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Abstract

The point of departure for this paper is the idea of morphic language as addressed in *The Social Logic of Space* according to which architecture is situated between natural language and mathematical language. The paper explores this idea of morphic language to investigate an architectural project that can be most closely associated with natural language. It examines the Danteum project where design undertakes translation across different art forms, from the space of language and literature to the space of buildings and architecture. In this unrealized building Terragni's design for a monument to Dante projects *The Divine Comedy* into an architectural schema and orchestrates it at various levels. Translations across symbolic forms by necessity involve shifts and transformations. Thus, they challenge us to examine fundamental metaphors as an aspect of design reasoning, particularly in relation to the construction of spatial relationships and meanings. Being a building that conveys a distinctive meaning, this paper argues that the Danteum does so without the use of seemingly idiosyncratic elements or decoration, rather it is through the play of metaphor and syntactic combinations of elements that meanings are constructed. Ultimately, at least in this project, in addition to the symbolic use of number, it is the ostensibly arbitrary shape that creates the ultimate metaphor and ties together aspects of composition and geometry to convey particular meanings.

Introduction

The comparison between architecture and language has been common place in architectural theory for decades. In *The Social Logic of Space* this issue has been examined in terms of morphic language. Morphic language, according to the authors is significant in establishing the syntactic attributes of space and is shown to be between natural language and mathematical language.

"Morphic language differ from both [natural and mathematical language], yet borrow certain properties from each. From mathematical languages, morphic languages take the small lexicon (that is, the homogeneity of its primary morphic units), the primacy of syntactic structure over semantic representation, the property of being built up from a minimal initial system, and the property of not meaning anything except its own structure (that is to say, they do not exist to represent other things, but to constitute patterns which are their own meaning). From natural languages, morphic languages take the property of being realised in the experiential world, of being creatively used for social purposes, and of permitting a ruled governed creativity.

Keywords:

Morphic languages,
Danteum, Guiseppe
Terragni, Italian
architecture, Dante,
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Thus in a morphic language syntax has a far more important role than in natural language. In natural language a syntactically well-formed sentence permits a meaning to exist, but neither specifies it nor guarantees it. In a morphic language, the existence of a syntactically well-formed sentence itself guarantees and indeed specifies meaning, because the meaning is only the abstract structure of the pattern. Morphic languages are the realisation of abstract structure in the real world. They convey meaning not in the sense of representing something else, but only in the sense of constituting a pattern.”¹

In other words, in natural language there is a large lexicon which is combined through a simple syntax that is meaningful in a semantic referential sense while in mathematical language there is a smaller lexicon that undergoes complex permutations and combinations of syntax to create syntactic meaning. In contrast, morphic language is situated in between these two extremes. On one hand, it depends on a strong syntax to create structural meaning, while on the other hand allowing its constitutive elements to be individuated to allow for representative meaning.

The authors are quick to point out though that, “this does not mean that architectural and urban forms are not used to represent particular meanings” and “to achieve representation of meaning in the linguistic sense, morphic language of space does so by behaving like natural language. It individuates its morphic units. Hence buildings which are intended to convey particular meanings do so by the addition of idiosyncratic elaboration and detail: decoration, bell-towers, and so on. In doing so the morphic units come to behave more like particular words in natural language.”² Therefore buildings such as churches or temples that are intended to convey symbolic meaning do so by using special elements. This paper takes the case of the Danteum project by Giuseppe Terragni³ for the 1942 Exposition in Rome that was explicitly based on *The Divine Comedy*⁴ in order to clarify the ideas of morphic language. This building becomes especially interesting, since obviously it is intended to convey “particular meaning” (Dante’s *Divine Comedy*). Nevertheless, it does so, not by using idiosyncratic elements such as bell towers or other iconic ones, rather, it does so, as I will argue in this paper, through the play of metaphor in addition to the adhering to the compositional and numerical aspects of the poem as has been analyzed in Schumacher’s work. So while this project embodies the syntactic creation of meanings it uses the individuated elements such as

¹ Bill Hillier & Julienne Hanson, *The Social Logic of Space*, (Cambridge: Cambridge University Press, 1984), pp. 49-50.

² Hillier & Hanson, *The Social Logic of Space*, p.50.

³ Both Giuseppe Terragni and Pietro Lingeri were officially the architects of this project, but Schumacher’s extensive analysis of this project attributes the seminal ideas to Terragni. For details see Thomas L. Schumacher’s *The Danteum*, (Princeton: Princeton Architectural Press, 1993), p. 17. Although Etlin does not agree with this and claims both to be equally involved in the design process, refer Richard Etlin’s *Modernism in Italian Architecture, 1890-1940*, (Cambridge: MIT Press, 1991) pp. 517-568. In this paper I refer to Terragni being the designer purely for matters of convenience since the subject of authorship is not really a matter of concern in this work.

⁴ This building project was proposed by the Director of the Royal Brera Academy in Milan, Rino Valdameri to the Italian government to celebrate the Dante, “greatest of Italian poets”. It was enthusiastically received by Mussolini in late 1938 and would have been built in Rome had the war not occurred. Thomas Schumacher, *The Danteum: A study in the Architecture of Literature*, (Princeton: Princeton Architectural Press, 1985). The Danteum drawings are accompanied by the *relazione* document written by the architect which explain the design decisions and how every aspect of the design is intrinsically related to *The Divine Comedy*. The very nature of the document is reminiscent of Dante’s *relazione* document.

the column in a complex and subtle syntactic elaboration to create meanings. In addition, the paper will also show how without the use of iconic elements, the same syntactic combination can give rise to potential iconic meaning by a change in the movement pattern.

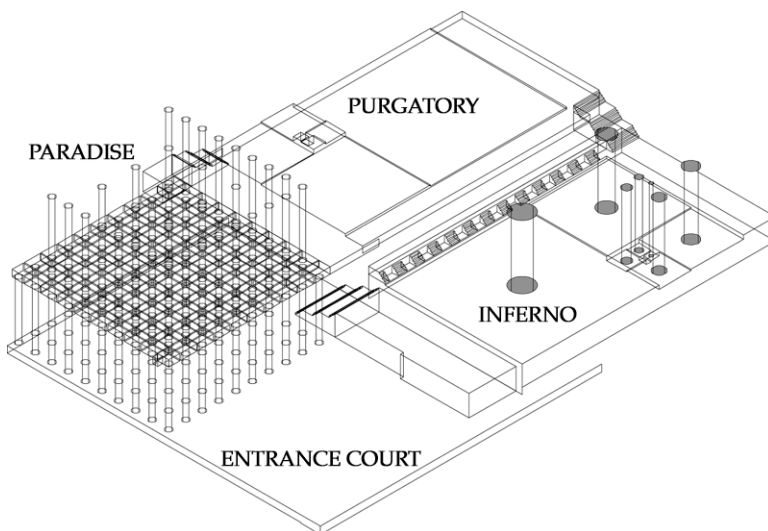
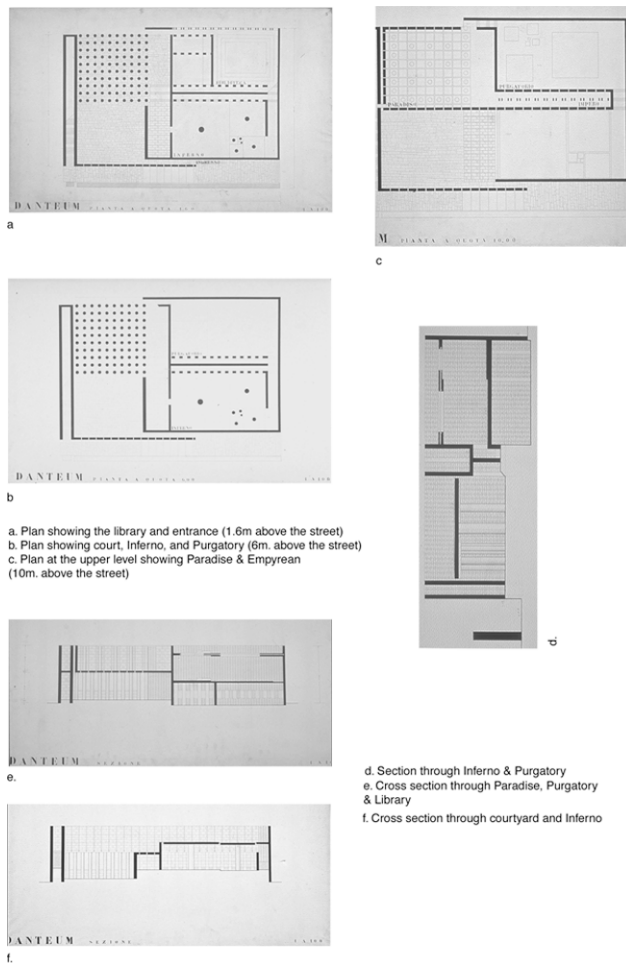
***The Divine Comedy* - its Architectonic and Spatial Structure:**

The Divine Comedy itself is complex work that can be read at various levels; its structure is interwoven by physical, ethical, moral, as well as political and historical systems. Compositionally it consists of three parts (cantiche) - Inferno, Purgatory, and Paradise. Purgatory and Paradise consist of thirty-three cantos each, while Inferno has thirty-four cantos - one extra introductory canto to the entire work, making the total structure of the poem to be $1+33+33+33 = 100$. In addition, the poem is composed in a structure called 'terza rima'. This means that it follows an aba/bcb/cdc pattern, where the first line rhymes with the third and the second rhymes with the first line of the next tercet. *The Divine Comedy* describes Dante's journey through three realms - Inferno, Purgatory, and Paradise. The spiritual journey begins when the poet gets lost in a forest. Virgil, the Roman poet, who embodies human reason acts as his guide in the first two realms while Beatrice, with whom Dante is supposed to have been in love, embodying Divine Revelation and Wisdom guides him through Paradise.

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Spatially, each part of the poem describes a specific realm through its topological structure. Following this scheme, the earth is at the center around which nine celestial spheres revolve. Beyond these is the tenth sphere - the Empyrean - the all-embracing and ultimate seat of God. The northern half of the earth had a landmass with Jerusalem at the center. Below this is a funnel shaped conical hollow - the Inferno - that is created with Lucifer's fall who is permanently stuck in the lowest and narrowest end. Topographically, the formation of Inferno is responsible for the creation of Purgatory, since the Inferno pushed a mass of earth upward on the other side, i.e. the Southern Hemisphere that is covered with water. The realm of Purgatory then, is essentially an island mountain surrounded by water. It is described as a place where souls destined eventually for Heaven undergo purification. The top of Purgatory is the Earthly Paradise; this is the point that comes closest to the celestial spheres, the Garden of Eden.

Each of these realms has internal divisions. Inferno is divided in nine circles with an entire range of harsh and forbidding landscapes that are present on earth such as rivers, woods, deserts, glaciers, castles, and cliffs, only in a much more extreme form. Purgatory is a rocky mountain with two initial terraces before the gate that lead to Purgatory proper. It consists of seven cornices and has a beautiful forest on top which was once the earthly Paradise, while Paradise itself is described as having nine spheres enveloping earth and dedicated to various planets such as Moon, Mercury, Venus, Sun, Mars, Jove, Saturn, stars, and the primum mobile. Beyond this is the empyrean, the final seat of God. Sinners are assigned to particular circles in Hell according to their crimes that are basically divided at three levels: incontinence, violence, and fraud. The division in Purgatory is according to the redemption of seven sins, while in Paradise the souls are given a particular sphere according to their virtuous merits and beatitude.



1. Terragni's drawings of the Danteum

2. Axonometric model of the Danteum

Spatializing the Comedy in a Building:

The Danteum project orchestrates *The Divine Comedy* at various levels. Its spatial organization adheres closely to the compositional structure of the poem (Fig. 1 & 2).⁵ The initial step is Terragni's decision to base the entire scheme on the golden-section rectangle and its sub-divisions. Once the geometrical scheme is determined by the choice of the golden-section rectangle, Dante's compositional and topographical scheme for *The Divine Comedy* is integrated in this geometrical scheme. From that point on, it is a game of combining relevant numbers with the geometry of the golden-section rectangle to create a spatial composition confirming the spatial description in the Comedy. This is apparent in the relazione document where once this organizational system is established, Terragni more or less walks the reader through the building making evident the correspondences between *The Divine Comedy* and the Danteum both in terms of the compositional structure and the experience within the realms.⁶

The drawings reveal a four-part scheme with and monolithic facade wall. Behind this wall, which is a literal representation of the poem, is a street-like space that leads to a courtyard. Adjoining this is an area with 100 columns, which is comparable in atmosphere to Dante's forest, and in structure to the number of cantos of the Comedy (Fig. 2). Steps lead through a small vestibule into the first room that embodies the Inferno. Here, as in other parts of this building, walls remain as constant surfaces while the floor sinks in steps (quite contrary to most buildings wherein there are variations in the wall surfaces with different openings) following the decomposition of the golden section rectangle into a series of seven squares. Each of these squares has a single column at the center that varies proportion-

⁵ Schumacher, *The Danteum*.

⁶ Terragni describes the entrance to the building through a narrow street-like space behind a massive stone wall as, "situated parallel to and behind the facade, and between two high walls of marble, further restated by another long wall parallel to the front, to a Dantesque 'justification': 'non so ben come v'entrai' [I do not know how I entered (Canto I, 10).]" (Relazione Sul Danteum, point 10). This facade wall is designed as an immense blackboard that has carved into it verses from *The Divine Comedy* and relief sculptures, and constructed out of 100 marble blocks relating the structure to the 100 cantos of the poem each of which is in a size proportional to the cantos they represent.

ately in diameter forming a spiral sequence of columns. The roof follows a pattern similar to the floor and each of the independent and non-coplanar parts of the ceiling is held on a single column. Light comes into this space through slits in the roof. The interior imparts, what Terragni refers to as, “the sensation of the impending, of the void formed under the crust of the earth and through a fearsome seismic disorder caused by the fall of Lucifer.”⁷ The next space, Purgatory, is a mirror image of the earlier space. Here the subdivision of the golden-rectangle is identical but as a rotated mirror image of the infernal space. In Purgatory the squares that form the floor climb up adhering to Dante’s imagination of a truncated conical mountain island having seven cornices. The roof has cut outs that allow for ample light. The third room in this sequence is Paradise, which is above the hundred-columned space. It has a grid structure with glass floors, glass beams, and thirty-three glass columns. One side of this space extends into a nave-like arm - the Empyrean, while at the other end of this is an exit door that leads the visitor to the staircase going down.

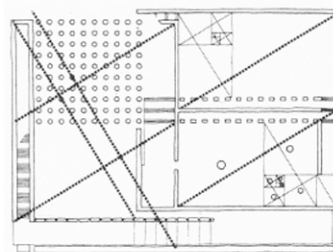
In keeping with the structure of *The Divine Comedy*, one observes the play of one and three creating unity in both plan and section. In plan, the spatial organization is such that the cruciform shape created by the decomposition of the golden section. This is partitioned into three spaces the Inferno, Purgatory, and Paradise dedicated to three canticles, plus an open court. Vertically too these spaces follow the 3+1 motif, with the spaces dedicated to the three canticles situated on three levels, which are dimensionally in multiples of three.⁸ Onto these two schemes is the third “longitudinal spine” of alternating solid and perforated wall constituting the Empyrean that represents the “spiritual germ” of the project and the culmination of the three spaces traversed earlier, again stressing the symbolic 3+1 idea.

Personification & the Problem of the Body:

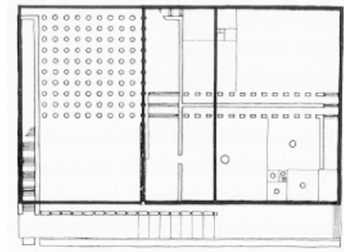
The Divine Comedy deploys language towards explicitly mapping landscapes and realms; at the same time, it alternates the function of mapping. The map becomes a medium in which emotions are expressed. The presence and co-ordination of bodies, however transient shape the various circles of Paradise. The Inferno is most obviously a physical landscape in which events are contained in different circles and the sufferings of the bodies are reflective of the classificatory nature of the realm. The body forms the map in Paradise, while the map situates the body in the Inferno, and thus within the poem there is a continuing tension between what is being described and what is being narrated.

⁷ Refer *Relazione Sul Danteum*, point 23.

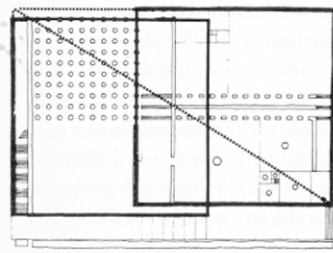
⁸ The three spaces are situated at levels 2.70m, 5.40m, and 8.10m respectively, and therefore can be seen as multiples of 3 (33/10, 33/5, & 34/10 respectively).



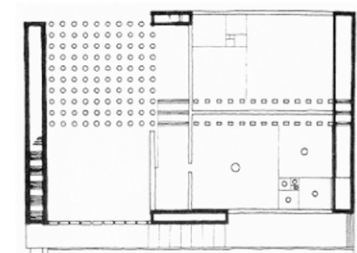
Danteum, decomposition of the golden-section



Danteum, initial generating slipped in one direction to form the primary golden-section.

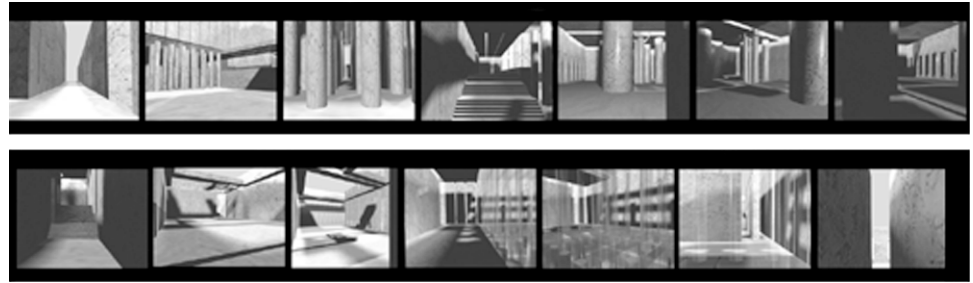


Danteum, squares slipped in the transverse direction to form the overall composition



Danteum, end zones in the composition

3. Schumacher's analysis of the building



but rather a guideline, from which he divulges and in the process transforms ideas which are then post-rationalized suitably. Nevertheless, there is one dimension of *The Divine Comedy* that Terragni seems to have brilliantly singled out, that of personification.

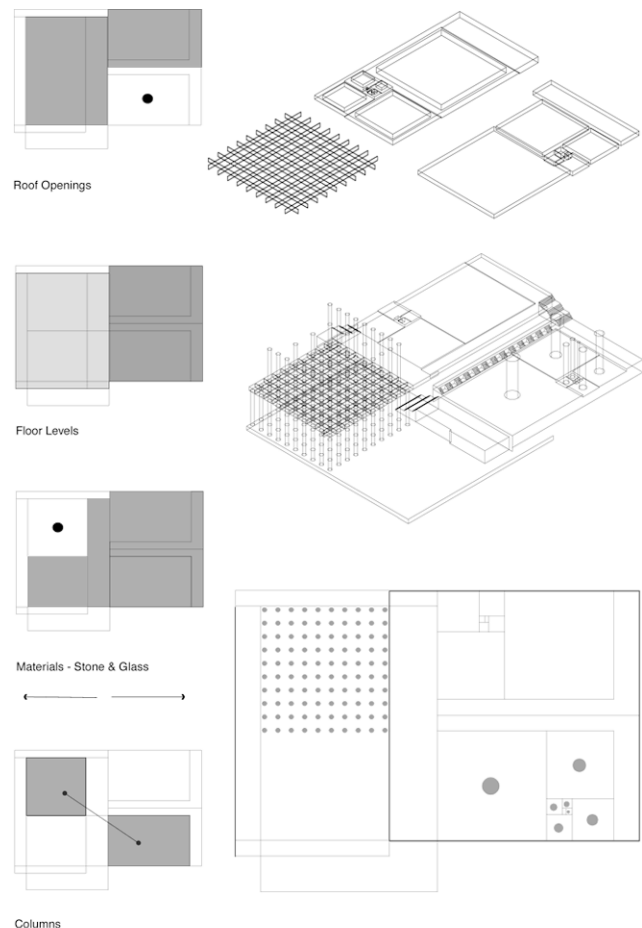
Reference to the body is made time and again in the Comedy. Throughout the Comedy there is great stress placed on the contrast between Dante's living body and the souls of the dead, some of who long for the body while suffering. While in the Inferno the emphasis is on the suffering body, in Purgatory the body is indirectly referenced by its shadow, or the absence of the shadow. Finally, in Paradise, one has the disembodied body, which is described in terms of light or glowing flesh. This emphasis on the body when translated into architecture is represented through the personification of the column in the Danteum.

If one considers the handling of the column in the Danteum, in greater detail, the poetics of the column is in contrast to what is generally expected of the modernist tradition. In the latter, columns are the structural grids of reference and the walls create the drama. In the Danteum the reverse seems to place, the walls create the classification of the realms while the columns dance in space (Fig. 2). This element is used to exemplify almost all aspects of translation. It is used to denote the abstract structure in terms of number (reflecting the compositional aspects of the poem) as well as qualities such as dematerialization or suffering (as seen through the use of columns in Paradise and Inferno). At times, the column denotes the compositional structure as seen in the forest of 100 columns or the 33 in Paradise. While at others, the column is employed as a symbol of an individual, as for example with the reference to 'Virgil' in Terragni's sketch (Fig. 6). At an iconic level, the 100 columns with light filtering through the glass blocks above almost resembles a forest which is also called thus by

Terragni. More interestingly however, columns are used to represent almost opposite ideas, such as the possibility of immediate perception of an arrangement as a grid, in the areas of the courtyard and paradise, as contrasted to the sequential and spiral placement in the Inferno. At the same time, its use only in Inferno and Paradise could also be interpreted to represent the eternal nature of these two realms as opposed to Purgatory, which is more like a transitory state. The columns are not mere abstraction but manifest concretion. Whether representing a suffering subject or a dematerialized state they elicit questions about the subject.

In the Danteum, one first encounters the columns after the courtyard. Here, on the one hand, they can be taken to literally represent the image of the forest, while on the other hand, they may be personified to fit the idea of the society. In the latter case, the distribution of columns represents the multitude. The second encounter with columns is in the Inferno. Here, it is the distribution as well as the transformation of columns that contributes to the creation of meaning. Terragni plays with the scale as well as light and materials to create an atmosphere of heaviness, darkness, and weight (Fig. 4). The seven columns vary in size according to their position in the spiral, from the heaviest which one sees immediately in the front when entering the Inferno to the thinnest which is further behind. The general feeling that is created is of the columns being crushed - in other words, they are the suffering bodies and could be considered as representing the shades. In this space, the columns maximize differentiation of positions even in the absence of other visitors present in the space. In the space dedicated to Purgatory, there are no columns. Here it is the visitors that are positioned in space. In the process, the very decision of not having columns underscores the differentiation of positions by underscoring the differentiation of the ground occupied by the bodies of the visitors. The third encounter of the columns is in Paradise. Here, Terragni uses glass as the material for columns, glass blocks arranged on a grid for the floor, and glass beams creating the grid of the ceiling. It is the transformation of materials, as well as the ample light flooding the space helps create an ethereal feel (Fig. 4). Here it is the dematerialization of columns that is significant. And, in the process the columns have a blurring effect on the position of the visitor and even create multiplicity of colors and facets. One can consider these dematerialized glass columns as almost representing the pure souls and angels.

The spaces dedicated to Inferno, Purgatory, and Paradise become especially significant with co-presence, which is an important part of *The Divine Comedy*. There is always a presence of the other who accompanies Dante, a guide whether in the form of Virgil - or in the form of Beatrice. In addition to the father figure, Virgil, or love, Beatrice, there are friends, family, enemies, and citizens. Interestingly, if one considers the Danteum with more than two people, then the columns with the visitors at various levels would give a more complete



5. 5. Analysis of the building

overview of Dante's journey through Inferno wherein at each level each person becomes the poet. Nevertheless, they would give contrasting effects - in Inferno, the other visitors would help scale the building and therefore diminish the suffering effect, while in Paradise, the visitors would enhance the dematerialization effect since the multitude of facets and colors would intensify the experience. The other visitors, when seen through the reflections and refractions of glass column, would visually give a disembodied effect.

The column as a body in the Danteum may be compared to some of Dali's paintings of *The Divine Comedy*. His fascination with the human body and its transfiguration is paralleled in an abstract manner in the Danteum. Terragni's use of the column in the entrance courtyard, the Inferno, and the Paradise, is comparable to Dali's use of the body that varies from almost sculptural and monumental in the Inferno to painterly in the Paradise. In fact, Terragni's use of the column, getting compressed between floor and slab, monumental and gigantic, is almost like the suffering sculptures of Dali, while columns of Paradise are suggestive of Dali's dematerialized bodies. It would not be too far-fetched to say that in this comparison between Terragni and Dali we see differences in the symbolic medium and the language rather than the content that is being communicated.

An aspect that is unique and inherent in architecture as a symbolic medium is that of co-presence or co-awareness. It is in the nature of architectural space that it becomes associated with the way in which social and cultural patterns become realized in terms of co-presence, co-awareness, potential communication and potential interaction. By implication, architectural space can be seen in two complementary ways. First, plans can be read as maps of social relationships because spatial boundaries function as means for making social distinctions and for realizing the structures that govern social intercourse. Second, the morphology of space can be read as the abstract framework of the morphology of movement and encounter. Co-presence is not as directly present in language as a medium, even though language implies communication. The spatial positioning of the recipient of linguistic communication is only partially embedded in the formal structure of language itself, and largely inferred from context.⁹ In *The Divine Comedy*, however, the pattern of co-presence is in the foreground of narration and plot. Not only is the sequence of movement through landscape associated with patterns of encounter with named individuals. The social relationships in which those individuals participated while alive are extensively discussed, while their abstract spatial relationship in the scheme of the after-world is a precise map of their position within the divine judgement and hierarchy. Thus, when the poem is transcribed in architecture, the question of co-presence shifts from being an aspect of narrative and plot, which is more an aspect of the medium, to being an implication of the medium before becoming thematized as an object of narration.

If we accept the proposition that the columns are associated with the body and its states of suffering, the arrangement of the columns implicitly represents a pattern of virtual co-presence, while also conditioning the real co-presence of people simultaneously visiting the monument. If we were to assume a group of visitors proceeding to enter at roughly the same time, the entrance would impose first procession and then assembly, regardless of whether the visitors were coordinated as a group. The forest of columns would disperse the

⁹ Ernst Cassirer, *The Philosophy of Symbolic Forms. Volume 1: Language*, (New Haven: Yale University Press, 1955).

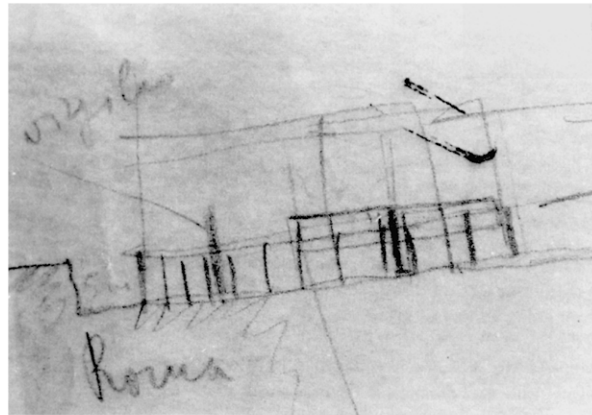
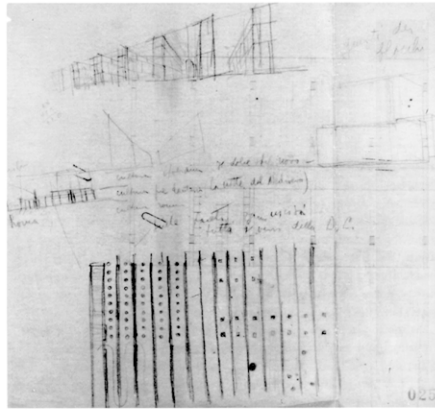
group and dissipate co-presence while affirming the co-presence of virtual bodies in an ordered pattern. This is the exact equivalent of the introduction to the comedy, where the poet is literally lost in the forest but metaphorically lost in the scheme of life. In *Inferno*, the virtual bodies are distorted out of common scale and their suffering expressed in the exaggeration or reduction of the column diameter, as well as the dislocation of floor and ceiling. The presence of other visitors would allow a familiar scale of human bodies to juxtapose itself to the scale of virtual suffering. This is in analogy to dialogue, and narration within dialogue, helping Dante make sense of the landscape and the sufferings to which Virgil introduces him. In *Purgatory*, the lack of real columns potentially accentuates our impression of the body as a column placed on prepared pedestals. We also get an impression of uneven, unequal positioning and potential ascent much in the same manner that souls progress in *The Divine Comedy* and are not fixed forever at a given location. Ultimately in *Paradise* the columns are evenly distributed but due to their ethereal nature they underscore the relationships between different positions, they refract those relationships and they emphasize the visual as well as the conceptual integrity of the setting, over and above the differentiation of positions. This entire progression is framed within the very sequential nature of entry and exit. It would therefore not be far-fetched to claim that the poetics of the architectural body that serves as the means for the emergent poetics of co-presence. In the *Danteum*, then, architectural devices that speak of the body also qualify and describe the pattern of co-presence that the building necessarily engenders.

Synchronic and Diachronic Dimension in the Generation of Meanings:

Geometrical structure and relationships between numbers can be treated as a common denominator between literature and architecture. As each medium is used to constitute additional meanings, our focussing on geometry and number would raise a rather familiar problem of proliferation or elimination of meaning: Would geometry and number be seen as residual structures after the more explicit layers of meaning have been eliminated, or would the significance of geometry and number endlessly proliferate as other layers of meaning are being woven on their canvas? Potentially, any form, which is imbued with proportional relationships, would then become meaningful, if the cultural context of interpretation incorporated the ideas of cosmology that inspired the classical tradition (or *The Divine Comedy*). However, meaning based on formal properties appears precarious and the underlying symbolism disappears. We may then advance to a different question: What is being constituted in the building that can be termed a genuinely architectural experience? One answer to this question could be that the way in which spatial organization, geometry, number, all operate in unison with other features that contribute to the atmosphere inside, such as the materials and the light that make the whole experience a special one and specific to the particular work.

In both Schumacher's and Etlin's description and analysis of the *Danteum*, there is an emphasis on the synchronic dimension of the building. If the building is explored in terms of the peripatetic experience that it engenders, the diversity of views and situations would only lead to a synthetic understanding of the overall structure through the exploration of paths and the negotiation of the diversity of experiential sequences. This is precisely where a comparison to what was probably the initial scheme for the *Danteum* project (mentioned by Schumacher) becomes significant (Fig. 6). The initial scheme of the *Danteum* project lays emphasis on the sequential and diachronic dimension of the literary work, while taking into

6. Terragni's sketch for
the initial scheme



Terragni's Sketches, Scheme A, Danteum: a. Plan b. Detail showing a section, note the word Virgil written pointing to the column.

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account certain numerical aspects of the poem. Nevertheless, the numbers do not provide a geometric composition for the building, though it might be possible to see them as providing a structural underpinning.

Let us consider whether the emphasis on geometric composition plays a significant role in the understanding of the building by a visitor. *The Divine Comedy* is one of the most elaborate journeys in literature; many have even referred to it as one of the most intricate promenades in literature. In comparison, the Danteum seems to epitomize the notion of a discontinuous sequence in architecture, even though a single path is suggested for the viewer, very much in the spirit of following the overall progression of the realms of Inferno, Purgatory, and Paradise as in the narrative, but not necessarily the particular journey in each realm. However, spatial progression is of necessity built into our comprehension of architecture as inhabited space. To understand a given building, we must emphasize not the actuality of progression but the manner in which it is architecturally staged. In the Danteum, the absence of either language for handling progression becomes striking. Here, sequences are handled in quite the opposite manner to a promenade. Thresholds in the Danteum maximize discontinuity and in that sense are consistent with the poem. The realms themselves, on the contrary, are exposed to complete panoramic views, an architectural endowment not already present in the poem. Our common ideas of promenade play on the interaction between continuity, whether of axis, or of the fabric of the path, and change, whether of setting or of view. The Danteum establishes a more stringent tension between panorama

and discontinuity. Each realm corresponds to a more or less clear horizon within which the differentiated positions and conditions become almost panoramically visible. The transitions between realms, by contrast, are abrupt and intense.

We have already seen that the building is organized in four basic parts: the entrance court that is open to sky, an area of multiple columns at the same level, Inferno, Purgatory, and Paradise, in an ascending order with a flight of stairs returning to the ground level at the end of the journey. The play of numerical symbolism is carried throughout the design from the general to the particular, the use of the golden rectangle in the overall design ensures proportional unity and can also be linked to the notion of spiral movement in Inferno and Purgatory. The building is made to adhere to the numerical structuring of the Comedy in various ways that have been discussed. These range from the actual dimensions, which Terragni goes on to explain in his document about the Danteum, to the basic organization of the building.

Terragni translates the play of the twofold and threefold divisions of *The Divine Comedy* into the Danteum through the use of a combination of the triadic completely enclosed ascending structures - the Inferno, Purgatory, and Paradise that represent Dante's journey, and the dyadic open to air structure of the entrance court and the forest of columns that represent the initial manner in which Dante begins his journey. The court can also be seen as an addition to the three parts as a fourth element completing the unity of the overall rectangular shape, in a way, analogous to the completion of the unity of the text through the addition of an extra canto.

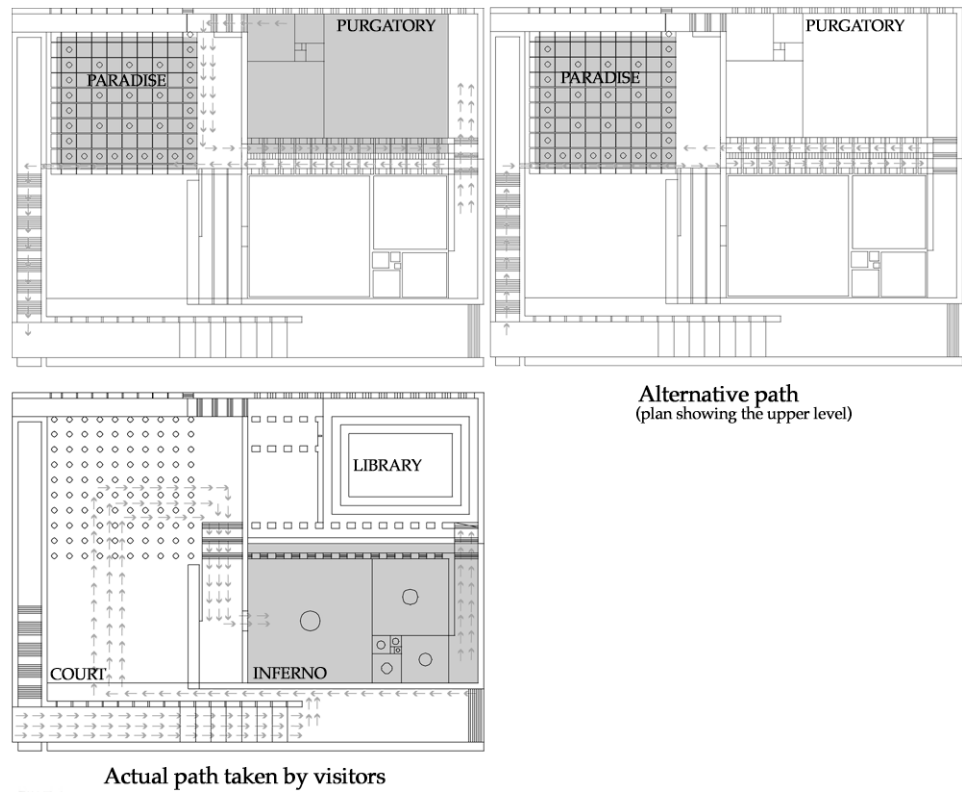
This design move suggests a distinction between the left part of the plan, which is covered by the courtyard and forest of columns and functions as a preamble, and the part on the right which encompasses the first two major spaces of the Inferno and Purgatory. This two-fold distinction is superimposed on the tripartite division of the main journey from the Inferno to Paradise across Purgatory. In a sense, the building then oscillates between a dyadic and a triadic organization of space. The notion of the overlapping of the verses is translated in the overlap of the two squares also apparent in Terragni's sketch. This alternation between dyadic and triadic conceptualization of the building is even more apparent, both through the projected experience of the building peripatetically, as well as an investigation of the overall formal structure. Although there is one route that the visitor is apparently supposed to follow, there is another possibility, which is discussed later, that gives a synchronic, and in turn a much more dyadic understanding of the building, while the sequential route that the visitor follows, much like sequentially following the pages of a narrative text, gives a diachronic understanding of the building which reveals much more a triadically organized space.

Taking a walk through the building, the first element that one encounters is a freestanding wall that displays a long frieze of relief sculptures. This wall could be considered as a literal representation of *The Divine Comedy* - a book carved in stone that visitors can read before entering into the building. It is suggestive of the formal structure due to the size, proportion and location of the verse in relation to the entire wall giving a dimension of totality of the poem with its 100 blocks representing the cantos. This gives a complete overview of the work before experiencing it architecturally as a sequence of spaces. The second stage at which the structure of the literary work is revealed is after the courtyard at the forest of 100 columns.

The second stage can be thought of as being more abstract than the first, while at the same time, one can think of it as representing more iconically the literal forest of Dante.

22.12

7. Left: Supposed path taken by the visitor (Top: Upper floor. Bottom: Lower floor). Right: Alternative path that the visitor could possibly take.



If one considers the entire promenade sequence of the building, a 3x3 structure in space is revealed. Consider the walk through (Fig. 7, left):

At the approach one first glimpses the wall that acts as a blackboard. The movement into the first interstitial linear space is from left to right. A 180-degree turn takes one into the courtyard. This first sequence shows the gradual diminishing of space from open to a more restricted one. The second sequence is the movement from the courtyard, into the forest of columns with light filtering from the glass blocks of the ceiling. Turning from the right to the left, a 180 degree turn takes one up a flight of steps into a much smaller space with three slits on the ceiling that filter light in. This sequence diminishes both light and space. The third sequence is the major journey from Inferno into Purgatory, and from there into Paradise.

If this is taken to be the structure, it exhibits a spiral quality, since the investment in spaces and means increase as one goes along. The first sequence is minimally suggested, the second sequence entails greater architectural investment, and the final sequence of the three spaces is the actual content. This higher order expanding spiral matches the “expanding” embedded spiral from Inferno to Paradise, and counters the direction of “diminishing light and space” spirals of the first and the second sequence which forms the preamble, or the “diminishing aperture” spiral, of the transitions from Inferno to Paradise. Thus, the peripatetic experience through the building reveals a spiral having a 3x3 structure.

Let us now consider the Danteum in terms of an alternative route (Fig. 7, right):

The most enigmatic part of the building is the Empyrean. The dialectical nature of this space is that this is the part of the building into which one can completely avoid going. On the other hand it is only from this part that views are available to all the three spaces, the

Inferno, Purgatory and Paradise. It is located on the cross, which can be conceptually seen as part of Inferno and Purgatory, and also provides a visual link to them, although experientially not a part of either space.

The pattern of movement is such that there are a multitude of changes in direction, making orientation harder until one reaches the level of the Empyrean. Here the architectural labyrinth is suddenly revealed in overview, as if by divine intervention, and formally it is this that divides the physical space in the quadripartite divisions to generate a cross. If considered together by conceptually collapsing various levels, it is this cross that forms the transition between the four different areas, and on the cross one is not experientially a part of the Inferno, Purgatory, or Paradise. The cross here is a divider that separates spaces as well as a connector that integrates spaces by allowing transverse movement. This conceptual cross is encompassed in a rectangle two sides of which form an L-shaped open-air circulation defining the entrance and the exit, while the other two sides diagonal from the earlier L-shape are the internal circulation from the Inferno to the Purgatory and Purgatory to Paradise.

Even though the organizational form of the Danteum is extremely simple, it is never understood until one reaches the Empyrean. This could be the key to Terragni's idea of Empyrean being the germ of the architectural work reflected both in its locational and geometric significance. It is from the Empyrean that one has a visual link to all three spaces. The dual movement is revealed only at the level of Paradise. In the Empyrean the central perforated wall allows visual connection, also the glass floor of Paradise allows for the visual connection between it and the forest of columns below revealing the visitors walking in the opposite direction. Moreover, at this stage one is completely aware of the canto structure forming the cantiche, since not only are 33 columns in the Paradise visible but the 100 columns at the lower level are also revealed. The understanding of the building is purely visual and intellectual from the Empyrean, since one does not exit through the courtyard after returning to it, but the exit is deliberately kept separate. Although, experientially the order is Inferno, Purgatory, Paradise; intellectually, the understanding of Heaven is the key to the understanding of Hell. This is seen according to many critics of Dante in the *Vita Nuova*, which they consider is the approach, an antechamber to *The Divine Comedy*. And therefore, according to them, in Dante's case also, Heaven preceded Hell in experience. Interestingly, in the Danteum, at the very entrance there is a choice of movement; one can go straight up the flight of stairs into Paradise. While, if one takes the normal movement explained earlier, on entering Paradise it is possible to completely disregard the Empyrean. The Empyrean then becomes in effect both the formal and experiential part of the building that is embedded with layers of meaning.¹⁰

If one takes the alternative choice in movement at the entrance, and walks up the flight of stairs into Paradise, and further, into the Empyrean, that would in essence be the reversal of the spiral, the 3x3 structure discussed earlier. In this case the dyadic nature of the building would be revealed. Considering the literal physical movement in relation to the visual movement; one walks up the flight of stairs into the space that gives a feeling of being suspended

¹⁰ According to Dante in *Convivio* the fourth sense is the anagogic, which is "above the senses" this occurs "when a writing is spiritually expounded, which even in the literal sense by the things signified likewise gives intimation of higher matters belonging to the eternal glory." See Dante Alighieri, *Convivio*, tractate III, vii, translated by William Walpond Jackson, (Oxford: Clarendon Press, 1909), pp. 73-74. Terragni uses this with a fascist coloring but in this case I am alluding to the architectural experience.

in air due to its translucent floor and glass roof into the axial extension of the empyrean. The visual experience from this area would be a roof with a variety of apertures at various levels - Purgatory on one hand and a roof with a variety of slabs at various levels - the Inferno on the other hand. Furthermore, there is the courtyard with its ordinary floor and Paradise with the ethereal floor. There are two oppositions set up in this process. First, the contrast between the ethereal glass floor of Paradise, and the floor of the courtyard. Second, the contrast between the condition of the Purgatory and the Inferno on one side, to the courtyard and Paradise on the other. The dyadic structure clearly overpowers the triadic structure from this location in these particular aspects. From this higher location one sees other visitors approach, form in a single file, disappear under a peculiar roof structure and emerge into Paradise. Therefore, from this visual dimension the Empyrean is a position of gradual ascendance - the place of God, while at the literal level, in the choice taken to go there without going through this gradual journey of ascension, it could also be the church that can be entered from the profane world. It could thus be seen as a place for believers floating above the horrors, risks and perils of the journey. It would then truly be the point where believers became one with god - a monument to the idea of the church. This interplay between the triadic structure discussed earlier and the dyadic structure could be the interplay between the idea of the “spiral” and process versus division and boundary: good/bad, faithful/unfaithful, member/non-member. The triadic structure could also be thought of in terms of the courtyard, the forest of columns, and the Empyrean - which could be taken to represent life, the state of being lost, and the overview respectively. These are real conditions, while the three realms, Inferno, Purgatory, and Paradise could be thought of as virtual reality. In this building therefore one can say that through the syntactic combination of numbers and geometry there is a potential of creation of iconic meaning, in this case, the nave of a church, by merely changing the pattern of movement.

The Body and the Tomb:

When we look at the Danteum with the relationship of synchrony to diachrony in mind, we naturally confront the relationship of architecture, as a sequential perception and experience from the point of view of a situated observer, to architecture as a holistic construction of form in the understanding. In this particular building, sequential experience is characterized by the strong discontinuity between the three major areas, Purgatory, Inferno, and Paradise, as well as the strong discontinuity between those realms and the entrance sequence. Synchrony, on the other hand, is most strongly present at the empyrean. From there, one has the overview of the three realms and also of the entrance sequence. In addition, at the Empyrean the dual function of the cross becomes apparent: the cross divides the parts of the building through its disposition inside the outer perimeter, but it also articulates the transverse connections between those parts “inside” its own body.

How then can we relate our discussion of the sequential and panoramic perception of shape and space, as it is organized by the disposition of the linear boundaries that constitute the cross, to our discussion of the pattern of embodiment as foregrounded by the handling of the columns? Quite naturally, the function of the cross is to divide space in accordance with the classification of the realms proposed by *The Divine Comedy*. The disposition of columns is then choreographed within classified space, in a manner that renders explicit the symbolic content of the classification. Put simply, the linear boundaries define the configuration of the container, and the columns represent the content. Again, there are two aspects

to the columns, distribution and transformation. The grid of columns, or the spiral placement that follows the logic of distribution can be seen to link with the idea of the landscape in *The Divine Comedy*, while the transformation of size and materials is suggestive of the events. We may, however, push the interpretation one step further. The building as a whole is called “Danteum”; it is a monument to Dante. It chooses to represent Dante, the individual person, by representing his creation, the poem. The hermetic closure of the building as a whole evokes less the form of a statue, the direct representation of the body associated with many monuments to persons, and more the tomb, the most powerful monument to the physical restricted and closed spatial form that monumentalizes the absence of the person that was once able to move among others and to occupy normal built space.

If we look at the Danteum as a tomb to Dante, the internal classification of its parts acquires a new significance. The normal tomb suggests ultimate spatial integration, ultimate centering at a particular point, of everything that a person has been. In the Danteum the center is an intersection of a cross distinguishing three realms. The three realms correspond to the poetic reconstruction of the realms occupied by the person as a poet, realms that represent aspirations and fears, abstract understanding and particular historical events, hopes and regrets, encounters and communities, transience and permanence. By emphasizing the distinction of those poetic states the Danteum fails to establish the centering and integrity normally associated with tombs. The body of the poet is as if dispersed in death, in order that the body of the poetry, the creation and inheritance of the poet be embodied in the sharpest relief. Also, it is in the choice of the golden-section rectangle, the over ridding shape that binds the entire scheme that has built into it this powerful metaphor of recurrence by its continuous breaking down into smaller golden section rectangles and squares and absence. From this point of view, the architecture of the Danteum, seen as a transformation of *The Divine Comedy*, is a monument to the poetic body, not the physical body of Dante. This reading is consistent with the integrity of the poem, which is multifaceted and dispersed into various media from paintings, to music. But more than that, this reading is consistent with the suggestion that the Danteum can be appreciated more clearly from the point of view of the subject and the life of the subject, than the point of view of a reconstruction of a cosmology. The Danteum seems to reconstruct the narration of a subjective journey, from which the imagination addresses the structure of the cosmos. This apparent reversal of implicit and explicit meanings, figure and ground, may, as we have seen, be interpreted as the most fundamental discontinuity in the transformation of *The Divine Comedy* - not only from text to building but also from classical to a modern work.

In conclusion, it is obvious that the Danteum is a building that expresses specific meaning. Nevertheless, the Danteum goes against the much-accepted convention that scholars, including Hillier and Hanson consider as exceptions in architectural and urban form. According to them buildings intended to convey particular meaning do so by the use of idiosyncratic elaboration and detail such as bell towers and decoration, wherein morphic units behave like particular words in language. But as we have seen in the case of the Danteum, it conveys particular meaning quite admirably without using idiosyncratic elements. Rather it does so, as we have seen, through syntactic combinations of the basic elements. Having analyzed the Danteum taking into consideration ideas of morphic language, one realizes that in fact the same syntactic structure can render iconic aspects through the manner in which it is encountered. In the case of the Danteum the change in the movement pattern can give the experience

of being in the nave of a church. This experience of the church nave does not owe its existence to a specific detail, decoration, or a unique element rather it is due to a change in movement pattern in the experience of the building. At the same time, this project serves to exemplify the idea of morphic language as expressed by Hillier and Hanson according to whom there is a strong syntax to create structural meaning, while also allowing its constitutive elements to be individuated to allow representative meaning. In the case of the Danteum, a single element such as the column can be used both as structure and symbol. In this case, it signifies the structure of the poem through the number of cantos, the forest through the manner of distribution, the grid and the spiral again through the distribution, and the idea of embodiment through transformation - both in terms of size and material. In the Danteum, one can observe the syntactic manipulation of a single element - the column to create meaning. In a sense, this could be thought of as the primacy of mathematical language, a smaller lexicon that undergoes complex permutations and combinations of syntax to create meaning, rather than morphic language. Nevertheless, at the same time, one can read the transformation of size and materials of this single element as allowing for the individuation of this constitutive element to generate specific meaning. It is obvious that in the Danteum project, architectural meaning is constructed through spatial relationships that involve an abstract order, movement and co-presence, as well as visual fields. Here, the mapping from text to space entails a relationship of part to whole and diachronic movement and synchronic understanding, but that in itself is not sufficient. Architecture as a medium does not visually constitute descriptions provided in language, rather it presents metaphors in space. Some aspects of the text are internalized and reconstituted through metaphors, be it the column or even the seemingly arbitrary yet very crucial choice of the golden-section rectangle in this case. Metaphor resides in the idea, which is linked in the case of the Danteum to the shape that embodies in itself recurrence, and absence. The monument/tomb to Dante, where the actual body is absent but that embodies the most celebrated body of his work - *The Divine Comedy*.

Illustration credits

Fig. 1,3,6 from Thomas L. Schumacher's *The Danteum*, (Princeton: Princeton Architectural Press, 1993).

Fig. 2,4,5,7 from Aarati Kanekar's *The Geometry of Love and the Topography of Fear: On Translation and Metamorphosis from Poem to Building*, (unpublished Ph.D. dissertation, Georgia Institute of Technology, April 2000).

Fig. 4 consists of a series of stills from a computer-animated model of the Danteum constructed by the author.