dimensionality of the *Solid* rather than its real two dimensional geometry. Durer's life and work was characterized by his enthusiasm for geometry. In *The Art of Measurement* (1525) he states;

> *But when great and ingenious artists behold their so inept performances, not undeservedly do they ridicule the blindness of such men; since some judgement abhors nothing so much as a picture perpetrated with no technical knowledge, although with plenty of care and diligence. Now the sole reason why painters of this sort are not aware of their own error is that they have not learnt Geometry, without which no one can either be or become an absolute artist; but the blame for this should be laid upon their masters, who are themselves ignorant of this art.*
>
> (www.history.mcs.st-andrews.ac.uk)

It is therefore the *Solid's* flat geometry that is essential to appreciating its compositional value. The *Solid's* upper lozenge has a sixty degree lower corner. Sixty degrees is important within geometry because interlocking equilateral triangles have this angle. These triangles can be rapidly created by using a compass to draw arcs within a circle and then using a rule to draw a line form one intersecting arc to another. A clue to this form of construction can be seen in the compass that the winged personification, Melencholia is holding. If Durer's masterpiece is seen as a geometrical construction the rainbow is no longer a rainbow but a circle. The circle's axis is located on the seas horizon line which if perceived correctly becomes the circle's diameter; if then equilateral triangles are drawn in and around the circle there appears a fascinating correlation between the triangular grid and the main images within *Melencolia1*. Melencholia has a meeting of triangles on her head, as does the cherub, the compass joint, the upper corner of the magic square and the upper lozenge of the *Solid*.

Durer's Melencolia 1 with equilateral triangle over lay.

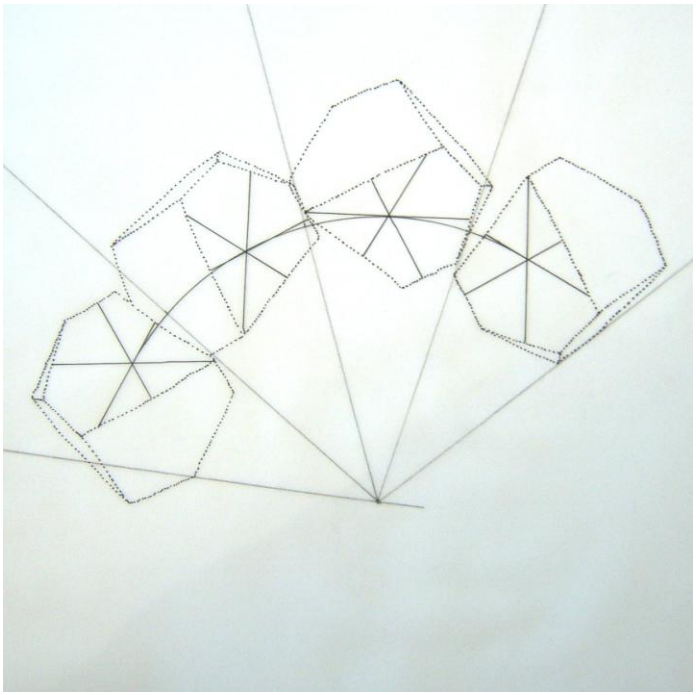
If the comet is treated as a significant geometrical component of the etching its location is important. Taken from the circles axis it is thirty four degrees above the diameter (or horizon line). The number thirty four is extremely important within *Melencolia 1* because it is essential to Durer's magic square. As Alex Bellos writes;

> '*Durer's square, in fact, is ubermagic. Not only do the rows, and columns and diagonals add up to 34, but so do the combinations of* (many other) *numbers ...*'
>
> *(Alex's adventures in Numberland; dispatches from the wonderful world of mathematics*, Bloomsbury, London, 2010)

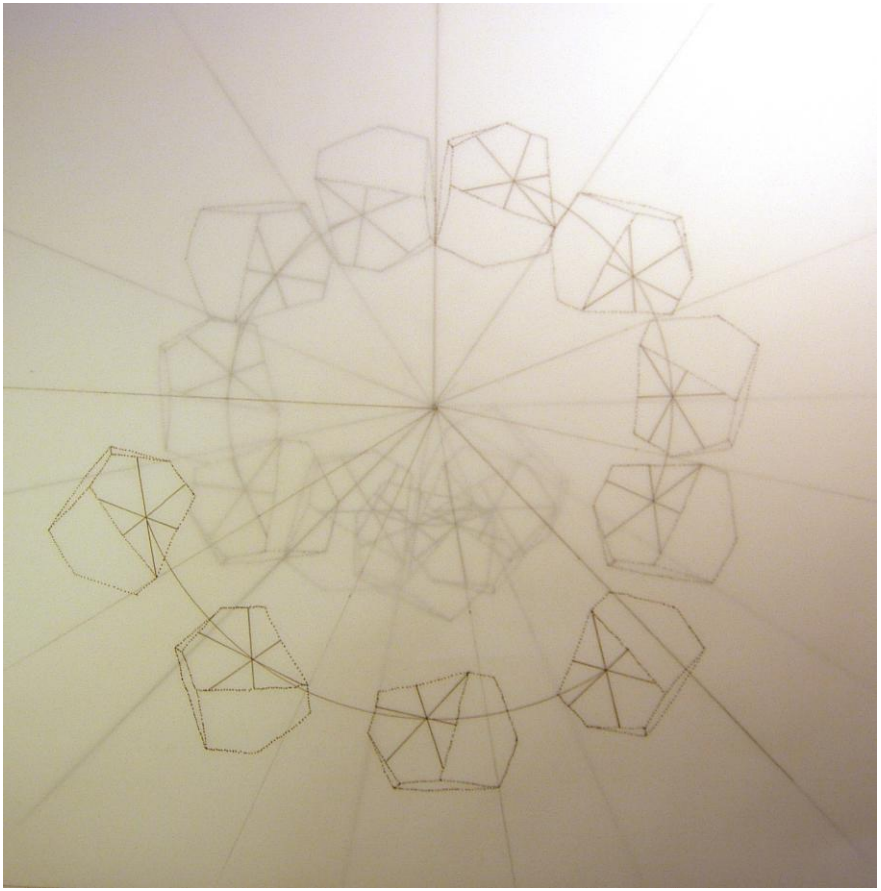
It appears the magic square is not just an interesting bystander to fully understanding and appreciating *Melencolia1's* deeper mysteries but is integral to perceiving its geometrical structure.

The work's hidden secrets can be accessed by using a compass and projector to mark 34^{o} around a central axis onto tracing paper, but to fully comprehend and appreciate Albrecht Durer's geometrical skills, there needs to be sixteen 34^{0} angles appearing star like from the central axis point. Geometry is a complex subject to write about, since writing is linear in thought and application whereas

geometry is more holistic and fluent. However the star burst of 34^0 angles if manipulated correctly with the equilateral triangle grid will achieve an interesting revelation; the *Solid* perfectly fits into each of the 34^0 angles. When each of the triangular grid's intersection points are used in sequence the *Solid* appears to move or spiral outwards from its stationary position.



Photograph showing Durer's Solid rotating using 34^0 – showing a ¼ of the complete spiral)



Photograph showing Durer's Solid spiralling sixteen times. Interestingly the ubermagic square is a four by four grid giving sixteen places.

Durer's work is both intriguing and fascinating it has a multitude of hidden depth and meanings. Yet given Durer's geometrical skills there may be still more mysteries to uncover. His love and playfulness of numbers is plain to see, therefore perhaps the title *Melencolia 1* should have been considered odd, because 1 is just the start of a sequence.

However since this theory is so contemplative the last word should go to Albrecht Durer,

> *Who ever...proves his point and demonstrates his prime truth geometrically should be believed by all the world ...*
>
> (*Von menschlicher Proportion* form www.history.mcs.st-andrews.ac.uk)