

ROMAN  
Daisy Wheel Calligraphy -  
Correspondence and Analysis



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**Laurie Smith** is an independent early-building design researcher, specialising in geometrical design systems. Because geometry was part of the medieval educational curriculum he uses geometrical analysis to excavate and recover the design methodologies of the past, a process he thinks of as design archaeology. He lectures, writes and runs practical workshops on geometrical design and publishes his work through his website HISTORIC BUILDING GEOMETRY.

Correspondence Paul Reed & Laurie Smith  
Photographs Paul Reed  
Geometry Laurie Smith

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LAURIE SMITH  
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## Roman Daisy Wheel Calligraphy

*Correspondence between Paul Reed and Laurie Smith, February 2018*

Paul Reed <paulreed56@msn.com>

Re: Roman Daisy Wheel

Hello Laurie I came across this while I have been studying Roman Britain, a class put on by the Sussex Archaeological Trust. A student brought in a piece of marble with Roman lettering on it but on the back was a daisy wheel. I have attached photographs and a rubbing.

My thoughts are it was used to get the proportions of the lettering? I would be interested to know what you think? Wishing you well Paul

Laurie Smith <laurie@thegeometricaldesignworks.com>

Re: Roman Daisy Wheel

Hello Paul Good to hear from you. The stone is fascinating! You didn't mention its size so a dimension for the daisy wheel's central circle diameter would be informative.

I've drawn two pages for you. The first records the full daisy wheel geometry as an overlay on the stone and the second suggests a possible or even probable use for the daisy wheel as a method of laying out the horizontal bands for the lettering. I suspect the actual lettering was set out freehand referring to existing workshop examples. With good wishes Laurie

Paul Reed <paulreed56@msn.com>

Re: Roman Daisy Wheel

Hello again Laurie That is an interesting suggestion because if you look at the daisy wheel image on the stone you can see above it tram lines at the correct dimensions you have worked out-spot on!

Interesting in-it!

Thank you for working it out, may I share it with my class next week they will be very interested.

Best wishes Paul

Laurie Smith <laurie@thegeometricaldesignworks.com>

Re: Roman Daisy Wheel

Hello Paul I'm delighted that the stone has the tram lines you describe because I hadn't noticed them on the photograph. The reality is that the lines I drew are the only ones possible so the really interesting aspect is that it proves a daisy wheel design method from that time.

Feel free to pass on the PDF, print copies or whatever suits you best. With your approval I would like to put this on my website [www.historicbuildinggeometry.uk](http://www.historicbuildinggeometry.uk) where there are other geometrical design articles that can be downloaded free ~ With good wishes Laurie

Paul Reed <paulreed56@msn.com>

Re: Roman Daisy Wheel

Hello Laurie No problem, it is important to share knowledge please do publish. Our tutor David Rudling archaeologist specialising in English Roman History and the class students would be very interested in your findings.

Wishing you well Paul

Laurie Smith <laurie@thegeometricaldesignworks.com>

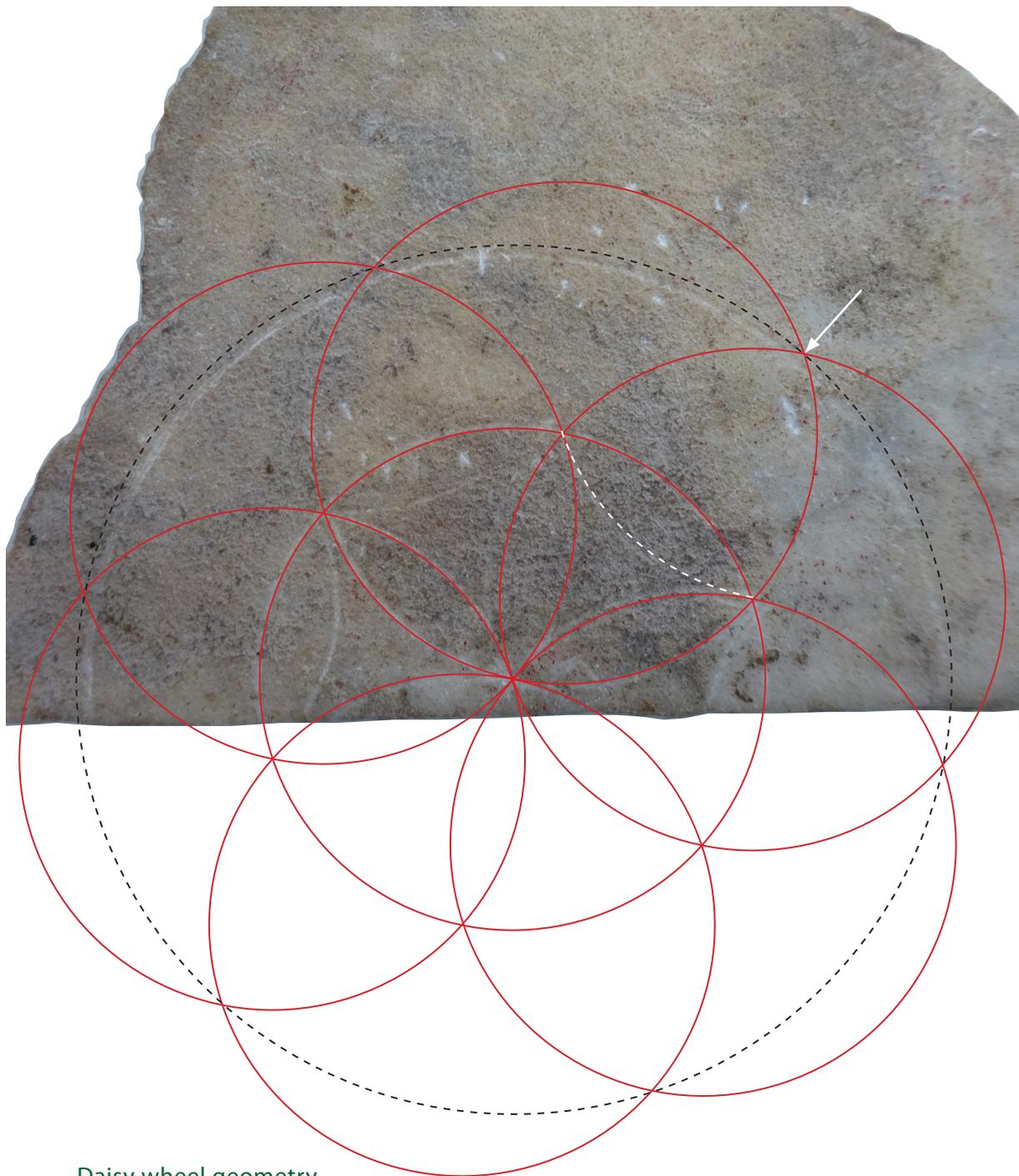
Re: Roman Daisy Wheel

Hello Paul I agree about sharing knowledge.

It might be informative for your class if they each had a compass and straight edge and drew the daisy wheel to the same scale as on the stone. They could then set out the lettering. This would lead to a deeper understanding than just looking at my drawings and might even spark off some interest in geometry.

With good wishes Laurie

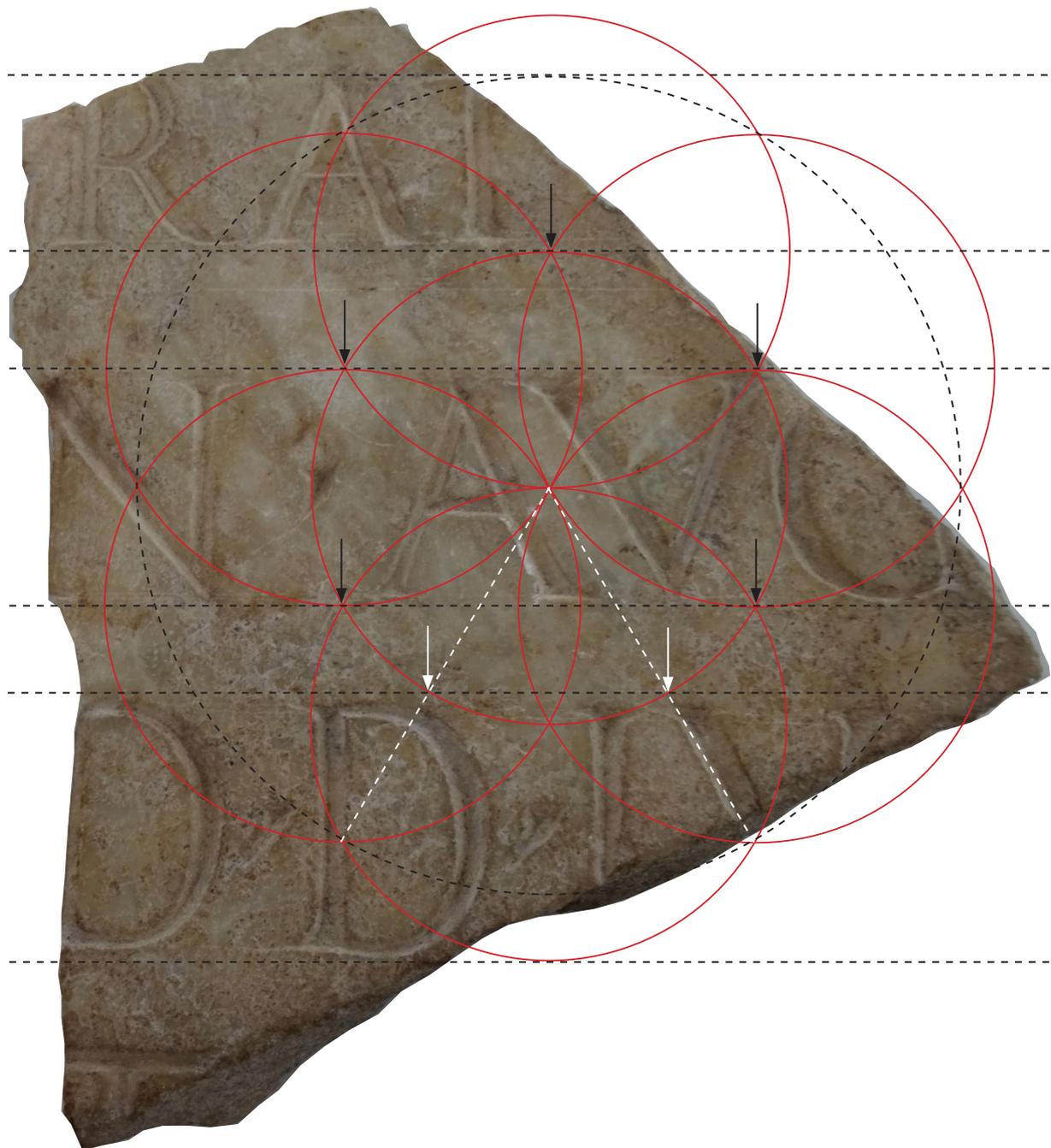
**Analysis** The following two pages show photographs of the stone, analysis of the daisy wheel inscribed on one side and, on the reverse of the stone, the daisy wheel applied in the layout of lettering bandwidths.



### Daisy wheel geometry

The geometry on the stone shows the construction of a full daisy wheel surrounded by a larger concentric circle. The overlay shows the full daisy wheel construction of seven equal radius circles, six drawn around the circumference of the central, primary circle. The concentric circle passes through six intersections of the six outer daisy wheel circles. The six intersections are also the axes for the six petals drawn inside the daisy wheel's circumference, one of which is indicated by its white arrow axis and dashed white line arc. The radius for the white line arc is identical to that of the daisy wheel circles. The petals around the wheel's circumference are identical to the six radial petals within the wheel.

Dashed black line circle 95mm diameter =  $3\frac{3}{4}$  inches diameter =  $1\frac{7}{8}$  inches radius  
 Central circle 55mm diameter =  $2\frac{3}{16}$  diameter =  $1\frac{3}{32}$  inches radius



### Daisy wheel calligraphy

The daisy wheel geometry superimposed on the stone shows how it might have been used for setting out lettering. The points of intersection around the wheel's circumference, marked by black and white arrows, can be linked by horizontal chalk lines to give upper and lower edges to the bands occupied by the lettering. The lowest band of letters are taller than those above it and it may, for example, have recorded an important name. The dashed white lines between the primary circle's axis and the outer circles' intersections cut the primary circle's circumference at the white arrows and a horizontal band through these points gives the upper boundary of this larger lettering. A tangent to the larger dashed black circle passing through the wheel's six outer circles' intersections gives the upper level of the top band of lettering. I suspect the letters were drawn using a hard form of chalk like French chalk so that they could be adjusted prior to cutting.

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