EGNATIO DANTI'S GREAT ASTRONOMICAL QUADRANT

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In 1572 Egnatio Danti installed a large quadrant on the façade of Santa Maria Novella in Florence. Here we describe the quadrant and compare it both with a contemporary sketch and with written accounts of it by Danti and others. We also offer suggestions about its place in the Tuscan world of Grand Duke Cosimo I.

Among the material remains of the mathematical career of Egnatio Danti, O.P., is a great astronomical quadrant, with several associated sundials, installed on the façade of the Dominican church of Santa Maria Novella in Florence. Danti himself was the first to describe and illustrate the instruments in one of the additions to the second (1578) edition of his book on the astrolabe. The most knowledgeable subsequent commentators have been P. Leonardo Ximenes, S.J., in his *Del Vecchio e Nuovo Gnomone Fiorentino* (1757) and P. Vincenzo Fineschi, O.P., in his *Lettera... circa l'ultima ristaurazione ed ornati della facciata di [S. Maria Novella]* in the "Novelle Letterarie" of 1779, and little new has been added to our knowledge of the instrument in the 200 years since then. Thus, when an original drawing of the

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quadrant came to our attention, a drawing that could well be one of Danti’s own, it seemed appropriate to provide a general description of the quadrant and dials as they exist today, an indication of the divergences between them and the previous descriptions, and an account of what we can learn of their genesis from that drawing and other sources.

The quadrant itself consists of a large marble slab mounted in a meridian plane on the right façade of the church. The slab is roughly square, 1.54 meters high by 1.465 m in the horizontal; this last dimension corresponds almost exactly to 2.5 braccia a panno in the standard, pre-metric Florentine system of measures. It is about 8 cm thick; its base is about 7.13 m above the present sidewalk; and it is mounted on a set of mensole or corbels which seem to provide its principal vertical support. An iron staple, one end of which is embedded in the top edge, extends into the façade and helps to keep the quadrant from rotating away from the building.

Actually the quadrant is made up of two quadrants, since both sides of the marble carry the requisite engravings. At the upper and outermost corner are two short cylinders, projecting one to each side, which are meant to cast shadows past those markings at the meridian passage of the sun. The effective radii of the quadrants are slightly less than 1.46 m, the distance from the axis of the cylinders to the second or


3 Gabinetto dei Disegni e delle Stampe degli Uffizi, Disegno 3946A.


5 We wish to thank very warmly Ing. Angelo Tubisco and the Vigili del Fuoco under his command who performed these measurements for us. We did not check to see if the quadrant is exactly in a meridian plane; the slab is not perpendicular to the church’s façade. — One braccio a panno (or a lana) equals 584 meters. — As can be seen in the photographs, the quadrant is badly in need of repair and restoration; the marble has been seriously eroded, and several of the styles for the individual dials are missing. Should such a restoration be undertaken, it would then be appropriate to establish more definitively the quadrant’s exact mounting and its various measures.