Poseidon from Cape Artemision
The Geometry of a Greek Masterwork

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Poseidon, standing upright on his left foot, arms raised, balances his body weight with his right leg and sights over his left hand, aiming a (now missing) trident at a far away target we can only guess at. The figure of this Greek god displays such composure, creates a wonderfully balanced effect, majestically at rest upon itself. How did the unknown master achieve this effect? First, he applied the famous *contraposto*: Poseidon extends his left arm and his right leg simultaneously, while bending his right arm and his left leg. Second, he used a principle I call *self-reference*: stretch out the left arm and you duplicate the line of the right upper arm; extend the right leg and you reach the left shoulder via the navel; prolong the left upper thigh and you reach the right shoulder via the navel again; extend the left lower thigh and you reach the left shoulder. Third, the figure is held together by a *geometry* which my drawings render visible. A large circle around the navel and touching the tip of the middle finger of the left hand seizes the right hand and the heel of the right foot while resting on the ground. The height of the navel, and therefore the circle's radius, measure 18 large or 72 small units, and the circle's diameter measures 36 large or 144 small units. Draw an arc around the nadir of the circle. Its radius will measure 30 large or 120 small units. The arc will brush Poseidon's head and cross the circle in the point marked by the tip of the middle finger of the left hand (aiming finger tip). The height of this point is that of the horizontal arm line and measures 25 large or 100 small units. The height of the figure measures 30 large or 120 small units. The distance between the navel and the height of the arm line measures 7 large or 28 small units. The aiming fingertip marks the upper right-hand corner of a pair of right triangles that are correlated by the equation 30x30 minus 25x25 equals 18x18 minus 7x7 equals 275. The golden section of the circle's vertical diameter (144 small units) is marked by the figure's nipples (height 89 small units) and the glans (height 55 small units). How long was the former trident in Poseidon's right hand? Take a rod (or paper roll) and slide it through the opening of the hand. The rod (or paper roll) will show towards the aiming fingertip. Fix the rod (or paper roll) in such a position that the hand holds it roughly in the middle. If the rod (or paper roll) is 15 large units long, the distances from the fingertip to the fore and hind ends of the rod (or paper roll) will again be in the golden ratio: about 25 and 40 large units.

The wonderful bronze statue was found on the seabed by Cape Artemision at the northern end of the Ionic island of Euboea and is kept in the National Museum of Athens (no. 15161). The height of the figure measures 209 centimeters, corresponding to an Ionic *orgyia* (fathom) that measured 208.98 cm. 5 large units equal one Ionic *pous* (foot) measuring 34.83 cm. 30 small units equal one Ionic *paechys* (cubit) measuring 52.245 cm.15 large or 60 small units equal two Ionic *paechei*. 30 large or 120 small units equal six *podoi* or four *paechei* or one *orgyia*.