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# The golden section in the work of Carlo Scarpa: a study of two drawings

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The use of the golden section to regulate the proportions of forms and spaces is one of the most debated and controversial issues in architectural theory. In this article, I show that the work of the Venetian architect Carlo Scarpa has its roots in the classical theory of proportions. I examine two drawings to demonstrate how Scarpa applies harmonic proportions to a museum space, and the close ties between it and the artworks on display. Unlike Le Corbusier's idealistic use of the golden section, Scarpa employs this proportional system in a pragmatic and experimental way. He applies it only in places of special importance, such as the 'small masterpieces' gallery in the Gallerie dell'Accademia and the Main Lecture Theatre at the IUAV in Venice. The analysis foregrounds two principles of Scarpa's work that emerge as significant. First, small size is a prerequisite in the pursuit of perfection. Second, and more generally, the architectural project is a matter of visual perception based on the quest for the 'right proportion'.

## Introduction

Carlo Scarpa is arguably the most famous and important Italian architect of the twentieth century. Transcending the borders of Europe, the bibliography on his work is vast.[1] His buildings, his drawings, and his construction details have been published in books and journals across the world. It is, therefore, difficult to discuss his work as an architect, especially if one aims to analyse his thought in depth without repeating the stereotypes that emerge from the numerous, mostly celebratory, publications of his oeuvre. These studies often present Scarpa as a refined artisan, an obsessive sketcher of construction details, or even as a brilliant but solitary artist. But if one examines his work with judicious detachment, these romantic descriptions ultimately come across as clichéd, if not outright misleading. Going beyond these oversimplified platitudes enables one to perceive the precision of his work and the coherence of his ideas. Although Scarpa lived and worked for a long time on the island of Venice, he was never an isolated intellectual.[2] Although he enjoyed working in glass, bronze, and other costly materials, he was not the architect of a wealthy patrons. Scarpa was a refined artist and architect with an instinctive passion for the beauty of visual perception. This led him to accumulate and combine influences from the cultures of Europe and the Far East, which he deeply appreciated.[3]

To summarise Scarpa's long career as an architect, one should probably say that his insatiable quest for perfection and beauty was his only guide

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throughout these years. For Scarpa, beauty was not the mere display of expensive materials, as his posthumous followers seem to believe. Scarpa's beauty was rather the experience of an intimate understanding of objects and the landscapes in which these are situated. His forms still seem unusual even by today's standards, because they respond to the deep-seated rules that governed his artistic research. As such, the recurrent critique that he was excessively self-referential seems inappropriate.[4] It seems to have been repeatedly levelled against his works by authors who were suspicious of, and perhaps also disoriented by, the originality of his work and his enormous number of drawings. It was Scarpa's innate need for precision that forced him to draw every object and every detail with painstaking constancy. In so doing, he remained obedient to the old Italian saying '*Nulla dies sine linea*' (No day without a line). To analyse his work, one, therefore, needs not only to directly study Scarpa's buildings, but even more so to compare them with his vast corpus of drawings. Studying not just his drawings but the sum of his archived papers[5] is one of the most important resources for any scholar who wishes to enter the world of Scarpa's architecture and explore its complex design processes. This article is based on my study of some sketches and drawings. In what follows, I attempt to reconstruct Scarpa's use of geometric tools, and especially the golden section, in the design process. The geometric constructions that appear on Scarpa's drawings are by the architect's own hand, and I have simply highlighted them to facilitate their comprehension. Starting from his academic training, I proceed to examine two important project drawings in detail. Approximately twenty years apart, these two drawings foreground significant aspects of the Venetian master's working process. Above all, my study highlights the close relationship between Scarpa's compositional language and the Italian classical tradition.

## Scarpa's golden section

Visiting Scarpa's buildings is an exceptional, formative experience for any architect. Nothing in these projects is conventional. Each design solution is tailored to the specific place in which it is found. Scarpa seems to start from an a priori rejection of the superficiality of standardised construction details that are repeatedly used only out of complacency or laziness. In each particular case, Scarpa rather explores new rules that respect and enhance the properties of the material at hand. These new rules are not based on abstract theoretical positions, nor do they derive from an adherence to artistic movements or avant-gardes. They are rather attained by a constant effort to achieve the perfect form through a highly experimental study of materials. This way of working reaches back to Scarpa's youthful apprenticeship when he experimented with colour and transparency in glass.[6]

It will not take long for a researcher to notice the connection between the small and the large scale in visual perception in Scarpa's work. The Venetian architect draws one's gaze towards minute and perfectly carved objects only to allow it to lose itself in them. Looking up, their gaze will also be skilfully captured by unexpected openings and slits in the walls in distant vistas. Scarpa's

mastery of the sublime art of seeing is based on his rigorous study of the exact measure. His research on proportions does not adopt preconceived positions or facile recipes. It rather results from the controlled condensation of memories, sensations, and ideas drawn from tradition. Scarpa's compositional rigour is not just an expression of personal inclination. It is the product of his classical training in art and architecture at the Accademia in Venice, from which he graduated in 1926. In his final project, the *Project for an embassy overlooking a river*, Scarpa superimposed a rhetorical and elaborate classicising language on a simple and rigorous geometric structure. From this vantage, the most interesting part of this project does not lie in the fine presentation drawings that are skilfully executed in Indian ink and water colours. It is rather to be found in the unembellished preparatory sheets and preliminary drawings. In the margins of these drawings, one finds various compositional schemes (Fig. 1) which show that the pompous architectural language on the surface is in fact organised on a rigid framework of harmonic proportions governed by precise regulating lines (Fig. 2). In the schools of art and architecture at the time, the use of

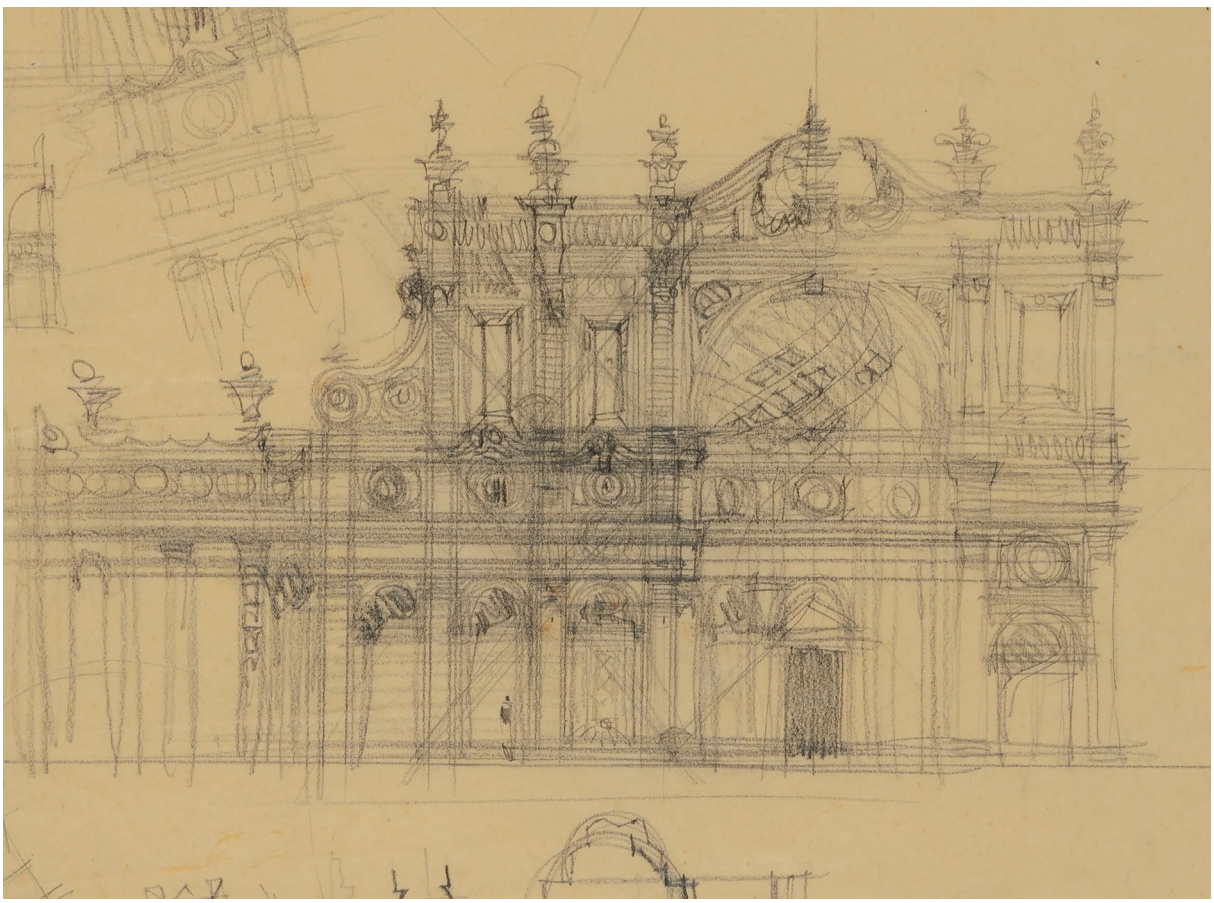


Figure 1.
Carlo Scarpa, final academy project, façade overlooking the river, 1926, © Fondazione MAXXI, Archivio Carlo Scarpa, Disegni Giovanili, 47961 (detail)

these geometrical instruments was a common and well-established practice for calculating and controlling the development of form. Its roots were to be found in the great tradition of Italian Renaissance and Baroque architecture. Rather surprisingly, this rule for composing and controlling form remained active throughout Scarpa's career. It can be traced in his early postwar masterpieces up to his last projects in the 1970s. Was Scarpa, who famously admired Frank Lloyd Wright's work to the extent that he copied his style in his early projects, actually a classical architect?

Asserting that Scarpa was a classical architect serves to debunk existing myths, as it also furthers our understanding of the complexity of his thought. As a widely used term, the 'classical' has a wide range of meanings.[7] But I use it here to denote a reflexive quality in Scarpa's work that is based on a

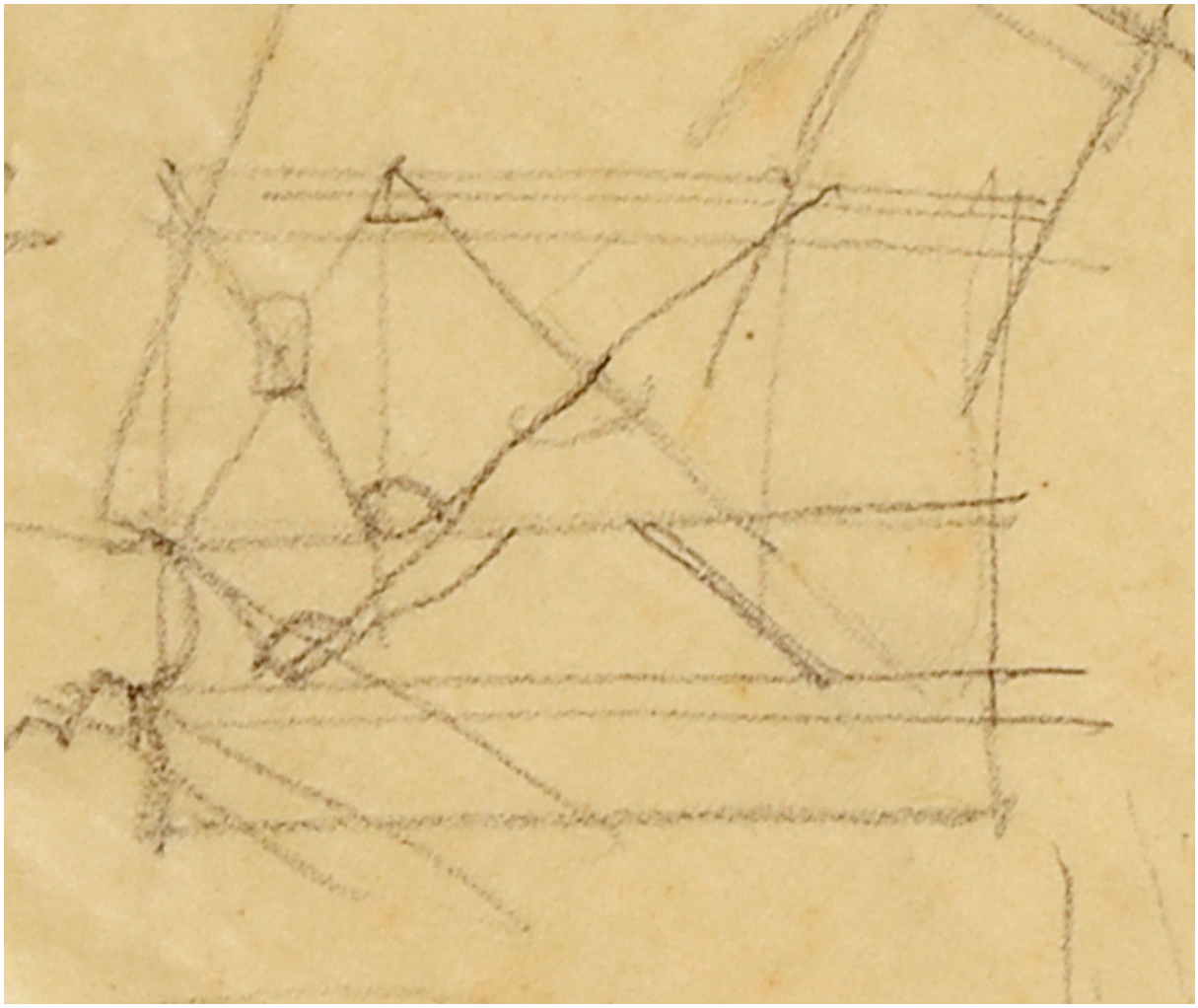


Figure 2.
Carlo Scarpa, final academy project, regulating line, 1926, © Fondazione MAXXI, Archivio Carlo Scarpa, Disegni Giovanili, 47961 (detail)

constant rapport with the memory and legacy of the past. The power of Scarpa's formal experimentation stems precisely from this source. It is firmly rooted in the legacy of tradition. Scarpa often described himself as 'a Byzantine who had come to Venice via Greece'.[8] On various occasions and in many ways, the Venetian architect famously confessed his secret inclination towards the classical tradition.[9] His attraction to antiquity indicates the extent to which his world of ideas developed in continuity with the classical geometric rules for the composition of forms and spaces. From this vantage, Scarpa's architecture could even be described as emblematic for understanding the enduring influence of the classical tradition on modern architecture, especially in Italy. But Scarpa's long-standing interest in the classical tradition, and more specifically the golden section, has so far been neglected in numerous lengthy studies of his work. Even the most recent and wide-ranging critical publications do not discuss this issue,[10] despite the fact that Scarpa's closest collaborators were all aware that he utilised proportional systems in his designs.

Some historians approach studies of harmonic proportions in architecture with suspicion, if not open hostility, for various reasons. To an extent, they are right to do so. But Scarpa is a unique case in point. A recent essay analyses various drawings that demonstrate his interest in the golden section and in regulating lines.[11] Taking as a given that Scarpa constantly used these tools to compose and control architectural form, I will now proceed to comparatively analyse two drawings I selected from his prolific oeuvre. The first is a fine illustration (Fig. 3) from Scarpa's series of drawings for the reorganisation of the Gallerie dell'Accademia in Venice (1945–1959). The second is a later drawing for the provisional arrangement of the Main Lecture Hall at the Istituto Universitario di Architettura in Venice (IUAV) in 1975 (Fig. 4). Whilst the first is a well-known sheet that has been widely cited and published, the second has not attracted similar attention.

I have selected to comparatively study these two drawings, because in both cases Scarpa has outlined analogous proportional schemes to arrive at exact proportions. These are not directly drawn from the simplified decimal system, but indicate a significant geometric relationship. The first drawing, for the Gallerie dell'Accademia, forms part of a long design process that has already been described in detail, focusing especially on the overall principles of the museum project and the configuration of the original space.[12] The drawing in question concerns a small but extremely important space dedicated to the so-called 'small masterpieces' of the Venetian gallery, a precious series of panel paintings from the early Renaissance. Scarpa created this little room that is lit by a skylight by joining two existing rooms. In place of the demolished wall that previously separated the rooms, a two-sided panel has been attached by metal brackets to the side walls at the centre of the space. In the selected drawing, Scarpa studies the display on the north side of this double exhibition panel. This hosts two remarkable paintings by Giovanni Bellini (1433–1516), who was also known as il Giambellino (Fig. 5): the so-called *Martinengo Pietà* (ca. 1505) and the *Virgin and Child with St John the Baptist and a Saint* (before 1504), more commonly known as the *Giovanelli Sacra Conversazione*. Both

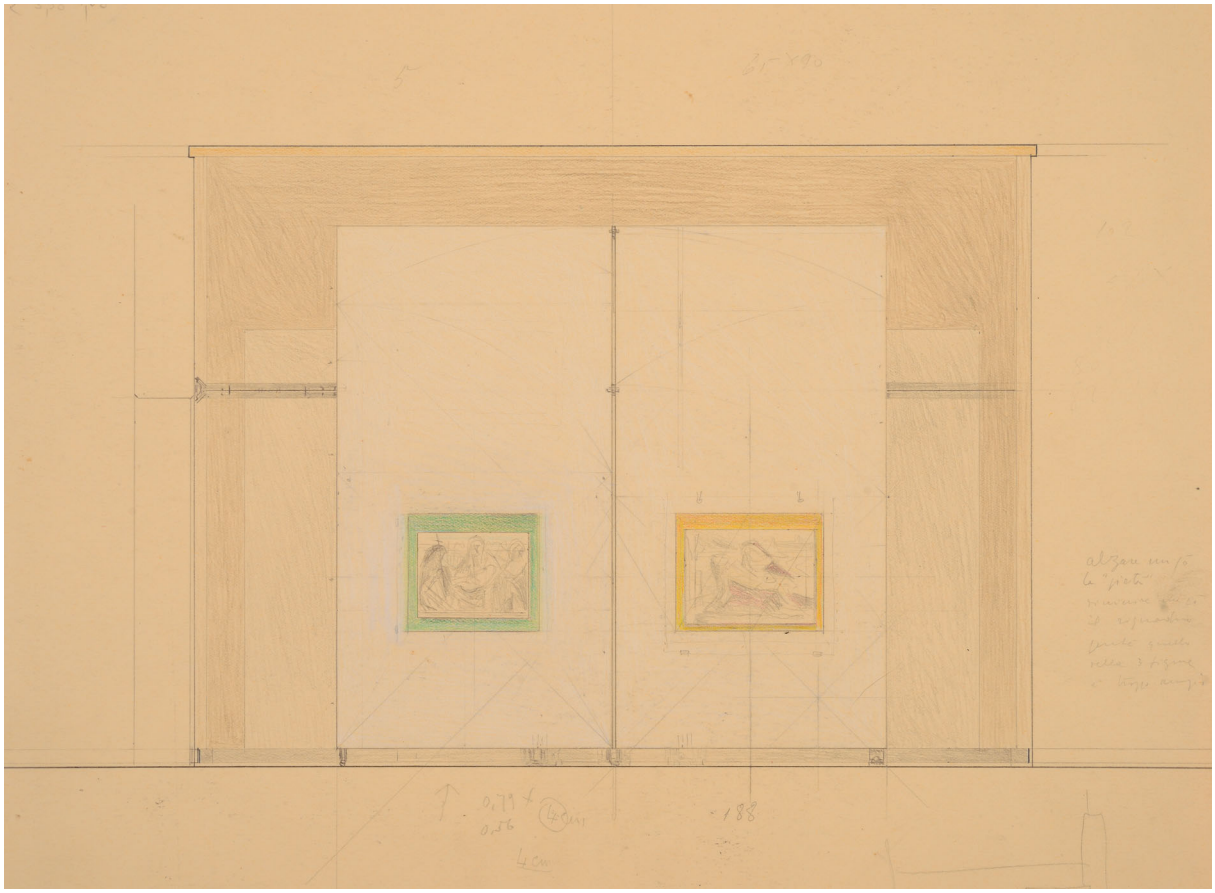


Figure 3.
Carlo Scarpa, Gallerie dell'Accademia, 'small masterpieces' gallery, 1953–1954, undated drawing, © Fondazione MAXXI, Archivio Carlo Scarpa, Gallerie dell'Accademia, 38482

are horizontal oil paintings on panel, of slightly different size and shape. Scarpa analysed the paintings very attentively. Traces of this preliminary work are found in various sheets with sketches, full of measurements and short annotations. To cite just one example, Scarpa's sketch for the *Pietà* (Fig. 6) documents the architect's precise measurements of the panel (88 × 65.5 cm), the width of the frame (11 cm), and the height above the floor of its lower edge (112 cm). He was mainly interested in the geometric composition of the scene with the young mother holding her dead son on her lap that was set in an ideal landscape rising up at the horizon. Scarpa examined minute details of the painting, sketched the contours of the figures, and measured the most significant elements: the distance of the faces of the Virgin and Christ from the edges, the position of Christ's injured hand, and the development of the light blue drapery of the hunched-up mother, among others.

Scarpa focused on forms and measurements. He had already done so for the painting displayed immediately opposite, *St Jerome and a Donor* (1440–1450) by Piero della Francesca (1416–1492), developing a complex compositional

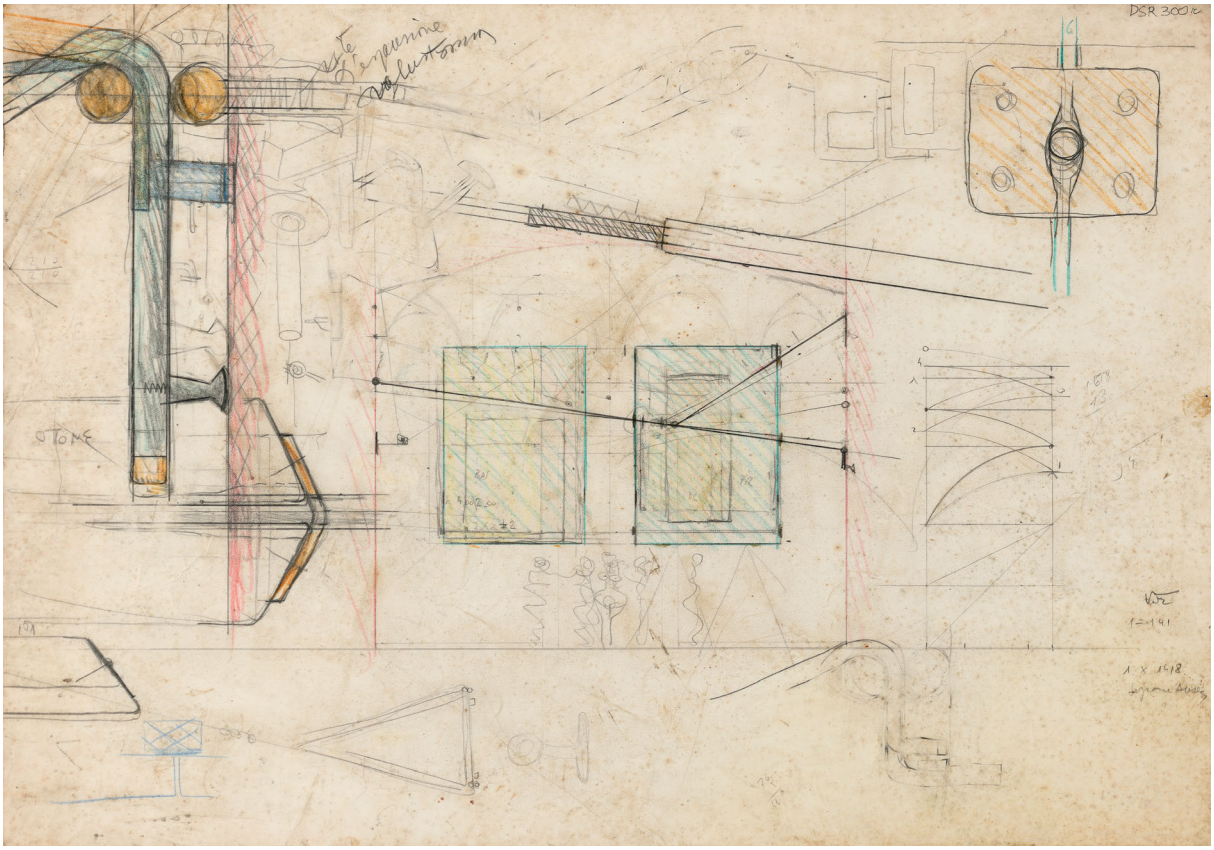


Figure 4.
Carlo Scarpa, IUAV Main Lecture Theatre, 1975, undated sketches and drawings, © Archivio Museo di Castelvecchio, sr300r

scheme based on the golden section. For the panels by Bellini, the Venetian architect attempted to extrapolate an artistic rule from the paintings themselves. He aimed to identify a sort of *poetic assonance* that would allow him to display the works effectively. But, above all, Scarpa intended to showcase their deeper meaning through a subtle game of visual echoes. The geometrical construction of beauty as a tool for aesthetic understanding was the secret objective of his work. For Scarpa, 'seeing' equalled a profound understanding of the world of forms and the ideas underlying them. As a result, his work on the display became an in-depth research process on the rules of figurative composition and artistic expression.

To geometrically construct the drawing, Scarpa started from a rectangular double panel (composed of two squares) and its square sub-modules (Fig. 7). He then drew the diagonals AC (square ABCD) and EC (half-square). Using the compass to flip EC, he geometrically constructed the golden section $\phi$ (= 1.618) of the side of the square (point G). From here he drew the segment GH. This is the principal line of construction that also establishes the visual horizon of the museum display. Exactly at this height, he aligned the sorrowful face of the Madonna in the *Pietà* with the fresh and youthful face of the same

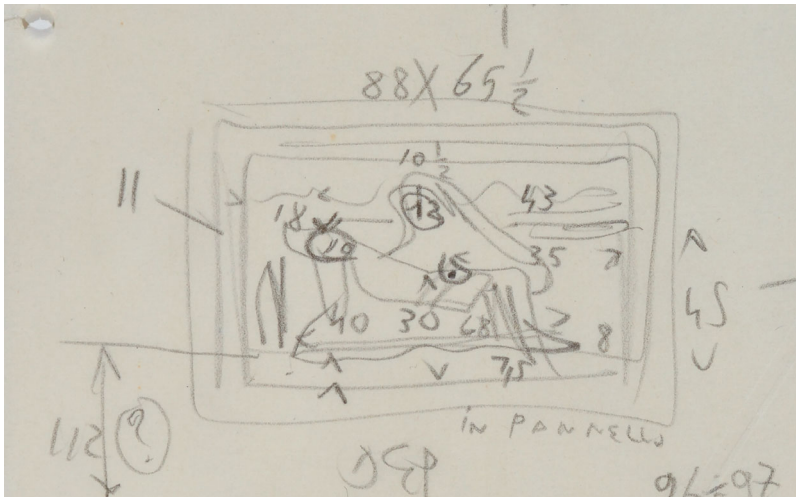



Figure 5. (above left) Gallerie dell'Accademia, 'small masterpieces' gallery, 1953–1954, undated photograph, © Civico Archivio Fotografico, Milano, on deposit from Fondazione BEIC, Archivio Paolo Monti, 00142Gpbn

Figure 6. (above right) Carlo Scarpa, sketch with the Martinengo Pietà, 1953–1954, undated, © Fondazione MAXXI, Archivio Carlo Scarpa, Gallerie dell'Accademia, 38473

mother in the panel of the *Giovanelli Sacra Conversazione*. As the paintings on display did not have a frame, it was their coloured backgrounds that detached them from the surface of the panel and restored their slight differences in size in a more balanced visual unit.

Using the compass, the architect then drew a succession of circumference arcs, with their centres at points L and D. This enabled him to define a sequence of significant points (3–2–1–0) up to the top of the double square. Traces of other sketches that attempted to identify similar reference points for the harmonic equilibrium of the overall view are still visible on the left part of the drawing. Scarpa's elegant geometric construction employs a scale of increasing measures that correspond to the graphic definition of the square roots of the first whole numbers (point 3 = $\sqrt{1}$, point 2 = $\sqrt{2}$, point 1 = $\sqrt{3}$, point 0 = $\sqrt{4}$). A clear illustration of this construction is found in a short essay by the German architect and designer Wolfgang von Wersin (1882–1976). Describing 'Orthogons', or the regular quadrilaterals obtained from the aforementioned harmonic relationships, Von Wersin referred to them respectively as *Square* (1: $\sqrt{1}$), *Diagon* (1: $\sqrt{2}$), *Auron* (1: $\phi$) *Sixton* (1: $\sqrt{3}$), *Double square* (1: $\sqrt{4}$), and so on.[13]

Scarpa defined the overall dimensions of the 'small masterpieces' gallery in the Venetian Gallerie, based on ideal geometric lines, derived from the application of the golden section. He aimed to tune this minute, unitary, and perfect space like a musical instrument that would play indefinitely. This is a fascinating architectural interpretation of the philosophical concept of the Renaissance microcosm.

That this way of thinking is not just an isolated instance in Scarpa's work is demonstrated by the second selected sheet to be discussed here. Sketched twenty years later, this second drawing explores the renovation of the main lecture theatre at IUAV in Venice. Having taught there for many years, Scarpa also became the director of this university. A recent in-depth study offers a detailed description of the project and the historical conditions of the

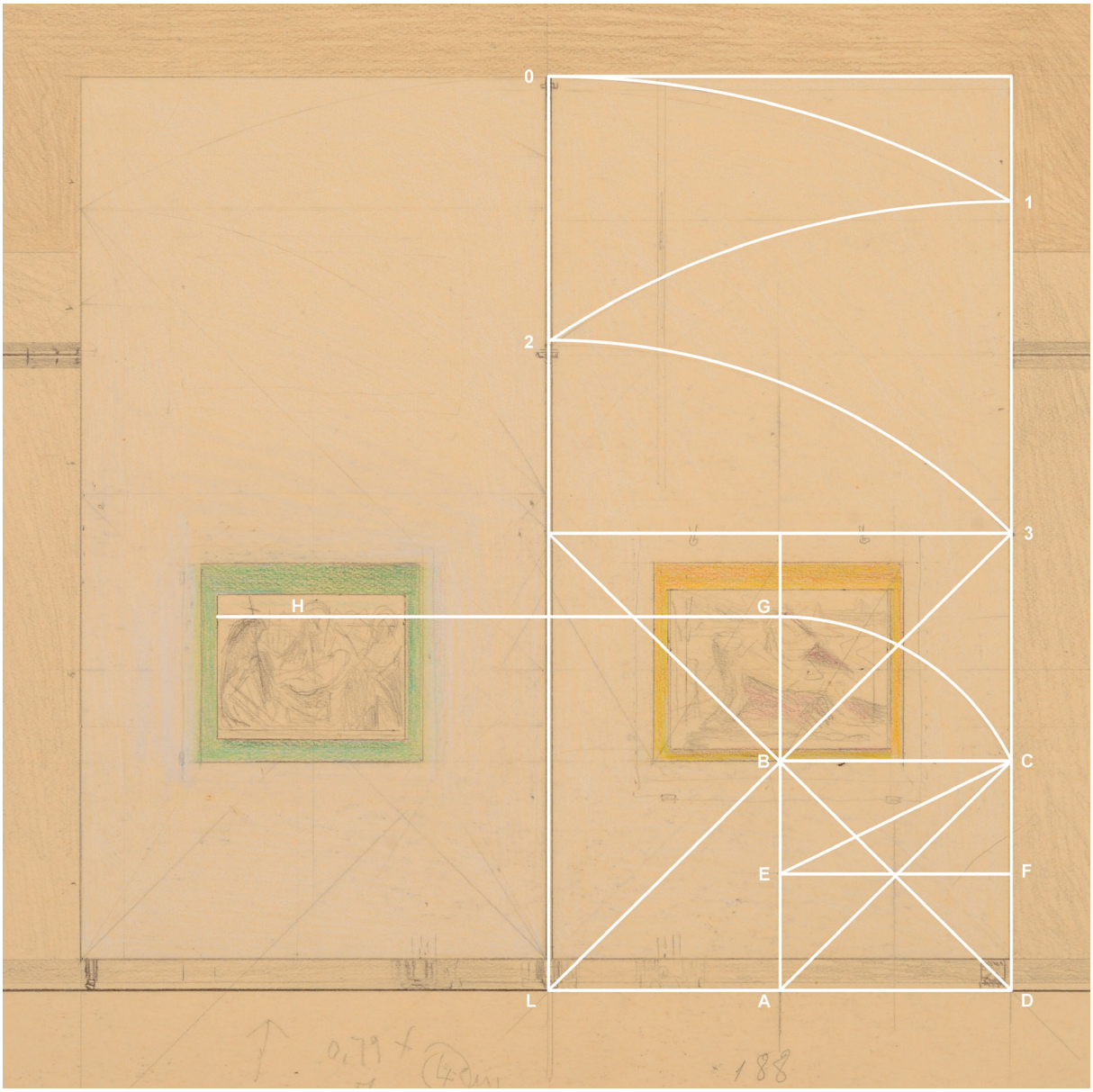



Figure 7.
Carlo Scarpa, Gallerie dell'Accademia, 'small masterpieces' gallery, golden section, processed by Gianluca Frediani, based on the original in Fondazione MAXXI, Archivio Carlo Scarpa, Gallerie dell'Accademia, 38482

space.[14] The drawing in question studies the transverse section of the lecture theatre. It is accompanied by a long series of sketches and marginal notes. The sheet describes the system of beams and cables used to hang the panels that would host the works of well-known contemporary artists (Mario Deluigi, Emilio Vedova, Armando Pizzinato, Vittorio Basaglia, and Alberto Gianquinto). The solution adopted for attaching them to the wall, using a structure in steel and brass, is particularly elaborate and impressive in its own right. But even

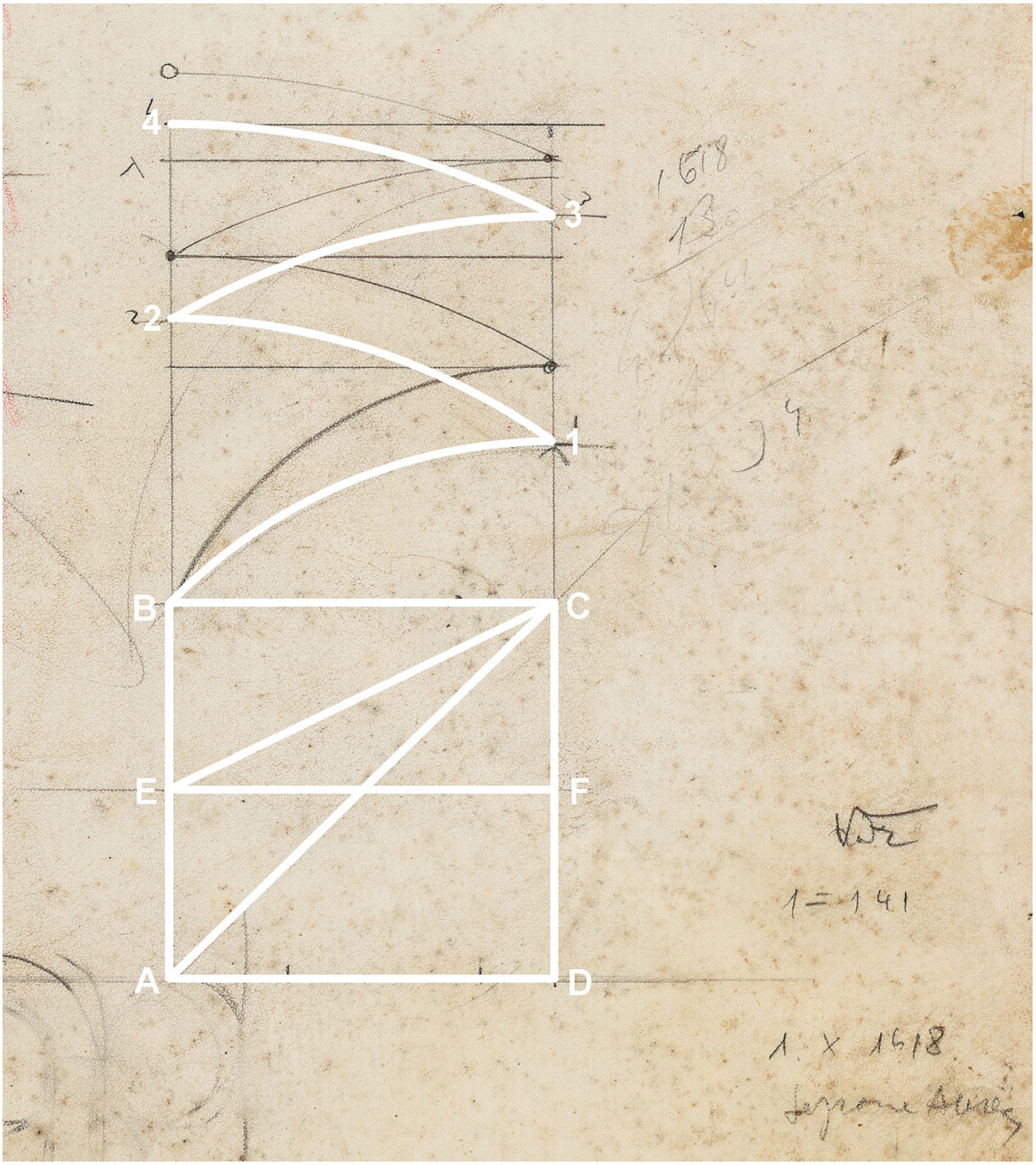
more fascinating here is the sparse geometric scheme on the bottom right. Scarpa's calculations and measurements on the side include the approximate numerical value of $\phi$ (= 1.618) and that of the diagonal of the square $\sqrt{2}$ (= 1.41). He has also added in writing on the corner: 'Golden Section'. The geometric scheme is evidently associated with the dimensions on the transverse section at the centre of the sheet. The overall structure, with its arcs of increasing circumference, resembles a more complex version of the earlier drawing (Fig. 8). Scarpa started by drawing a base square (ABCD) and its half-square (segment EF). He then drew the diagonals of the square (AC) and the half-square (EC). Flipping the corresponding diagonal (DB) along the vertical axis, he geometrically defined the value of $\sqrt{2}$ at point 1. Then, placing the point of the compass alternatively at A, D, and A again, he constructed a 'dynamic' geometric progression.[15] This allowed him to determine the significant points 2 (= $\sqrt{3}$), 3 (= $\sqrt{4}$), and 4 (= $\sqrt{5}$) to define harmonic proportional heights.

It seems that this scale of values and points was not sufficient for Scarpa. This is why he drew a second sequence of measurements following the same method (Fig. 9). But this time he started by flipping the diagonal of the other half-square (BF, analogous to EC). This enabled him to define the golden ratio of $\phi$ at point 3′, and determine the following points 2′, 1′, and 0. Scarpa therefore defined a dual scale of harmonic measurements. Among these, he underlined I–I′, II–II′, III–III′, and IV–IV′. A further measurement (V–V′) was obtained by multiplication by the factor $\phi$, as noted in the calculation (1.618 × 130) next to the sketch on the sheet (Fig. 10). Having established these measurements, Scarpa started looking for useful alignments in the transverse section of the Lecture Hall, the main drawing on the sheet. To cite one example, the support rail on the wall to the left coincides with the measurement (V–V′). But other elements do not seem to correspond perfectly to the predetermined scale of measurements. Divergences and variations above or below the geometrically defined harmonic points are evident. In what follows, I will attempt to explain why.

The start of the numeric/geometric series described above is very similar to that of the double, red and blue, series from Le Corbusier's *Modulor* (1948). The Swiss master also gave a memorable lecture on his scale of harmonic measurements at '*Divina Proportione*', the IX Milan Triennale in 1951.[16] Soon afterwards, Scarpa developed the series of project plates for the 'small masterpieces' gallery in the Gallerie dell'Accademia (1953–1954), based on regulating lines and the golden section. His classical training at the Venice Accademia had taught him to use these tools for proportioning and skilfully controlling architectural form. These formative classical foundations could have probably been further enriched by Scarpa's later engagement with Le Corbusier's writings and research in harmonic proportions.[17] But the Venetian architect worked autonomously. Without relying on Le Corbusier's double scale, he developed his own scale of measurements. He employed it on several occasions, eventually arriving at his own double series of harmonic measurements. Scarpa followed a different procedure to construct his scale of proportional measurements, and he also used it differently than Le Corbusier. While the Swiss master believed in the

Figure 8. (overleaf left) Carlo Scarpa, IUAV Main Lecture Theatre, dynamic regulating line, processed by Gianluca Frediani, based on the original in Archivio Museo di Castelvecchio, sr300r

Figure 9. (overleaf right) Carlo Scarpa, IUAV Main Lecture Theatre, golden section, processed by Gianluca Frediani, based on the original in Archivio Museo di Castelvecchio, sr300r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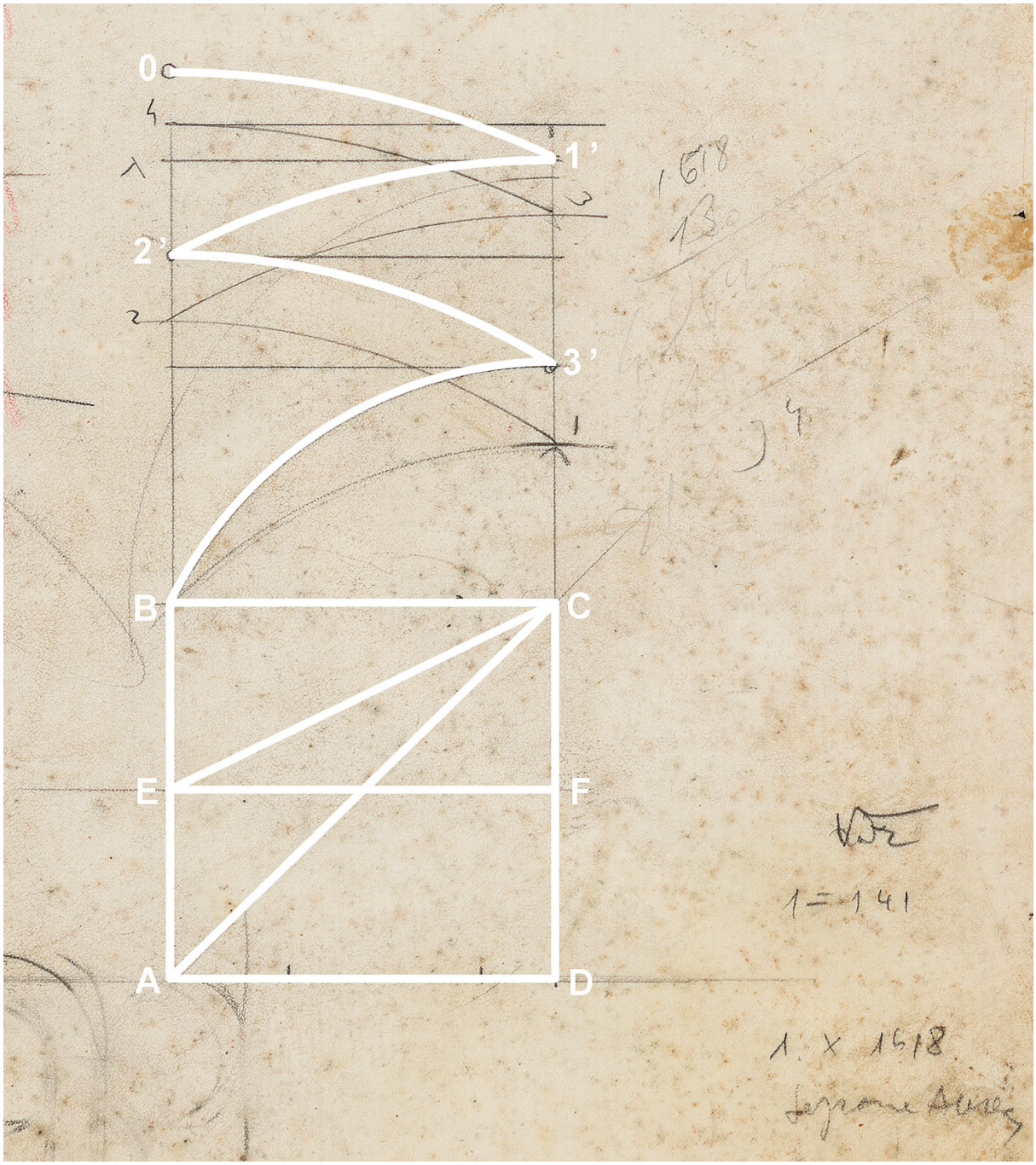
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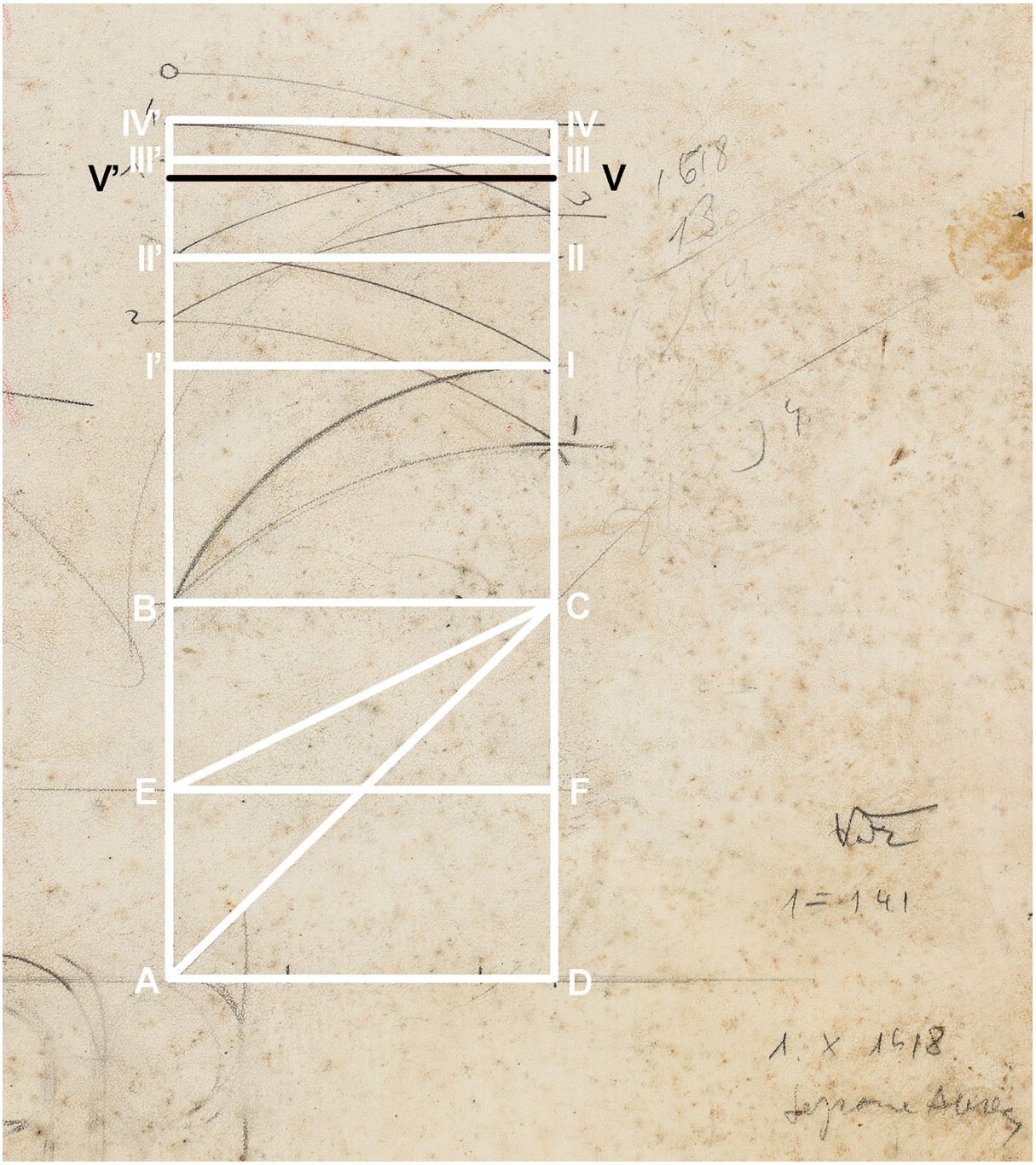
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universal value of the golden section as an almost divine rule that was based on the proportions of the human body, Scarpa was notably more pragmatic and experimental. Unlike Le Corbusier, he did not use golden ratios to design an entire building. He restricted himself to applying his harmonic scale in the initial phase of his work as a rule for proportioning and controlling the form. As such, Scarpa reserved his authorial right to move freely around these measurements or abandon them completely, if necessary. Indeed, the Venetian architect believed that the perfection underlying harmonic measurements cannot be considered a day-to-day working tool (as Le Corbusier claimed, at least initially). It was rather a useful instrument for approximating absolute beauty on these rare occasions that the architect can exert ultimate control over each design element. Another difference from Le Corbusier is that Scarpa did not reveal to anyone, not even his closest collaborators, the proportional system that he had devised and applied. He considered it a personal instrument that was calibrated to his own specific needs. There was no way this was a universal truth to be disseminated to the world.[18] This is also why Scarpa's proportional drawings are fairly few and far between. They appear haphazardly here and there in the mass of archived material. But they also persist remarkably over time, continuously developing from the early compositional exercises at the Accademia to his last building projects. This almost uninterrupted presence of such drawings in the Venetian architect's oeuvre documents his enduring interest in the golden section and regulating lines as a rule of architectural thought and practice.

Figure 10. (opposite) Carlo Scarpa, IUAV Main Lecture Theatre, regulating line, processed by Gianluca Frediani, based on the original in Archivio Museo di Castelvecchio, sr300r

## Conclusion

The comparative study of Scarpa's two selected drawings reinforces the conviction that no predetermined compositional rules dictated the design of space. They only served as tools for an architect in pursuit of the correct proportions of various design elements. Scarpa was an architect accustomed to handling different materials and techniques. Thanks to this multifarious experience, he was well aware of the extent to which factors related to accidents, places, or specific needs might influence the final design choices in a project. The golden section offered him an easy way of controlling forms. But the specific problems connected to the characteristics of the place, the properties of various materials, or the intensity of light and colour later became superimposed on the perfection of proportional geometric constructions. As the perceptive capacity of the human eye later comes into play in all its complexity, the crucial design decisions refer to it in the final instance. It is well known that Scarpa's drawings only rarely correspond to the forms that were actually built. He preferred to work on site, to directly estimate the correctness of his decisions, even at the price of demolishing and redoing what had just been constructed. This is why it is difficult to find works by Scarpa that clearly and obviously follow the rule of harmonic proportions. But this does not mean that proportional measurements and regulating lines are absent from his architecture. From the preliminary sketch for his student project of 1926 they are already there

beneath the surface. They substantiate the structure of space and form to that almost mystical numerology that also appears in his late projects, such as the Brion Tomb (1969–1978).[19] Scarpa's lesson is simple: the quest for absolute beauty in architecture is a matter of the rigorous construction of visual perception, of the proportioning of its elements, of research on the correct measure. When, shortly before his death, Louis I. Kahn wrote a short poem addressed to his Italian friend, it was precisely of this beauty that he spoke:

> In the work of Carlo Scarpa
> 'Beauty'
> the first sense
> Art
> the first word
> then Wonder
> Then the inner realization of 'Form'
> The sense of the wholeness of inseparable elements.
> Design consults Nature
> to give presence to the elements
> A work of art makes manifest the wholeness of the 'Form'
> a symphony of the selected shapes of the elements.
> In the elements
> the joint inspires ornament, its celebration.
> The detail is the adoration of Nature.[20]

## Acknowledgements

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## Notes and references

1. See *Carlo Scarpa: The Complete Works*, ed. by Francesco Dal Co and Giuseppe Mazzariol (New York, NY: Rizzoli, 1984); *Carlo Scarpa, 1906–1978*, ed. by Guido Beltramini and Toshio Nakamura (= *A+U, Architecture and Urbanism*, 229 (1989)); *Carlo Scarpa: Mostre e Musei, 1944–1976; Case e paesaggi, 1972–1978*, ed. by Kurt Walter Forster and Paola Marini (Milan: Electa, 2000).
2. For the rapport between Scarpa, the Venice Biennale, and contemporary art, see Orietta Lanzarini, *Carlo Scarpa: L'architetto e le arti* (Venice: Marsilio, 2003).
3. For the rapport between Scarpa and the East, see Mauro J. K. Pierconti, *Carlo Scarpa e il Giappone* (Milan: Electa, 2007).

4. Peter Buchanan, 'Garden of Death & Dreams', *Architectural Review*, 1063 (1985), 54–59 (p. 54).
5. Through its Foundation, the Museo nazionale delle Arti del XXI secolo di Roma (MAXXI) has preserved and managed Scarpa's archive at its Centro Archivi di Architettura since 2001. Some of the files containing his designs are currently held at the Centro Carlo Scarpa dell'Archivio di Stato di Treviso (CCS). Very important archival holdings can still be found at the Museo di Castelvecchio in Verona. Finally, an interesting collection of technical drawings is to be found in the Museum für angewandte Kunst (MAK) in Vienna.
6. See *Venetian Glass by Carlo Scarpa: The Venini Company, 1932–1947*, ed. by Marino Barovier (Milan: Skira, 2013).
7. Salvatore Settis, *Futuro del 'classico'* (Turin: Einaudi, 2004).
8. Among others, this was reported by Giuseppe Tommasi. See Alba Di Lieto, 'Voci su Carlo Scarpa: Giuseppe Tommasi', Museo di Castelvecchio di Verona, 13 October 2009 <http://mediateca.palladiomuseum.org/scarpa/web/videointervista.php?id=6> [accessed 28 May 2020].
9. See the text of the Madrid Lecture (1978) reported in *Carlo Scarpa: The Complete Works*, ed. by Dal Co and Mazzariol.
10. Robert McCarter, *Carlo Scarpa* (London: Phaidon, 2013).
11. Gianluca Frediani, *Armonia segreta: Carlo Scarpa e il progetto della forma* (Macerata: Quodlibet, 2019).
12. Ibid.
13. Wolfgang von Wersin, *The Book of Rectangles, Spatial Law and Gestures of the Orthogons Described* (Ravensburg: Otto Maier, 1956).
14. Alessandro Brodini, *L'allestimento di Carlo Scarpa per l'aula magna (1975)*, in press.
15. The adjective 'dynamic' alludes to the theory outlined by Jay Hambidge, *Dynamic Symmetry: The Greek Vase* (New Haven, CT: Yale University Press, 1920).
16. See *La divina proporzione: Triennale 1951*, ed. by Anna Chiara Cimoli and Fulvio Irace (Milan: Electa, 2007).
17. Scarpa's library included numerous books by Le Corbusier, including the first editions of the *Modulor* (1948) and *Modulor 2* (1955).
18. This is probably why references to the theme of proportions are only few and generic, even in his university lectures. See Franca Semi, *A Lesson with Carlo Scarpa* (Venice: Cicero, 2010) for original recordings of Scarpa's lessons.
19. The Brion Tomb is constructed on the basis of increasing modules of the number 11 and some submodules.
20. Louis I. Kahn, 'Foreword to 1974 RIBA Exhibition Catalogue *Carlo Scarpa: Architetto Poeta*', in Alessandra Latour, *Louis I. Kahn: Writings, Lectures, Interviews* (New York, NY: Rizzoli, 1991), p. 332.