Endless perplexities and discussions have long been entertained about the static behavior of the ‘parallels’ of Brunelleschi’s Cupola. Misgivings were originated by the plan shape, octagonal rather than circular. Indeed, this circumstance baffled the contemporary intuitive attempts at understanding the Cupola structural behavior (that instead, had the plan been a circular one, would have been readily accepted accordingly to a well-ingrained scheme). Later on, when the first rudiments of material science began to be developed and the need was felt to support intuition by means of rational interpretation, the same circumstance seemed to make analysis problematic. This perplexity persisted until very recently; actually, though, the ‘ideal’ octagonal Cupola behavior can be understood, as far as the present essay requires, by nothing more than the basic tools of structural analysis. ‘Ideal behavior’ hereafter will denote an ideal reconstruction of the Cupola structural regime in its pristine state, under the acting force of gravity and without the cracks -originating soon after construction- that grew through the centuries [Anyway, some comments and observable circumstances relating to cracking are brought up in the following where useful in order to support the final conclusions. A detailed analysis of the Cupola static regime in its present cracked state, as well as an interpretation of the causes of cracking, have been expounded at length elsewhere, see [3], part II].

In order to simplify the argument, reference is made in the following to a single shell (instead of the two Cupola shells joined by radial ribs). Moreover, the rim disturbances induced at the Cupola summit by the Skylight weight, and at its base by the stiffness of adjoining structures (the drum, the three smaller domes, the main nave…) are conveniently ignored. Their consideration, indeed, would cloud the basic lines of the argument with inessential details which, in any case, would be very much the same for a circular dome. A major behavior component -akin to a ‘membrane’ regime- is thus isolated for an analysis requiring nothing more than mere equilibrium considerations. This exercise, discarding troublesome secondary effects but respecting the main consequences of the octagonal geometry, highlights the differences and analogies with a rotationally symmetric dome. The interplay of actions and reactions that thus appear, taken with the morphology of the masonry texture, clearly show that the ideal static regime of each side of an octagonal ‘parallel’ is consistent –at least in the upper part of the Cupola-with the platband paradigm.

1 – THE QUEST FOR A HIDDEN MECHANISM: HISTORICAL ATTEMPTS
A CRITICAL OVERVIEW OF THE EARLY INTUITIVE MODELS

The interpretations of the static behavior of the uncracked Cupola (or, more to the point, of the intentions and expectations entertained by Brunelleschi about that behavior) have constantly met, as already said, the (apparent) stumbling block of the octagonal shape. Many a scholar of old (e. g. L. B. Alberti) or of recent times (e. g. R. J. Mainstone) tried to reconcile this actual geometry with the easier paradigm of a supposedly ‘equivalent’ rotationally symmetric dome. Indeed, the latter typology is of easier analysis –both on the intuitive plane and on the quantitative one- than that of a polygonal dome, at least as far as the ‘membrane’ regime is concerned. In this way of thought various conceptual schemes were imagined. Sometimes a circular shell, intercepting as much of the actual volume as possible, was squarely substituted to the octagonal dome. Other scholars (among them L. B. Alberti) tried a subtler intuitive model. They remarked that, everywhere from base to top of the Cupola, an uninterrupted circular ring of uniform thickness can be inscribed within the thickness of the inner octagonal shell (FIG. 1).
From this geometric circumstance they jump to the conclusion that, thanks to their excellent carrying capacity of radial loads, such internal rings can make the octagonal dome approach the behavior of a circular shell. From this they proceed to credit BRUNELLESCHI with the intuition of such a possibility, concluding that he intended his dome to function as a circular structure in spite of its octagonal plan (which in any case he was obliged to adopt by the geometry of the drum, built before his appointment). But this qualitative remark does not take into account the quantitative side of the question: the thickness of such continuous rings, indeed, is not up to the task. This thickness is less than one meter in the lower part of the Cupola, just where a substantial section would have been needed to face the hoop stresses which in that zone were of a tensile nature. Only as higher and higher elevations are reached, passing gradually into zones of compressive hoop stresses, does the size of the octagonal parallels decrease without an accompanying reduction in the thickness of their sides, so that the inscribed circular hoops can become thicker and thicker. Besides this basic flaw, this model implicitly –and wrongly- assumes that those circular rings can be uniformly stressed (as would be the parallels of a circular shell), without being affected by their continuity with the substantial bending stiffness of the surrounding masonry. The difference can be appreciated by looking at FIG. 7: the actual deformation of an octagonal ring in the upper part of the Cupola is very different from the deformation of a circular ring (the latter being a uniform radial contraction). These premises cannot be held as acceptable if taken at their face value; nonetheless, a grain of truth can be detected in them if the framing of the argument is suitably corrected and the ‘inscribed circular ring’ concept is translated into more abstract terms [see further on; see also §a]1.

2 – LOOKING FOR A MORE SATISFACTORY MODEL (WITHIN OR OUTSIDE THE BOUNDARIES OF BRUNELLESCHI’S KNOWLEDGE?)

The model of the circular ring contained within the thickness of the inner octagonal shell has been shown to be inappropriate to interpret the behavior of the Cupola ‘parallels’. This conceptual scheme, indeed, is misleading besides being unnecessary. A more faithful analysis of the static behavior of the sides of a generic octagonal ‘parallel’ shows that in the upper part of the Cupola their regime combines axial stress and bending in the same way as in a platband. Such an analysis, which can be carried on in simple enough terms, leads moreover to view with a fresh insight the two innovative features introduced by BRUNELLESCHI in the masonry texture, the ‘herringbone’ and the ‘slack cable’ layout [for details see §a]). In modern terms, the two above-mentioned features appear to fulfill tightly complementary functions in order to ensure a smoothly oriented flow of stresses through the mortar joints; or, more precisely, to provide a spatial variability of the bricks and mortar joint orientations subtly accommodating the stress flow [see §a]). The big question is: could BRUNELLESCHI have had an intuitive understanding of all this? The empirical technical culture of his times lacked not only rational analytical tools, but even the most basic physical notions, such as ‘force’, ‘reaction’, ‘stress’ and ‘strain’. Therefore it appears beyond the pale of likelihood to credit BRUNELLESCHI with a clear insight of this channeling of stresses through a material purposefully textured in such a way as to produce a locally optimal anisotropy2. Nonetheless, his deeply felt synthetic perception of ‘form’ and ‘function’ as an inseparable unit (a natural gift -nowadays somewhat atrophied, if not largely lost- further enhanced in him by his vast experience as a builder) could conceivably have guided him towards the optimal disposition of the structural components. On the other hand, if he lacked the tools

1 Looking into the empirical technical culture of BRUNELLESCHI’s time, one can find a concept which is, in a sense, the ‘dual’ counterpart of the ‘inscribed ring’ model. Leonardo da Vinci, indeed, writes: “l’arco non si romperà, se la corda dell’archi di fori non tocherà l’arco di dentro” (the arch will not break, if the [straight] chord of the extrados will not intercept the intrados). This statement means that an arch is safe if it is possible to inscribe within its thickness a broken two-sided straight line without meeting both extrados and intrados of the arch (FIG. 2). In a platband, the dual counterpart of this is the statement “for the platband safety, the pressure curve, which is a parabola in a first approximation, must be contained between the surfaces of extrados and intrados (better still if inside the middle third of thickness)” (FIG. 3). Another necessary condition, certainly known in a qualitative way in BRUNELLESCHI’s time, calls for the presence, beyond the two ends of the platband, of structures adequate to sustain without yielding the horizontal component of the end thrusts of the platband.

2 A configuration that could be compared, broadly speaking, to P. L. NERVI’s care to dispose the load-carrying ribs of a shell along the ‘isostatic trajectories’ of the stress field.
for a formal analysis of the interplay of forces and reactions, he was certainly at home with symmetry and geometric considerations, and there is no doubt that he was aware of the outwards thrust exerted by structures such as domes, arches and platbands; all these considerations playing a capital role in a correct conceptualization of the parallels’ behavior. Moreover, he had ample opportunity to observe with the builder’s eye many ancient masonry buildings, both intact and in ruins; and he could have derived from this apprenticeship the firm belief that any discontinuity in the masonry texture fatally creates a locus minoris resistentiae. Within this basic cultural framework BRUNELLESCHI could not only have drawn inspiration for the ‘herringbone’ and ‘slack cable’ features (see FIG. 8 and FIG. 9), but he could have perceived, even without a formal analysis, that each side of a parallel in the upper part of the Cupola behaves as a perfect platband. Indeed, evident symmetry conditions ensure—barring local failures—that the thrusts generated by two adjacent sides are normal to their abutment surfaces, equally strong and in mutual equilibrium. To modern scholars in structural analysis it is also evident—again for symmetry circumstances extant for the displacement field—that each side is in a condition of perfectly rigid built-in abutments. To go still further along modern lines of analysis, it follows that the pressure curve within the thickness of each side is completely determined by the previous considerations; moreover, as a consequence of the pyramidal texture of the masonry, this curve is normal to the radial mortar joints all along the platband. The pressure curves are very nearly parabolic and lie approximately on horizontal planes; moreover, these parabolas differ by a very little amount (about 8 cm at most) from a circular arch starting from the same end points with the same tangents. Therefore the eight pressure curves of the octagon sides, taken together, compose a continuous curve very close to a circle lying on a horizontal plane. Besides, in the upper part of the Cupola each of these pressure curves can be contained within the ‘middle third’ of the inner shell thickness (or they stray outside it only to a very little extent) so that, though not stressed to a uniform axial load, the platband is nowhere affected by dangerously high tensile stresses from bending. All these considerations might lead to consider in a more benevolent light the old belief that ‘BRUNELLESCHI made the octagonal Cupola behave as a circular dome’. This re-visitation should fall, however, under some severely restrictive semantic provisos, insofar as i) it applies only to the upper parallels, where the average stress is of a compressive nature; moreover, this compression is not uniform (the local regime combining, indeed, axial and bending stress). By contrast, in the lower parallels the average stress is of a tensile nature, and under the combined axial and bending regime local tensile stresses, in the uncracked Cupola, would be so high as to be incompatible with the masonry resistance; and ii) the representation of material continuous circular rings needs to be replaced by the abstract functional concept of nearly circular pressure curves.

a) An analysis of the static regime of the uncracked octagonal shell

Let us consider the upper part of the Cupola, say upward of an angle of the normal on the horizontal plane greater than about 30°. Taking a pair of nearby section planes normal to the extrados and intrados surfaces of one of the ‘sails’ of the inner shell, four horizontal straight lines are generated by the intersections (see FIG. 4). Starting from the crossing points where these straight lines meet the octagon corners, four more horizontal straight lines can be traced on each of the two adjoining ‘sails’. Proceeding in this way from ‘sail’ to ‘sail’, the boundaries of an octagonal ring are defined; this ring has a near-rectangular section (actually a slightly trapezoidal one, as a consequence of the curvature of the ‘sails’). Let us now consider the equilibrium of this part of the Cupola under the action of dead-weight; with the support of exhaustive Finite Elements numerical analyses the following remarks can be made.

3 As for BRUNELLESCHI’s awareness of geometric and symmetry circumstances, suffice it to recall his inventions in the field of geometric perspective, as well as his friendship with the mathematician Paolo dal Pozzo TOSCANELLI, who also tutored him in those disciplines.
4 Reference is made for simplicity to a single, perfectly symmetrical octagonal shell, and the upper and lower rim bending disturbances are ignored; a static regime analogous to the ‘membrane’ equilibrium of the circular shells is thus construed. This analysis, consistent with the actual octagonal geometry of the Cupola, is also an apt introduction to any interpretation of the crack pattern development.
Along the span of one of the ‘meridians’ there act compressive stresses of increasing intensity from top to bottom, the vertical components of these compressive stresses balancing in every section the weight of the overlying parts. Therefore over the two sections of the ring normal to the meridians there act compressive forces (‘meridional thrusts’ in the following) directed tangentially to the meridians, the greater intensity acting on the lower surfaces of the ring. For the sake of simplicity let us assume that these thrusts are uniformly distributed over the two surfaces – the upper and the lower one – of the octagonal ring. Elementary equilibrium considerations show that in this upper part of the Cupola:

- The internal actions transmitted from side to side of the ring across the corners must, for symmetry reasons, consist of compressive forces normal to the end sections of each side. The resultant of these forces can take a position of greater or lesser eccentricity with respect to the middle surface of the shell – see further on – but all of them, in the 8 corners of the ring, are contained in the horizontal plane of the ring axis.
- Let us now turn to the equilibrium of one of the 8 sides of the ring in the direction normal to the meridional surface (‘radial’ direction in the following). This equilibrium takes place between the inwards normal component of the ring weight, the smaller outwards radial component of the two meridional thrusts (see above) and the projections on the radial plane of the two internal forces acting at the side ends, the latter being inclined towards the exterior of the ring (i.e. outwards). The radial equilibrium condition yields the intensity of these two forces, therefore both their direction and their intensity are now known; moreover, for symmetry reasons the end sections of each side cannot move from their original plane, so that the side is a condition of perfectly built-in ends; therefore also the end constraining moments and hence the eccentricity of these forces with respect to the middle surface of the shell can be determined. (see FIG. 5). Each side of the octagonal ring behaves, therefore – taking into account the radial convergence of the mortar joints of the masonry, guided by the ‘herringbone’ alignments (see FIG. 6) –, as a platband with perfectly built-in ends. The deformed shape of the ring is schematized in FIG. 7. Of course, everything thus far said is valid for the upper part of the Cupola, where the ‘parallels’ bending moment distribution is accompanied by a state of axial compression; in the lower part the rings would have been subjected to a tensile axial stress. In this connection, it has been estimated that the maximum tensile stress – occurring in a horizontal direction at the intrados of the inner shell, near the corners of the octagon – would attain or exceed about 8 kgf/cm², a level certainly incompatible with the ultimate resistance of the masonry. And in fact, in this lower part of the Cupola there can be observed deep cracks following the corner planes. But tensile stresses can occur also in some of the upper, compressed rings if the pressure curve falls partly outside the middle third of thickness. This can happen more easily near the corners of the octagonal rings, where the eccentricity is twice the eccentricity at mid-span; the corresponding cracks, which indeed can be observed at the extrados of the angular ribs, are not as deep, however, as those in the lower parallels and do not compromise the structure’s safety.

Summing up: BRUNELLESCHI was constrained to follow the octagonal shape of the drum, hence he could not create a circular cupola; it is therefore a plausible conjecture to assume that he consciously conceived the sides of the octagonal rings as ‘platbands’, which in the circumstances provided the closest approximation to an arch-like structure.5

- Some more notes are in order about the equilibrium of each ring side along a plane locally tangent to the meridians. The corner reactions between contiguous sides appear, in this plane, directed slightly downwards. This orientation is accommodated by the ‘slack cable’ configuration of the laying surfaces of the bricks, which in fact allows to avoid any angular discontinuity between the

5 As already remarked, the symmetry conditions of the mutual bond between the octagon sides allow to conclude that – as long as the resistance of the masonry is not exceeded – each of the ring sides is in a regime of perfectly rigid, built-in ends, a condition practically impossible to attain for a single platband in a plane structure. In the lower part of the Cupola, however, the axial stress component being of a tensile nature, the platband paradigm cannot apply. It is doubtful that BRUNELLESCHI could form a clear conception of this; on the other hand, he felt it necessary to insert in the lower masonry several lines of octagonal reinforcing rings of stone, and higher on he disposed a huge, 24-sided wooden ring [more of these wooden rings were called for in the initial design]; these reinforcements – if evidently inadequate to contain the expansion of the lower parallels – are an indication that he was at least conscious of, and worried by, the outward thrust exerted by domes at their base rim.
brick-laying surfaces of two adjacent ‘sails’. At the same time, this disposition favors the orientation of the radial mortar joints perpendicularly to the ‘parallel thrusts’ all along the ring side span.

Let us try to interpret in modern terminology the two erection techniques of the ‘herringbone’ and the ‘slack cable’ (see FIG. 8 and FIG. 9); their structural function can be viewed as aimed at following, with the orientation of the mortar joints, surfaces approximately normal to the principal stress directions. This condition, avoiding the occurrence of important shear stresses on the joints, creates the ‘best possible conditions of resistance as long as the stresses are of a compressive nature’...\(^6\) This impressive circumstance is not necessarily the result of a conscious design; however, the endless disputations around the functions of the ‘herringbone’ and the ‘slack cable’ are evident proof that we are still far from reaching a consensus about BRUNELLESCHI’s actual ‘structural’ intentions. The above described objective circumstances remain, in any case, as suggestive, thought-provoking indications of BRUNELLESCHI’s efforts at achieving a viable design for a polygonal Cupola of unprecedented size, as well as bearing witness to the painstaking care he put in the choice of materials and of constructive details.

The structural component ‘platband’, largely diffused in the Roman buildings as well as in medieval Tuscan architecture, was beyond doubt familiar to BRUNELLESCHI, who used it even over large spans [see e. g. the huge platband in the Sagrestia dei Canonici in S. Maria del Fiore (cited by SANPAOLESI at pag. 62 of Ref. [4] and illustrated in Tav. 37, ibidem)], even though its attribution to BRUNELLESCHI is debatable; see further on, § b), for a possible meaning of this structure in relation to the present analysis]. He was certainly aware that a platband subjected to normal load exerts an outwards thrust at both ends; and it is plausible to think that he understood how the thrusts of two adjoining platbands in a symmetric closed ring cancel out each other. In this connection he could have been inspired, during his Roman visits to study the ancient monuments, by the brick platbands of Villa Adriana, which stand on a circular ring of some 40 columns, about 35 m in diameter (Ref. [3]). There it is apparent that the thrusts of two adjacent spans cancel out, except for a small radial, outwards directed thrust at each column top [a weak centrifugal force, proportional to the abutment thrust according to the ratio between platband span and radius of the circle, i. e. about 1/7)]. It is worth noting that the Villa Adriana platbands were possibly (?) slightly curved in plan, to conform with the circular outline of the whole; a circumstance which strikes as analogous to the ‘slack cable’ bricklaying in the Cupola, notwithstanding the more intricate three-dimensional texture in the latter (FIG. 9). The structure of each one of the eight ‘sails’ of the Cupola can thus be viewed as a continuous assembly of variable-span platbands. Indeed, rather than speaking simply of ‘platbands’, which expression evokes many isolated one-dimensional structures, the ‘sail’ should more correctly be conceived as a huge curved plate partaking of the arch typology along the ‘meridians’ and of the platband typology along the horizontal ‘parallels’. [In the third direction, along the plane tangent to the shell middle surface, the ‘slack cable’ bricklaying defines very low-rise arches]. Besides this remarkable aspect, which bears witness, once more, to the brilliance of the structural intuitions of BRUNELLESCHI, in the ‘parallels’ sides other important differences can be detected with respect to common platbands. For instance, consider the wedge-like ‘voussoirs’ into which can be ideally decomposed each platband, thanks to the ‘pyramidal’ texture of the Cupola masonry underscored by the presence of the ‘herringbone’ radial lines of bricks. These voussoirs are not monolithical, as they would be in a ‘traditional’, small-size platband made of trapezoidal bricks or of well-cut wedges of stone; on the contrary, in the Cupola each of the wedge-shaped ‘voussoirs’ is a composite block formed by the assembly of a great number of prismatic bricks. Therefore the material of a generic voussoir is

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6 The tensile stresses in a horizontal direction find weaker spots along the ‘herringbone’ mortar joints, more extended in the vertical planes than in the horizontal ones. Indeed, a virtual vertical crack crossing the mass masonry far from a herringbone alignment should either break bricks or -to tear whole bricks apart from its upper and lower neighbors- overcome the substantial shear resistance of extended, compressed horizontal mortar joints. By contrast, within the herringbone a virtual crack should overcome the weaker tensile resistance over the longer vertical mortar joints, while the shear resistance would be challenged only over the horizontal length of the bricks’ short sides. (FIG. 8). As a consequence, de-cohesion along vertical surfaces is more easily attained along the ‘herringbone’ alignments; and indeed long stretches of the main sub-vertical cracks run along the ‘herringbone’ mortar joints (see a similar view entertained by SANPAOLESI in Ref.4). The genial device of the ‘herringbone’, thus, though necessary presented also a drawback.
heterogeneous and non-isotropic (at most, one could construe its rheological properties as approximately orthotropic). This difference introduces inside each voussoir not only patches of heterogeneity, but also surfaces of weaker resistance; on the other hand, it is an inevitable consequence of the logistic and building constraints imposed by the large size (span-wise and thickness-wise) of the sides of the Cupola octagonal ‘parallels’.

b) THE BIG PLATBAND IN THE ‘SAGRESTIA VECCHIA’ OF THE CATHEDRAL: MIGHT IT HIDE A CODED MEANING?

Inside the ‘Sagrestia Vecchia’ (or ‘Sagrestia dei Canonici’) extant on the South-East side of the Santa Maria del Fiore Cathedral’s apse there can be seen above the door, spanning the entire width of the room from wall to wall, a very large platband (FIG. 10; see [5]). The attribution of this platband to BRUNELLESCHI is far from undisputed; however, for the sake of the argument, let us assume for a moment that this attribution is correct. This platband does not seem to fulfill any discernible purpose of load-carrying beyond supporting its own weight. Indeed, directly above it there are no structures of some importance; nor can it fulfill the purpose of a bracing beam between the two end pillars, because a platband structure is not the good solution for such a function. What, then, could be the purpose, or the meaning, of this structure? One could put forward the conjecture – albeit admittedly based on quite thin shreds of evidence- that being void of any structural function this imposing platband must needs fulfill instead either an ornamental intent or a symbolic one. An ornamental function does not appear very likely, since the platband in question is dark-grey and inconspicuous -except for its size-, besides being surmounted by a chiseled, white balustrade (made of wood but painted to imitate marble) of far greater aesthetic impact and visual appeal. Therefore let us search for a symbolic interpretation: in this connection it can be noted that the angle between the two inclined end faces is very close to 45° (see FIG. 10), as between the end faces of each side of a Cupola ‘parallel’; moreover, the span/thickness ratio is quite close to the value that can be gleaned in the lower parallels’ sides. This platband could, then, be regarded almost as a model of one of these sides, approximately in the scale 1:3; BRUNELLESCHI, if he is indeed the author, could have thus concealed in this platband a sort of ‘signature’, or a declaration of intents, in short a coded allusion to his conscious design of the octagon sides as platbands. It would be consistent with the personality of BRUNELLESCHI, notoriously jealous of his own inventions, to have hidden this allusion by leaving it ‘carved in the stone’ rather than making it explicit. This concealment would also answer a possible worry of his to be protected against further suspicions and polemics, after the serious opposition met initially by his proposal to erect the Cupola without scaffolding. At the same time, it is plausible to assume that he would have been eager to leave a durable cryptic sign which, though not easily understandable by the common sense of his contemporaries, might be ‘readable’ in the very proportions of the platband by those ‘worthy’ kindred spirits who would be intellectually up to the task.

While such speculations are tantalizingly suggestive, they are based on so many assumptions and flights of fancy that it would be unreasonable to push the argument any further. The only apt final comment, therefore, is an expression of the hope that further investigations could be undertaken to give the matter a surer historic, factual footing on which to draw more certain conclusions.

BIBLIOGRAPHIC REFERENCES

[1] L. Mascheroni, “Nuove ricerche sull’equilibrio delle volte” (New research into the equilibrium of domes), 1785
FIGURE 1 - THE CONTINUOUS CIRCULAR RING CONTAINED WITHIN THE THICKNESS OF THE OCTAGONAL HORIZONTAL SECTION
FIGURE 2 - THE DA VINCI INTERPRETATION OF THE CONDITIONS FOR ARCH STABILITY
FIGURE 3 - THE ‘PRESSURE CURVE’ IN A PLATBAND
FIGURE 5 - EXPLODED VIEW OF ONE SIDE OF THE OCTAGONAL RING OF FIG. 4

FIGURE 4 - SCHEMATIC VIEW OF A GENERIC OCTAGONAL RING OF THE CUPOLA LYING ON AN HORIZONTAL PLANE, SHOWING THE MUTUAL EQUILIBRIUM OF HORIZONTAL FORCES ACTING ON THE RING SIDES
FIGURE 6 - PLATBANDS IN THE UPPER PARTS OF THE CUPOLA: PERFECTLY BUILT-IN ENDS, STATE OF BENDING AND COMPRESSION (UNDER LINE RST COMPRESSION ALONG THE PLATBAND, ABOVE SAID LINE TENSILE STRESSES)
FIGURE 7 - PLATBANDS IN THE UPPER PARTS OF THE CUPOLA: DEFORMED SHAPE OF THE GENERIC OCTAGONAL RING (THE DEFORMATIONS HAVE BEEN GREATLY MAGNIFIED)
FIGURE 8 - THE 'HERRINGBONE' DISPOSITION OF THE BRICKS IN THE CUPOLA MASONRY: FRONTAL VIEW OF THE INNER FACE OF ONE OF THE EIGHT 'SAILS' (QUALITATIVE SKETCH, NOT TO SCALE)
FIGURE 9 – SCHEMATIC RENDERING OF THE MASONRY TEXTURE IN ONE OF THE 8 CUPOLA “SAILS”. IN RED THE “HERRINGBONE” ARRANGEMENT; THE “SLACK CABLE” FEATURE OF BRICKLAYING IS ALSO EVIDENCED. QUALITATIVE SKETCH, NOT TO SCALE (THE BRICK SIZE HAS BEEN GREATLY MAGNIFIED).
FIGURE 10 - FRONTAL OUTLINE OF THE BIG STONE PLATBAND IN THE “SAGRESTIA VECCHIA” OF S. MARIA DEL FIORE CATHEDRAL

THICKNESS OF THE PLATBAND (NORMAL TO THE DRAWING PLANE) = 180 cm

589 cm

81 cm
NOTES ABOUT FIGURE 10

Good quality photographic images can be requested to ALINARI (Florence), address and catalog number as follows:

Archivio Alinari (Francesca Cappellini - 0039.055.2395236; <cappellini@alinari.it>)
Code: ACA-F-058061-0000
Title: Il ballatoio della Sagrestia Vecchia (o dei Canonici), all'interno del Duomo di Firenze, in Toscana