

Geometry, Modularity and Proportion in the Extraordinario Libro by Sebastiano Serlio: 50 Portals
Between Regola and Licentia

Original

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(Article begins on next page)

SERLIO'S FIFTY PORTALS BETWEEN *REGOLA* AND *LICENTIA*

Introduction (Roberta Spallone, Marco Vitali)

The *Extraordinario Libro* by Sebastiano Serlio, published in Lyon in 1551, is an interesting field of experimentation for the dialectical relationship, central to the Mannerist period, between *regola* (rule) and *licentia* (license). De Fusco explained this dialectical relationship:

the culture of Mannerism requires a new accent: the ‘unusual’ [and this for Serlio will have the character] of a very vast variation on the theme of the classical code. In fact, the unusual will be admirable if founded on reason, hence the continuous references to the norm (the basic paradigm indispensable to the derogation itself) (De Fusco 1968: 388, our trans.).

Thus the *regola* found by Serlio in classical orders is for him the occasion for countless *licentie*, or variations. This volume is composed of copper plates engraved with rich captions: ‘thirty gateways of Rustic work mixed with various Orders, and twenty of delicate work in different styles’ (Serlio 1551: Title page; Serlio 2001: 459) (Fig. 1).

Fig. 1 Sebastiano Serlio, 1551. *Extraordinario Libro*, title page

The book, not foreseen in the original editorial plan for drafting an architectural treatise, is related Book IV, concerning architectural orders, which was the first to be published in 1537. Indeed, in the monumental door, or portal, the architraved or arched entrance combines with the order to form an architectural element with a specific functional, formal, and decorative character (Chitham 1985: 99-101).

In the twentieth century, the *Extraordinario Libro* was the object of several historical-critical studies that defined it *una sorta di enorme, maniaca variazione decorativa su pochissimi temi e schemi fondamentali* (‘a sort of huge, maniacal decorative variation on a few very fundamental themes and schemes’) (Rosci 1966: 48), or a collection of *eresie inibite* (‘inhibited heresies’) (Tafuri 1966: 46-47), and highlighted the character of this *strana collezione di portali e cartigli capricciosi* (‘strange collection of portals and capricious cartouches’) (Rykwert 1993: 7). However, there are no studies that analyze the geometric structure of the Serlian models, linking them to the modularity of the orders and to the unit of measurement of the period.

We have undertaken this path with the aim not only, as in Fiore's auspices, to reproduce, following the text, the proposed graphic examples (Fiore 2001: 17), but also to interpret, represent, and finally relate the proportional criteria underlying the iconographic *corpus* of the book.

Firstly, a comparison between the fifty portals aimed to classify their formal features allows us to:

- compare and classify Serlian models;
- highlight recurrent and exceptional compositional criteria.

Secondly, after identifying the ten portals for which Serlio states modules and dimensions, the geometric-modular relationships that rule their composition are investigated using graphical analysis, which involves recognition, de-composition and re-composition of the elements, and philological reconstruction, aimed at:

- identifying variants and invariants between proportions of 'rustic' doors and 'delicate' doors;
- establishing connections to the rules of orders stated by Serlio in Book IV.

Several historians' researches on the *Extraordinario Libro* were pertinent to our analyses and inspired new interpretations of the book that are important to take into consideration. They will be recalled during the discussion below regarding the case studies. It is possible to recognize currents of thought that underline the issue of variation and restoration (that is, the dichotomy between *licentia* and return to the *regola*) expressing opinion about Serlio's strong desire to suggest how to return to the architectural canon (De Fusco 1968: 453-455; Carpo 1993: 63-83), about his intention to overcome and relativize the value of the variations (Tafuri 1966: 44-47), about his desire to surrender to the architectural furor (Onians 1988: 280-282), and about the balance between fantastic imagination and rationality in his compositional method (Fiore 2001: 34-39). The results of this present research add new elements of knowledge, and could also support new critical interpretations of the *Extraordinario Libro*.

Portals in the Architectural Literature and Serlio's Treatise (Roberta Spallone)

The Renaissance rediscovery of antiquity and the consequent search for a canon of the architectural orders, of which Serlio was one the first theorist, connects to the portals theme, which interprets the order according to the 'trilithic' system. Riccardo Migliari, analyzing the five architectural orders, established a hierarchy through which, by successive partitions, he created a sequence of constructive level, functional level, and decorative level (Migliari 1991: 53-55). The constructive level, based on the trilithic system, consists of pedestal, column, and entablature. We will use these definitions and the hierarchization that follows, sharing his methodological framework. The issue of the proportioning of portals has been addressed in some previous texts. In the *Hypnerotomachia Poliphili*,

1 written in 1499, Francesco Colonna described a monumental door designed through a geometric
2 construction and proportional relations (Colonna 1978: 223-229). Colonna's rather obscure
3 description was interpreted through graphical analysis by Jacques Kerver (Colonna 1546) and
4 Giovanni Pozzi (Casella and Pozzi 1959) (Fig. 2). This allows us to see how the overall geometric
5 approach enters the design process as a method that goes from the general to the particular (Bruschi
6 1978: 223-229).

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11 **Fig. 2** left) Jacques Kerver's engraving of 'Magna Porta' of the *Hypnerotomachia Poliphili* (Colonna 1978:
12 221); middle) Jacques Kerver's *Quadratura* of gateway (Onians 1988: 209); right) Giovanni Pozzi's
13 geometric analysis of the portal (Colonna 1978, 228)
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16
17 About twenty years after Colonna, Cesare Cesariano (1521), illustrating the translation of Vitruvius,
18 presented two portals, Doric and Ionic, appropriate to the temple, in which he accurately described
19 the main proportions between the parts (Fig. 3).
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23 **Fig. 3** Proportions of Doric and Ionic portals. Images: Cesariano (1521: LXVIIIv-LXIXr)
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26 As has been noted, the theme of portals is recurrent in Serlio's treatise. In chronological order, the
27 doors' theme appears in: Book IV (1537), dedicated to the five architectural orders; in Book III
28 (1540), which contains Roman antiquities surveys; in Book I (1545), where the principles of geometry
29 are exposed; in the manuscripts of Book VI (Munich Manuscript n.d., New York Manuscript n.d.),
30 where the portals appear in the perimeter walls of some domestic houses; in the Vienna Manuscript
31 (Serlio n.d.), preparatory to Book VII, where there are portals of other private houses and city
32 gateways; and, finally, in the *Extraordinario Libro* (1551). The analysis of the theme, according to
33 this sequence, could reveal the progressive maturation of a compositional method, fully applied in
34 the *Extraordinario Libro* (Fig. 4).
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43 **Fig. 4** The theme of portals in Serlio's Treatise plan. From top: Book IV (1537: XXVIr, XXVIIIr); Book III
44 (1540: CV, CXXXI); Book I (1545: 23r); Manuscript of Book VI (Munich Manuscript: folio 15r, folio 12r);
45 Manuscript of Book VII (Vienna Manuscript) (Serlio n.d.: folio 75r, folio 105r), and *Extraordinario Libro*
46 (1551: delicate portal VI, rustic portal XXIX)
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50 **Book IV and Book I as References for the *Extraordinario Libro* (Roberta Spallone)**

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52 The main references for the *Extraordinario Libro* are included in Book IV and Book I. In Book IV,
53 while systematizing the orders, Serlio first created a new *corpus* of rules, which became a genuine
54 architectural grammar, then linked the orders with the rustic ornamentation, and finally showed – for
55 each order – possible combinations to realize a number of different portals.
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1 In Book I, Serlio affirmed the idea of geometry as an ordering criterion and, as an example, applied
2 a compositional method to a portal whose diagram is based on the *ad quadratum* used in the late
3 Middle Age (Wittkower 1949: 127).
4

5 ***Book IV: Architectural Orders, Rustication, and Models of Portals***

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7
8 In Book IV, Serlio stated a canon for proportioning the architectural orders, classifying them as
9 Tuscan, Doric, Ionic, Corinthian, and Composite. The book was established as the first fully
10 illustrated architectural grammar of the Renaissance, becoming ‘the architectural bible’ of the
11 civilized world (Summerson 1964:10). The five orders are arranged in a regular mathematical
12 progression: each column is one diameter higher than the one before it, and each pedestal is likewise
13 loftier in proportion than its predecessor (Onians 1988: 217). The pedestals’ shapes refer to the
14 rectangular proportions that Serlio develops in Book I.
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17 In Book IV, the *regola* presents a series of transgressions of Vitruvius’s instructions, motivated by
18 the direct reference to Roman antiquities. Moreover, Serlio integrates the Vitruvian teachings with
19 regard to the pedestals, the Composite capital, and the Tuscan, Corinthian, and Composite
20 entablatures, in a clear and innovative design that would determine a large number of imitations and
21 repetitions.
22

23 The *regola* identifies as a module the column diameter repeated a certain number of times at the
24 ‘constructive level’, which, using the successive partition method, allows for proportioning the
25 elements at the ‘functional level’ (Migliari 1991: 49-66). The functional level arises from the
26 tripartition of each of the elements of the constructive level, which was defined above. This represents
27 an overcoming of the naturalistic description of the orders by Cesariano, whose treatise Serlio knew
28 (Fiore 2001: 16). Cesariano’s orders are illustrated as luxuriant, fantastic forests of columns and
29 capitals, contrasting to the unadorned opening page of Book IV (Serlio 1537: VIr). Serlio’s five
30 schemes are strictly organized on the rectangular ratios of the pedestals and the linear partitions of
31 columns and entablatures (Rosci 1966: 26) (Fig. 5).
32

33 **Fig. 5** Comparison between Cesariano and Serlio’s five orders, Serlio’s rectangular proportions. Images:
34 Cesariano (1521: Liber Quartus, LXIII), Serlio (1537: VIr), Serlio (1545: 21). Graphic overlay: Roberta
35 Spallone
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37 Serlio makes it clear that the five orders form a series not only of rising proportions but also of
38 increasing ornament and decoration. Moreover, he first connects them to their treatment through the
39 so-called ‘rustication’. In particular, he says: ‘Since Tuscan work is the roughest and least ornate, as
40 it seems to me, rustic works suits it and matches it better than it does any other’ (Serlio 1537: VIv,
41 our trans.).
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Rustication, as is apparent in the illustration, is the word Serlio applies to rough stonework, and this can be recognized as appropriate to the simplicity of the order. At the end of the section on the Tuscan order, the whole problem of rustication is treated separately. Four bands of masonry present a progressive increase in polish, refinement, and ornament. Both columnar orders and masonry types create a complexity scale, from simple to refined (Fig. 6). There is an intentional parallelism between the scale of the orders and the scale of the masonry (Onians 1988: 271).

Fig. 6 The scale of rustic masonry. Image: Serlio (1537: XVIIIv)

In Book IV, several models of portals are presented after the description of the proportioning rule of each order. These represent a field of experimentation for the links between architectural orders and ornamentation. Some of these portals seem to be a prelude to the *Extraordinario Libro*. In addition to the example of the Tuscan portal, there is also the door of the house of the cardinal of Ferrara in Fontainebleau (Grand Ferrara), which is the same as that which opens the *Extraordinario Libro*. Other doors have a trilithic structure and pediment, mostly without a pedestal. The Tuscan and Doric orders are subject to the application of the rustication, which breaks the architrave and frieze and, in some cases, enters into the pediment.

Book I: Geometric proportioning for the portals

In the concluding part of Book I, Serlio illustrates some applications of geometry, among which, as said above, the *ad quadratum* method is used to proportion the main door of a temple. The general dimensions of the door are governed by the width of the central nave, through the construction of a square where the diagonals and the inscribed isosceles triangle define the two main dimensions of the opening and the proportional relations between its width and the cornice, and between its width and the height of the pediment.

Rudolf Wittkower highlights an essential aspect of this Serlio's geometric layout: the graphic construction leads to finite subdivisions of the square that dominate the composition of the door. Observing that this operation does not necessarily require a drawing, he concludes that the construction follows, rather than precedes, the establishment of the proportional ratio chosen for the portal. Indeed, modular ratios of 1:3 and 2:3 between the parts are highlighted through the geometric construction proposed by Serlio. Wittkower (1949: 126-127) also noted the existence of other 1:3 and 1:2 ratios and suggested the presence of other relationships between small integers, which our analyses have verified (Fig. 7).

Fig. 7 *Ad quadratum* method for proportioning a temple's portal. a) Serlio's construction; b) Superimposing of Serlio's construction; c) Superimposing of Wittkower's interpretation (1994); d) Superimposing of authors' analysis. Images: Serlio (1545: 23r). Graphic overlay: Roberta Spallone

Although Serlio does not mention this geometric criterion for proportioning in the *Extraordinario Libro*, it is recognizable in the portals that we have analyzed, and which are described in the case studies below.

***Extraordinario Libro: A Synoptic Overview of the Fifty Portals* (Roberta Spallone)**

...finding myself continually in this solitude of Fontainebleau, where there are more beasts than there are men, ... the desire came into my to form in a visible design several gateways in the Rustic style ... I advanced so far as to make a total of XXX, almost carried away by an architectural frenzy. Nor was this sufficient – sensing as I did that my mind abounded in new fantasies – hence I decided to make up to XX of delicate work... (Serlio 1551: *Al Christianissimo Re Henrico*; Serlio 2001: 460)

The first edition of the *Extraordinario Libro*, published in folio format with non-numbered pages, opens with a dedication to Henry II, King of France, followed by a note to the readers, in which Serlio attempts to justify the licenses he has taken by explaining how to restore the integrity (the first form) of the portals, illustrates a general criterion of proportion between the parts, and explains the possibility of modifying the portals dimensions proportionally. This is followed by the textual description of the fifty portals and, finally, the plates that represent them, starting from the rustic types (Fig. 8).

Fig. 8 Thumbnails of the plates in the *Extraordinario Libro*: the fifty portals. Images: Serlio (1551)

In an overview of the fifty portals, Onians noted that the portals were all rather strange, especially the first thirty: in his opinion, the rustic examples represent extravagant irrational designs, and the delicate ones are relatively rational and correct (Onians 1988: 280).

We have compiled a comparative table (Table 1) that takes into consideration selected features of the portals described in the text: the order, the type of rustication, the possible functions, and the references to Antiquity. The portals are also analyzed from a morphological point of view that distinguishes the opening structure (arched or architraved) and any lateral openings, the type of vertical support (column or pilaster strip), the entablature characters (continuous or interrupted by rustication or inscription), the pediment shape (triangular, tripartite, tripartite with volutes, interrupted by rustication and/or panels), and points out the presence of: single or double piers, superimposed order or giant order, single blocks or continuous courses of rustication, fluted or unfluted columns. The table allows us to highlight recurrences and variations in the design of the fifty doors. This survey confirms the remarks by Onians, who also observed that almost all of the rustic portals are Tuscan and Doric, and almost all of the delicate portals are Ionic, Corinthian or Composite, so that the simpler order is associated with the greatest creative license (Onians 1988: 281).

1 An increasing level of complexity can also be observed, from the first to the last, for both rustic and
2 delicate portals (merging of orders, rustication or rustication that progressively enters the pediment,
3 flutings, presence of two levels of orders, use of fragments of antiquities). In the rustic portals, a
4 balance between rustication and order can be observed (banded column, strong rustic, delicate rustic,
5 and ‘bestial’ rustic).
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9 Serlio tells the readers that the mixture of rustication with an order ‘represents... partly a work of
10 nature (*opera di natura*) and partly a work of art (*opera di artificio*)’ (Serlio 1537: 133v). An increase
11 in rustication gives an impression of natural strength, while an increase in carved ornament, even
12 applied to Tuscan, enhances the impression of artful refinement and wealth (Onians 1988: 273).
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16 Moreover, some morphological recurrences can be pointed out. They indicate, as sometimes reported
17 in the text, the formal constancy of the elements for different orders or the taste for variations on the
18 theme thanks to the placement of the inscriptions, the use of rustication, and the decorative apparatus.
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23 **Table 1** Architectural features of the fifty portals. In black the features evidenced by Serlio, in red these
24 gathered from the analysis at the constructive level (colour figure online)
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27 **Working Methodology** (Roberta Spallone)

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29 In the dedication to the readers, Serlio provides general indications on how to use dimensions:
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31

32 Since I have been very brief as regards my descriptions of the measurements, the careful
33 architect will find all the detailed measurements by acting as follows. He should consider how
34 wide the doorway has to be in feet, divide one of those feet into twelve parts to make the inches
35 and divide one of the inches up into six parts called minutes... With this rule all the
36 measurements can be found, part by part (Serlio 1551: *A gli lettori*; Serlio 2001: 461).
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42 Readers are cautioned that they will find some of the fundamental dimensions, but will have to find
43 for themselves those dimensions not specifically indicated: ‘You will find the measurements for these
44 if you are diligent in your compartmenting and your measuring’ (Serlio 1551: *Descrittione delle trenta*
45 *porte rustiche*, V; Serlio 2001: 467). A description of dimensional/modular references is only made
46 for rustic portals I, II, III, IV, V, and VII and delicate portals V, XV, XVIII, and XX.
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51 The presence of measures in Vicentine feet (1 Vicentine foot is about 0.356 m) of these portals allows
52 a dimensional comparison of them, brought back to the same scale. Most of these have an opening
53 height between 13 and 16 feet (which corresponds to about 4.60 and 5.60 m). Therefore, these are
54 portals suitable for public and private buildings, as sometimes Serlio declares. Rustic portal VII
55 appears out of scale: with an opening height of 22 feet (about 7.80 m) and is defined by Serlio as a
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1 model for a triumphal arch. Even the delicate portals XV (intended for a temple) and XX have
2 openings of considerable height, equal to 20 feet (app. 7 m) (Fig. 9).
3

4 **Fig. 9** Dimensional comparison and graphical analyses of ten portals at the same scale. Images: Serlio
5 (1551). Graphic overlay: Marco Vitali
6

7 The graphical analysis began from these models, through the connection between drawings and texts,
8 in search of an analysis protocol for the definition of the compositional hierarchy and sequence, the
9 testing of correspondence between modules and dimensions, and the identification of hidden
10 geometries. This protocol, in this study applied to the ten portals with dimensions mentioned above,
11 will be extended to the other models in the future phases of our research.
12

13 Regarding the drafting of this protocol, it is necessary to point out that the dimensions indicated by
14 Serlio always follow the general logic and the sequence stated in the dedication to the readers:
15

- 16 – the dimensions in feet (width and height) of the opening;
- 17 – the value of the module in feet (corresponding to the base diameter of the column shaft);
- 18 – the height of the column (including base and capital) and other elements related to the
19 constructive level.
20

21 The reader is left with the task of finding from the drawing the dimensions necessary for the
22 subdivisions of the functional level into the base, shaft, and capital (for the column); base, die, and
23 cap (for pedestal); architrave, frieze, and cornice (for the entablature).
24

25 Sometimes the height and width of the elements placed above the entablature are indicated, and
26 more often the dimensions of the lateral bands and the intercolumniation are provided. However, the
27 overall dimensions of the portal and the compositional criterion based on geometric constructions –
28 that is, the *ad quadratum* method treated in Book I – are missing. Nevertheless, these are quite easily
29 recognizable in the drawings (Fig. 10). Other geometric techniques related to the proportioning of the
30 elements of individual orders, for example, Serlio's instructions for constructing the pediment of a
31 portal (Serlio 1537: XXVv) or for dimensioning the basement using the rectangular proportions
32 (Serlio 1537: VI) have not been examined in depth in this phase of the work, but could be addressed
33 in the future developments. Therefore, modular and dimensional indications freely alternate; the latter
34 is then subdivided, almost always, with a modular criterion, which derives from the division of
35 elements into fractions of the whole.
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37 **Fig. 10** Implementation and check of the *ad quadratum* compositional method. Image: Serlio (1551), rustic
38 portal II. Graphic overlay: Marco Vitali
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1 In relation to the lack of uniformity of the information in the captions, Serlio often refers to the
2 ‘diligent architect’ who can integrate the text through the reading of the drawing and vary the size of
3 the module in order to obtain scalar variations: ‘To find the measurements of the whole you should
4 consider how wide the opening is to be in feet, dividing a foot into twelve parts, and with that foot
5 you will find the measurements of the whole’ (Serlio 1551: *Descrittione delle trenta porte rustiche*,
6 XX; Serlio 2001: 482). Moreover, in the incipit, Serlio specifies: ‘And so having a small pair of
7 compasses for the small work and a large pair of compasses for the large work, you may scale up the
8 small thing to the large form with the result that it will be perfect’ (Serlio 1551: *A gli lettori*; Serlio
9 2001: 461).

10
11 The graphic reconstruction of the captions concerning each portal, superimposed on the plates, made
12 it possible to identify numerous recurrences in the texts, as previously illustrated. The graphic solution
13 adopted, based strictly on the sequence of dimensions and modules provided in the captions, has
14 produced schemes showing the result of the interpretation based on the unit of measurement (feet) (in
15 the figures on the right, in blue) and the result of the interpretation referring to the module (on the
16 left, in red).

17
18 Concerning the constructive level (Table 2), analyzed and graphically identified for each of the ten
19 selected doors, thick continuous lines represent the graphic transposition of measures/modules
20 indicated directly in the text, while dashed lines represent the translation from feet to modules and
21 vice-versa. A complete reading of the functional level has been developed on rustic portal I, which is
22 described below.

23
24 Figure 11 illustrates the reading process and the graphic overlay through successive steps that strictly
25 follow the sequence proposed by the caption, applied to rustic portal II. The logical sequence used by
26 Serlio in the caption provides, as the first dimensions, the width and height of the opening in feet
27 (shown in black), the dimension of the column module (shown in red), of the lateral bands and of the
28 intercolumniation (in feet), followed by the size of the pedestal (in feet) (Fig. 11a-b). Then, the height
29 of the column (in feet) is shown (Fig. 11c). The height of the entablature is equal to one-fifth of the
30 height of the column (Fig. 11d). The dimensions of the pediment refer to the geometric proportioning:
31 a square having the side equal to the width of the door defines the height of the pediment and identifies
32 the position of the pilaster strips (Fig. 11e). In the final diagram (Fig. 11f), it is possible to recognize
33 the measures directly indicated and the ones that are translated, the proportioning criteria, the values
34 in feet and in modules (in this case the module is equal to one foot) of the heights of the main elements
35 at the constructive level (pedestal, column, entablature and pediment), and of the widths in relation

to the width of the portal. The dimensions taken from the drawing and not written in the text are represented by dotted lines and noted in gray. The total dimensions of the portal are in black.

Table 2 Modular and dimensional analysis of rustic portal II at the constructive level. In black the modules and dimensions given by Serlio, in red the translation from modules to dimensions and vice-versa (colour figure online)

Fig. 11 Steps of the graphical analysis at the functional level. In red: modular analysis, in blue: dimensional analysis (colour figure online). Image: Serlio (1551), rustic portal II. Graphic overlay: Marco Vitali

A Paradigmatic Model: The Tuscan Rustic Portal I (Roberta Spallone)

Rustic portal I represents the doorway of the House of Cardinal of Ferrara, the design of which Dinsmoor (1942: 119) attributed to Serlio himself. As mentioned above, this portal is present in the plates of both the *Extraordinario libro* and Book IV. The drawing in the *Extraordinario libro* varies in having five voussoirs breaking through the frieze and three acroteria bases on the pediment, while that in Book IV returns to the three great voussoirs but has the pediment filled and interrupted by rustication (Dinsmoor 1942: 145). Moreover, in the plate in Book IV, there are Tuscan half-columns with heavy rustication: Serlio insists that this represents great strength. About this, Onians highlighted that

not only are the order itself and the rough rustication expressive but the particular way they are combined, as when here the great blocks ‘bind’ the columns to the walls, is in a way emblematic of the strong containment of a fortress or prison. Moreover, the reference to *artificio* alerts us to yet another way in which the balance between rustication and order can be significant (Onians 1988: 272).

Returning to the analysis of portal I, drawn in the *Extraordinario libro*, the application of the geometric method proposed by Serlio in Book I proved effective in defining the opening width. The geometric construction is not perfectly consistent with the drawing and the modular analysis of the portal, but it must be taken into account that the drawing show some overhanging and receding elements that are represented in perspective: for this reason, the elements that do not belong to the picture plane undergo dimensional reductions; moreover, while the geometric analysis represents our *a posteriori* reading, the modular analysis is based on the textual description by Serlio himself. The measurements and modular ratios defined by Serlio (1 module = 1.5 feet), allow us to safely investigate the constructive level and the functional level, described in Table 3. In particular, the Tuscan order has a pedestal of two modules, a column of nine modules, an entablature of one and one-half modules, and a pediment of two modules. As Serlio notes in the text, in Book IV, the same order was used for structural purposes, which has a pedestal of two and one-half modules, a column

of seven modules, an entablature of one and one-half modules (Serlio 1537: VIv). The modular proportions of the order are flanked by the definition of the openings measures of 8×16 feet, equal to a double square, and the rustication height of 1 foot per stone course (Fig. 12).

Table 3 Rustic portal I. Modular and dimensional analysis of the portal at the constructive and functional levels. In black the modules and dimensions given by Serlio; in red the translation from modules to dimensions and vice-versa; in gray the modules and dimensions gathered from the graphical analysis (colour figure online)

Fig. 12 From top left: Portal of the House of Cardinal of Ferrara in Fontainebleau, rustic portal I in the *Extraordinario Libro*, Tuscan portal in Book IV, implementation of *ad quadratum* compositional method, and graphical analysis at the functional level. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Dinsmoor (1942: I, fig. 12), Serlio (1551), Serlio (1537, XIII), Serlio (1551).

Graphic overlay: Roberta Spallone

From *Regola* to *Licentia*: Comparisons between Couples of Portals (Marco Vitali)

With the aim of comparing the features of some couple of portals by means of graphical analyses, it is useful to recall the debate on the theme of variation and restoration between Manfredo Tafuri and Renato De Fusco. Tafuri argued that Serlio's experimentalism, based on the idea of variation, always had its starting point in a determinate form of classical derivation, which, during subsequent variations, articulates and deforms itself, and essentially demonstrates its relativity, thereby undermining the *presunzione assolutistica* ('absolutist presumption') of the model (Tafuri 1966: 46-47). On the other side, De Fusco observed that, in the *Extraordinario Libro*, the *licentia* appears under various forms that can be restored to *regola* by remaining within the system of architectural language (De Fusco 1968: 454).

Rustic Portals IV and V

The two doors are comparable, from the point of view of both dimension and composition. As Serlio emphasizes in the caption of rustic portal V: 'It might appear to some that the gateway here is the same as the preceding one in that the columns are bound with Rustic, just like the other. However, anyone who considers all the parts carefully will find it quite different' (Serlio 1551: *Descrittione delle trenta porte rustiche*, rustic portal V; Serlio 2001: 467).

In both cases, the portals consist of an arched opening flanked by Doric columns banded with rustication, and a triangular pediment surmounted by three acroteria (Fig. 13). The main differences are concentrated in the entablature:

- in door IV it is created by interposing the architrave with 'pillows' and the cornice with a large panel which also partially occupies the space of the pediment;

- in door V, this is composed more traditionally: metopes and triglyphs are inserted in the space of the frieze and, on axis with the columns, two small corbels support the cornice. Only the architrave is broken by the radial voussoirs of the opening.

As is usual in the text, the size of the pedestal is given (in feet), together with the size of the module (corresponding for both the doors to 1 and 1/2 feet), and the height of the columns (in feet; for the rustic portal IV Serlio states that the height of 12 feet is 8 modules). The height of the entablature is identified as a subdivision (a quarter) of the height of the column.

Fig. 13 Comparison at the same scale and graphical analysis at the functional level of rustic portals IV (left) and V (right). In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Serlio (1551). Graphic overlay: Marco Vitali

Delicate Portals V and XV

The two delicate portals that were considered for the comparison present interesting similarities from the compositional point of view, although they have considerably different dimensions. In both cases, the composition of the portal is made up of a scheme with twin columns on two levels, in which the impost of the arched opening corresponds to the entablature of the first level. In the space of the intercolumniation, niches and openings are created. The tripartite pediment is composed with a raised central part crowned by a triangular tympanum (Fig. 14).

The two examples make explicit reference to the use of re-used elements (the columns): ‘However, you should be aware that an architect once found four very beautiful Ionic columns ... and he had the same number of very much smaller ones of the purest alabaster ... he wished to use these columns to build a gateway’ (Serlio 1551: *Descrittione delle venti porte dilicate*, delicate portal V; Serlio 2001: 497). Given the apparently arbitrary dimensions of the columns, the modules obtained in the graphic interpretation assume dimensions consisting of fractions of a foot (11/12 ft, 1 ft, and 2/12 ft): in fact, in these two examples, Serlio never refers to the modules, while it seems that he worries about dimensioning (in feet) the pedestal and entablature elements to guarantee the proportions of the opening (2:1). The dimensional references are almost exclusively expressed in feet, while the modular proportioning criterion is used exclusively through the subdivision of the module or the height of the columns to define the heights of the entablatures of the first and the second level of door V. In neither case are measures provided for the sizing of the pediments.

Fig. 14 Comparison at the same scale and graphical analysis at the functional level of delicate portals V and XV. In red: modular analysis, in blue: dimensional analysis. Images: Serlio (1551). Graphic overlay: Marco Vitali

Rustic Portal II and Delicate Portal XX

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Some interesting considerations also emerge from comparisons of rustic portal II and delicate portal XX. In the case under examination, the formal and compositional assonances are evident: the two openings have the same height:width ratio (2:1) and are flanked by double pilaster on a slender pedestal. Above the entablature, there is a tripartite pediment with a large central opening and lateral volutes (Fig. 15).

The interesting aspect, which encourages comparison beyond formal assonances, consists of the similarities that can be found in the captions: both seem to rely on the same descriptive scheme, which geometrically describes the proportion of the central part of the pediment, inscribed in a square, as Serlio states in the text: in rustic portal II the square is built with a side equal to the width of the door, in delicate portal XX the side of the square is defined by the distance between the pilasters. However, there are many missing measures in reference to the delicate portal XX. In the caption, Serlio justifies this loss: 'Even though I have made so many gateways that I am now weary, I nevertheless wished to make one which can be recognized as different from the others and entirely of Composite work' (Serlio 1551: *Descrittione delle venti porte dilicate*, delicate portal XX; Serlio 2001: 512).

Fig. 15 Comparison at the same scale and graphical analysis at the functional level of rustic portal II and delicate portal XX. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images: Serlio (1551). Graphic overlay: Marco Vitali

Rustic Portal VII and Delicate Portal XVIII

Also, in this case, a rustic portal and a delicate portal are compared, the first with imperfect columns banded with rustication, the second with columns and pilasters of the Composite order. Beyond the considerable difference in the dimensions: Serlio intends rustic portal VII as a triumphal arch, and its size is almost twice that of delicate portal XVIII, although there are many similarities regarding the general compositional scheme.

The doors consist of arched openings flanked by twin columns of a giant order on an impressive pedestal: in the intercolumniation, there are niches (delicate portal XVIII) or openings (rustic portal VII). In both cases, the entablature is interrupted by panels and inscriptions. On the other hand, the two pediments, have completely different shapes (Fig. 16).

Of particular interest is the caption of delicate portal XVIII, which is very accurately described: in fact, the relationship between module and height of the column (1/11) and between the height of the column and the height of the opening is reported:

If this doorway is to correspond with the columns it will have to be the height which is commonly accepted, that is, two squares. As a result, pedestals which are III and half feet tall

will have to be placed under these columns – this will make a total height of XVI and a half feet up to the underside of the architrave. The arch should be half a foot, and so the doorway will be XVI feet tall (Serlio 1551: *Descrittione delle venti porte delicate*, delicate portal XVIII, Serlio 2001: 510).

Moreover, the particular layout with detached columns and applied pilasters is why Serlio includes – only for this door – an excerpt of the plan in the plate (see Fig. 8).

Fig. 16 Comparison at the same scale and graphical analysis at the functional level of rustic portal VII and delicate portal XVIII. In red: modular analysis, in blue: dimensional analysis (colour figure online). Images:

Serlio (1551). Graphic overlay: Marco Vitali

From *Licentia* to *Regola*: A Graphical Interpretation of Rustic Portal VI (Marco Vitali)

While in the description of the orders in Book IV, Serlio had regarded the Composite as the most ‘licentious’, being by implication opposed to a ‘regular’ Doric (Onians 1988: 271-277), in the *Extraordinario Libro*, he adopted an opposite scale in which the simpler orders are associated with the greatest creative license and the richest with the least. The rustic portals with their predominantly simpler orders are called bizarre and collectively constitute a body of ‘licentious things’, while the delicate portals with their richer orders form a body of ‘regular things’.

In the text accompanying many rustic portals, Serlio points out that if the rustication is removed, the architecture underneath will be found to be quite correct. It is almost as if he is admitting that the architectural *furor* ‘is only a pose, a transitory state of mind. Thus, when describing the coating of rustication on the columns of rustic portal VI, Serlio says they are ‘Doric, but disguised [*stravestita*] and masked [*fatta maschera*]... once they have all been removed the gateway is left pure, and all the measurements and the distribution of the triglyphs and metopes can be found’ (Serlio 1551: *Descrittione delle trenta porte rustiche*, rustic portal VI; Serlio 2001: 468).

In the 1990s, Mario Carpo and Francesco Fiore began a discussion concerning the possibility of discovering a classical morphology of the portals hidden by the variations. Carpo affirmed that a regular (that is, Vitruvian) model is disfigured by superficial and mechanical addition of ‘licenses’ that do not interfere with the structure of the model: the good reader can simply cancel them (Carpo 1993: 68). Fiore, disagreeing, answered that it is not possible to circumscribe the most heterodox proposals of the *Extraordinario Libro* within the hypothesis of a masked classicism, interpreting the portal as a monstrous Silenus that enclose the rule (Fiore 1994: XXV).

1 In light of this debate, the authors attempted to discover the physiognomy of rustic portal VI by
2 removing the licenses. Starting from the caption and the drawing, the general structure of the portal
3 was re-constructed, although the columns are drawn ‘unfinished’ and the elements of the composition
4 are interrupted by a panel, dressed blocks and rusticated voussoirs. The only measurement provided
5 by Serlio is the module, equal to 1 1/2 ft: in the graphic interpretation, the height of the columns is 8
6 modules (including the base and capital); that of the entablature is 2 modules; and that of the pedestal
7 2 3/4 modules. By analogy with the descriptions of the other portals, we have identified the
8 dimensional values of the columns and the intercolumniation. As repeatedly stated by Serlio, starting
9 from a single measurement (that of the module) it is possible, through the graphic analysis and
10 interpretation of the plates, to reconstruct the entire portal. In our interpretation, the door appears to
11 be 8 ft wide and 16 ft high and the overall dimensions of the artifact are approximately 18 ft in width
12 and 26 1/2 ft in height (Fig. 17).

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22 **Fig. 17** Rustic portal VI, modular analysis and restoring of classicist morphology. The red horizontal
23 line through the left column represents the entasis (color figure online). Image: Serlio (1551). Graphic
24 overlay and drawing: Marco Vitali
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27 **Conclusion** (Roberta Spallone, Marco Vitali)

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30 Our graphical analysis confirms the consistency between text and drawings: it is used as a mediation
31 tool between two proportional criteria: that of subsequent partitions of the module, and that which
32 refers to dimensions. Moreover, the analysis highlights the precise correspondence of the dimensions
33 with the exact fraction of the module.
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38 Wittkower’s remarks, together with the fact that in the *Extraordinario Libro* Serlio does not explain
39 the role of geometry as a compositional criterion but refers to it by establishing additional geometric
40 relations between the parts (e.g., the ratio between height and width of the openings is a double
41 square), support our choice to carry out the graphical analysis through the combination of the metric
42 and modular data reported in the text and the a posteriori geometric reading, and comparing these
43 results.
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50 In the ten portals analyzed, the relationship established between module and unit of measurement
51 make the integration of the two criteria (geometric and modular) more complex: in some cases, the
52 *ad quadratum* method is identifiable in determining the width of the opening, the height of the
53 keystones, or that of the entablatures, but it seems to lose its value of regulatory criterion of the whole
54 composition. Future developments of the research could verify this result, also extending the
55 geometric analyses to the constructions of the elements.
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1 In our opinion, the interpretative tools based on drawing and geometry confirm that the creative
2 process adopted by Serlio constantly takes into account the Vitruvian lesson: even when *licentia* is
3 given free rein, it produces controlled results derived from an overall organization that is not evident
4 in the text. Therefore, re-drawing is a heuristic tool that, critically, goes back to the compositional
5 process of the models and highlights its logic, tracing sequences, structures, and hierarchies through
6 the selection of information and graphical synthesis.
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| number | opening | order | rustication | pillar |
|--------|------------------------------|-----------------------|-----------------------------|--|
| 1R | arched | Tuscan | rustic | banded single column |
| 2R | architraved | Tuscan | rustic-delicate | rusticated double pilaster |
| 3R | arched | Tuscan | rustic | double column |
| 4R | arched | Doric | soft rustic | banded single column |
| 5R | arched | Doric | rustic | banded single column |
| 6R | architraved | Doric | stravesita (rustic column) | rusticated double column |
| 7R | arched with lateral openings | Doric | imperfect (rustic column) | rusticated double column, giant order |
| 8R | architraved | Doric | rustic-delicate | banded double pilaster |
| 9R | arched | | imperfect (wood) | double column |
| 10R | arched | Doric-Ionic | rustic (mixed with masonry) | banded double column |
| 11R | architraved | Doric | wood | double column |
| 12R | architraved | Doric | rustic | banded single fluting column |
| 13R | arched with lateral openings | Ionic | rustic | banded double column, giant order |
| 14R | arched with lateral openings | Ionic-Composite | rustic | |
| 15R | arched | Ionic | rustic | banded double column |
| 16R | arched with lateral openings | Corinthian | rustic | banded double column, giant order |
| 17R | arched | Doric-Ionic-Composite | rustic-delicate | rusticated double pilaster |
| 18R | architraved | Corinthian | rustic | rusticated single pilaster |
| 19R | architraved | Corinthian | rustic | banded double fluting column |
| 20R | arched | Doric | strong rustic | banded single column |
| 21R | architraved | Doric mixed | strong rustic | banded single fluting column |
| 22R | arched | Corinthian mixed | rustic (column, wall) | rusticated single column |
| 23R | architraved | Doric-Corinthian | rustic-delicate | banded double fluting pilaster |
| 24R | segmental-arched | Ionic mixed | rustic | banded single fluting column |
| 25R | architraved | Ionic-Doric | rustic | rusticated single pilaster |
| 26R | arched | Doric-Composite | ashlar rustic | double pilaster, two levels |
| 27R | arched | Doric | ashlar rustic | rusticated single pilaster |
| 28R | architraved | Doric | rustic | banded single fluting column |
| 29R | arched | Doric-Corinthian | bestial rustic | banded single fluting column |
| 30R | arched with lateral openings | Tuscan | rustic | banded double column, two levels |
| 1D | architraved | Corinthian | | single pilaster |
| 2D | architraved | Ionic-Doric | | double pilaster, two levels |
| 3D | arched | Composite | | double fluting pilaster |
| 4D | architraved | Doric | | double fluting pilaster |
| 5D | arch with lateral openings | Ionic-Doric | | double column, two levels |
| 6D | arch with lateral openings | Doric | | double fluting column, giant order |
| 7D | arched | Ionic | | double column |
| 8D | arched | Corinthian | | double column |
| 9D | architraved | Ionic | | single fluting column |
| 10D | architraved | Ionic | | double fluting column |
| 11D | arched with lateral openings | Corinthian | | double column, giant order |
| 12D | architraved | Corinthian | | double fluting column |
| 13D | architraved | Corinthian | | single fluting column |
| 14D | arched with lateral openings | Ionic | | double pilaster giant order |
| 15D | arched | Ionic-Corinthian | | double column, two levels |
| 16D | architraved | Corinthian | | double fluting pilaster |
| 17D | architraved | Doric | | single column |
| 18D | arched with lateral openings | Composite | | double (column, pilaster), giant order |
| 19D | arched with lateral openings | Corinthian | | double (column, pilaster), giant order |
| 20D | architraved | Composite | | double pilaster |

| entablature | pediment | function | reference |
|--------------------------------------|---|-----------------------|-------------------------|
| broken by voussairs | triangular | | Grand Ferrara |
| continuous | tripartite with volute | private house | |
| broken by panel | triangular | | Vitruvius' round temple |
| pulvino, broken by panel | triangular broken by panel and stone blocks | | |
| broken by voussairs | triangular broken by stone blocks | | |
| broken by voussairs | arched broken by stone blocks | | |
| broken by panel | tripartite | triumphal arch | |
| broken by panel | triangular | | |
| continuous | triangular | | Vitruvius |
| broken by voussairs | tripartite | | Pompeo's arcades |
| continuous | triangular | garden entrance | |
| broken by voussairs and panel | triangular broken by panel | | |
| broken by voussairs and panel | tripartite | | |
| broken by panel | tripartite | | |
| broken by panel | triangular broken by panel | | ancient capitals |
| broken by voussairs | tripartite | | Roman triumphal arch |
| continuous | tripartite | | |
| broken by voussairs | triangular broken by stone blocks | antiquity fragments | |
| broken by panel | triangular broken by stone blocks | garden entrance | |
| broken by voussairs and panel | triangular broken by panel | | |
| broken by voussairs | triangular broken by panel and stone blocks | | |
| broken by voussairs and panel | triangular broken by panel and stone blocks | | |
| broken by voussairs | tripartite | | |
| broken by voussairs and panel | triangular broken by panel | | |
| broken by panel | attic and tympanum | private house | |
| broken by voussairs and panel | tripartite | | Colosseum |
| broken by voussairs | triangular broken by panel | | |
| broken by voussairs | triangular | | |
| broken by voussairs and stone blocks | triangular broken by panel and stone blocks | | |
| continuous | tripartite | triumphal arch | |
| continuous | tripartite with volute | house vestibule | Vitruvius |
| continuous | attic and tympanum | house vestibule | |
| continuous | tympanum | house vestibule | |
| continuous | tripartite | | |
| continuous | tripartite | antiquity fragments | |
| continuous | tripartite with volute | | |
| broken by panel | tripartite | | Vitruvius |
| broken by panel | tripartite | private house | |
| broken by panel | triangular broken by panel | | ancient frieze |
| continuous | tripartite | | |
| continuous | attic | triumphal arch-temple | |
| broken by panel | tripartite | house vestibule | |
| broken by panel | triangular | | Salomone's arcades |
| continuous | attic | temple-triumphal arch | |
| continuous | tripartite | temple | |
| continuous | tripartite | | |
| continuous | tripartite | house vestibule | |
| broken by panel | triangular | | |
| continuous | tripartite with volute | | |
| continuous | tripartite with volute | | |

| Rustic Door II | | |
|--------------------------------|-----------------------|------------------------|
| | Modules | Feet and Inches |
| Shaft diameter | 1 | 1 |
| Opening modules (W x H) | 6 and 1/2 x 13 | 6 and 6/12 x 13 |
| Lateral bands | 1/2 | 6/12 |
| Order modules | | |
| — Constructive level | | |
| — Pediment | 6 and 6/12 | 6 and 6/12 |
| — Entablature | 2 and 1/10 | 2 and 1/10 |
| — Column | 10 and 1/2 | 10 and 6/12 |
| — Pedestal | 2 | 3 |

| Rustic Door I | | |
|--|-------------------------------|------------------------|
| | Modules | Feet and Inches |
| Shaft diameter | 1 | 1 and 6/12 |
| Opening modules (W x H) | 5 and 1/3 x 10 and 2/3 | 8 x 16 |
| Lateral bands | 1/2 | 8/12 |
| Order modules — Constructive level — — Functional level | | |
| — Pediment | 2 | 3 |
| — Entablature: | 1 and 1/2 | 2 and 3/12 |
| — — Cornice | 1/2 | 9/12 |
| — — Frieze | 1/2 | 9/12 |
| — — Lintel | 1/2 | 9/12 |
| — Column: | 9 | 13 and 6/12 |
| — — Capital | 1/2 | 9/12 |
| — — Shaft | 8 | 12 |
| — — Base | 1/2 | 9/12 |
| — Pedestal: | 2 | 3 |
| — — Cymatium | 1/3 | 1 and 6/12 |
| — — Dado | 4/3 | 2 |
| — — Base | 1/3 | 1 and 6/12 |

Extraordina-

RIO LIBRO DI ARCHITETTURA DI SEBASTIANO SERLIO, ARCHITETTO
DEL RE CHRISTIANISSIMO,



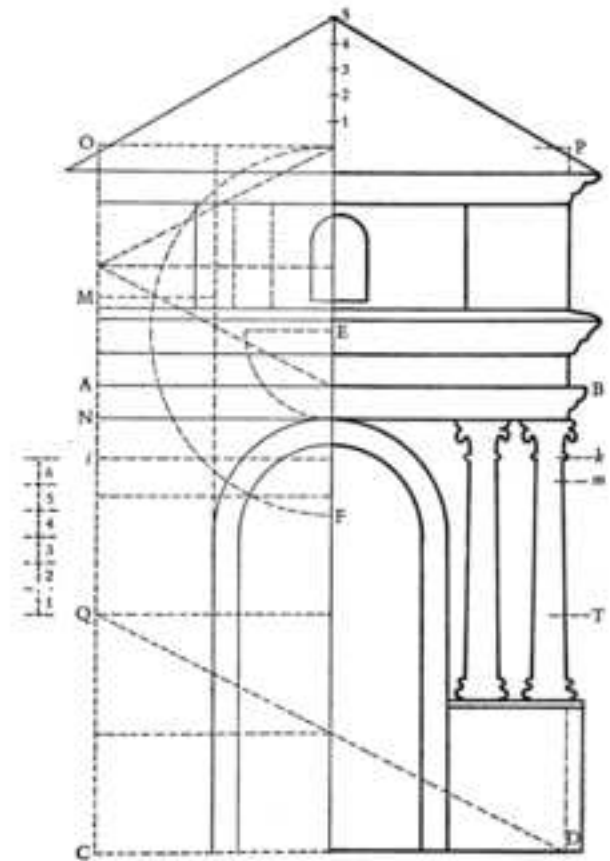
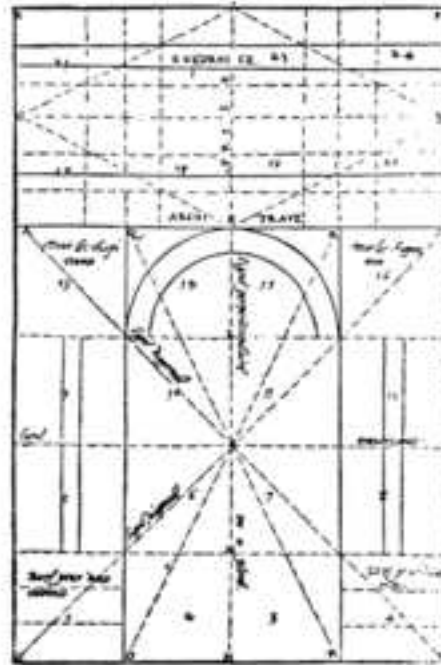
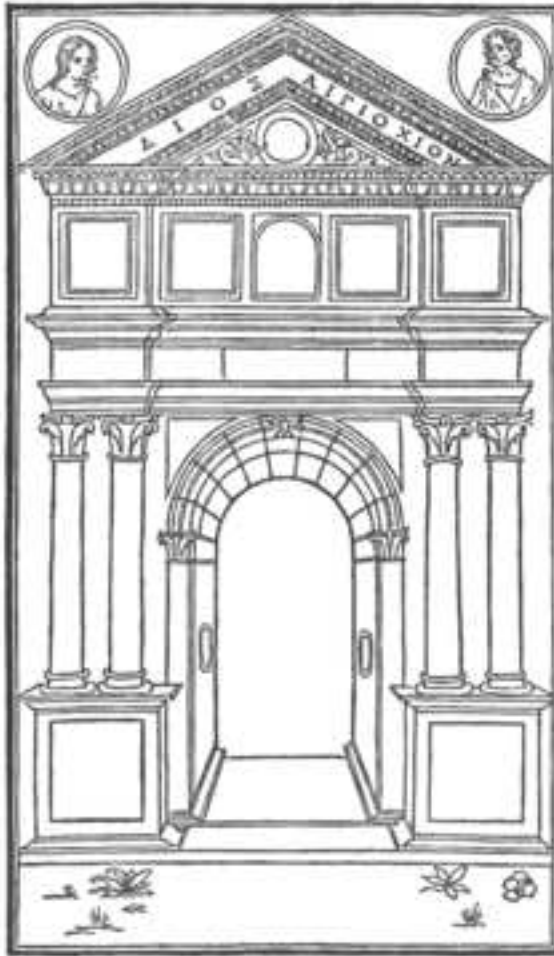
Nel quale si dimostrano trenta porte di opera Rustica mista con diuersi ordini: Et venti di opera dilicata di diuerse specie con la scrittura dauanti, che narra il tutto.

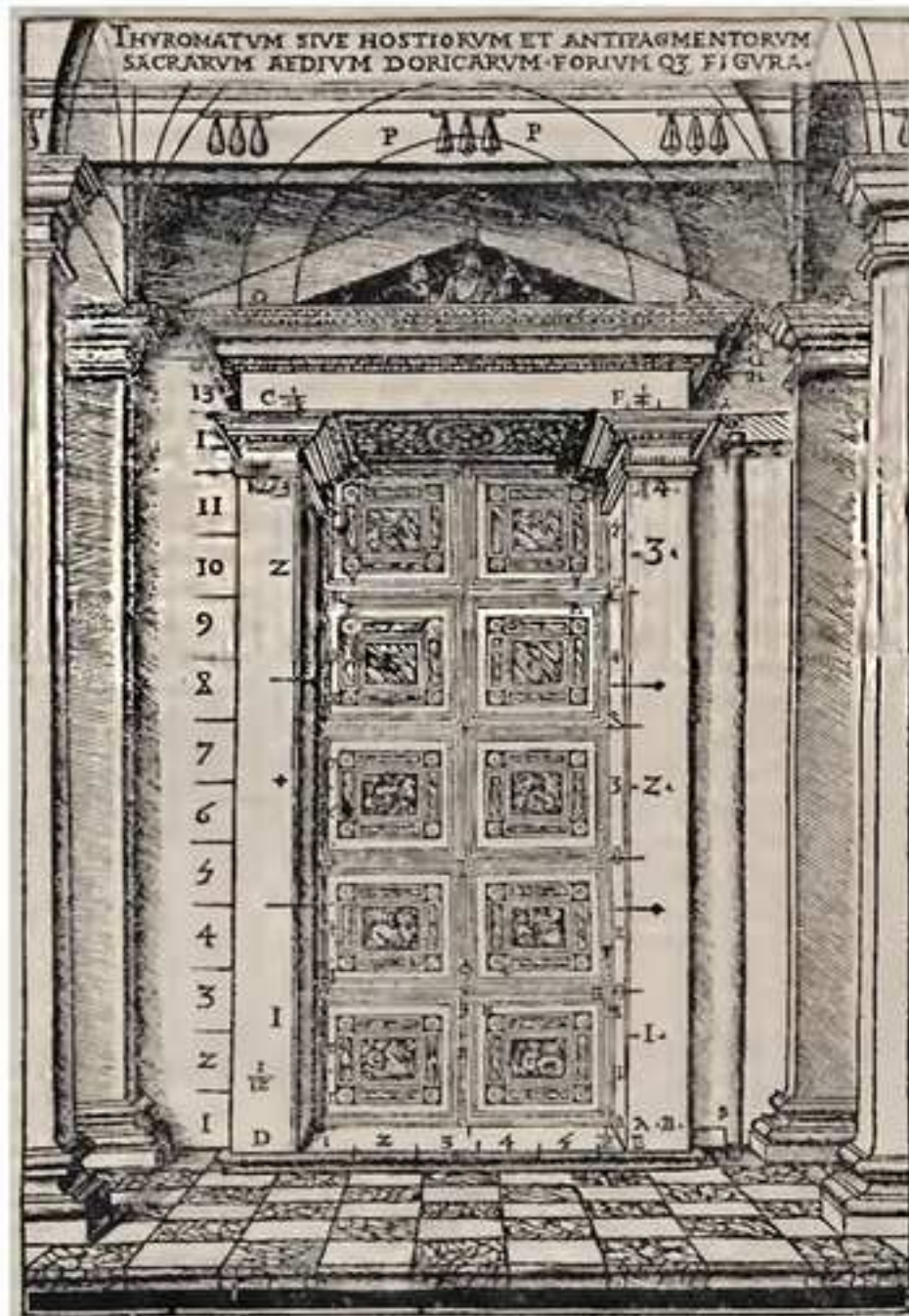


IN LIONE,
PER GIOVANNI TOURNES.
M. D. LI.

Con Privilegi del Papa, Imperatore, Re Christianiss. & Senato Venetiano.







Book IV
(Venice 1537)



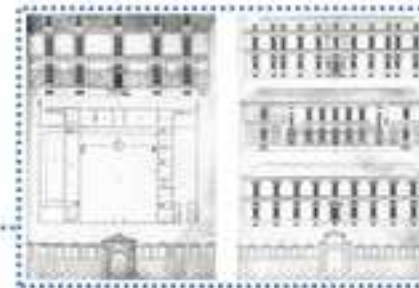
Book III
(Venice 1540)



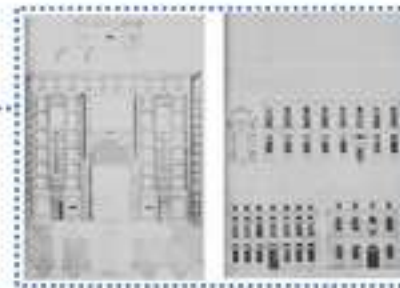
Book I
(Paris 1545)



Manuscript of Book VI
(Munich)



Manuscript of Book VII
(Vienna)

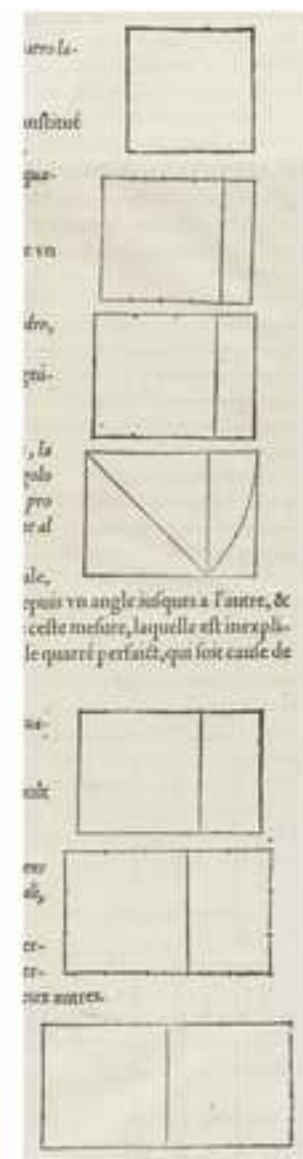
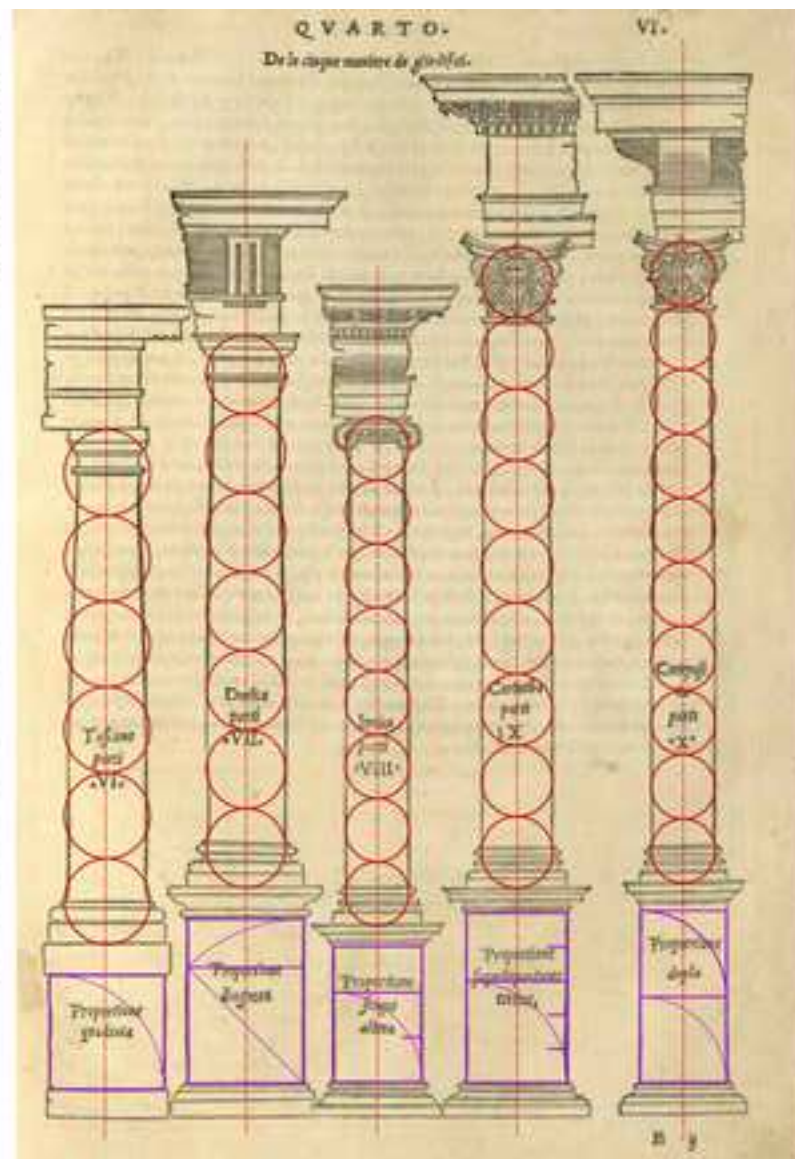
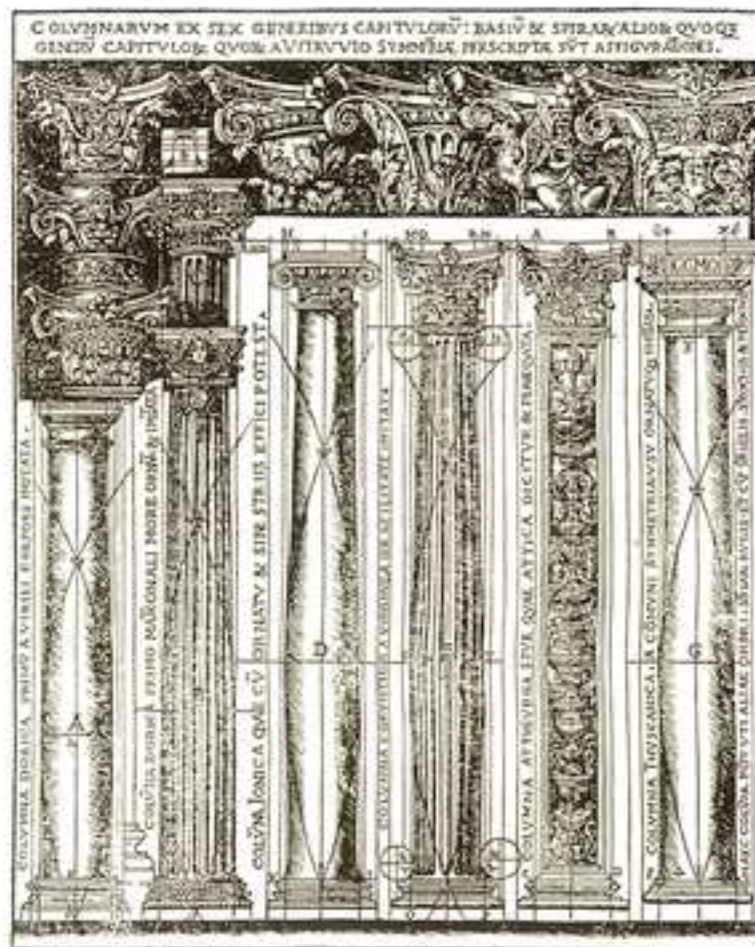


Extraordinario Libro
(Lyon 1551)



Figure 5

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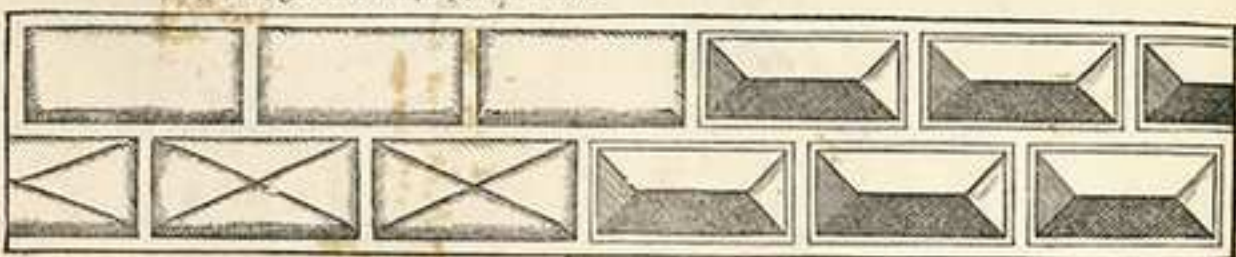
LIBRO

*L*e prime opere Rustiche furon fatte in questo modo, cio è pezzi de pietre abbozzate, così grossamente, ma le sue commissure sono fatte con somma diligentia.

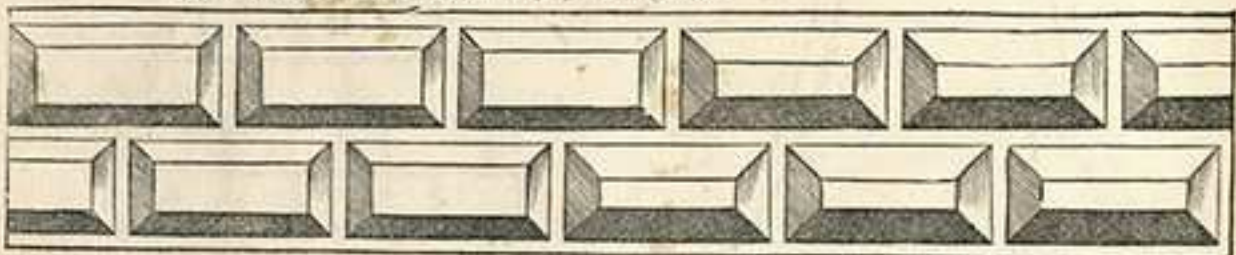


D ipoi con alquanta piu delicatezza compartirono i quadri con questo piano, che li divide facendogli con piu diligentia lavorati, & appresso gi'aggiunsero questi Singoli incrociati per piu ornamento.

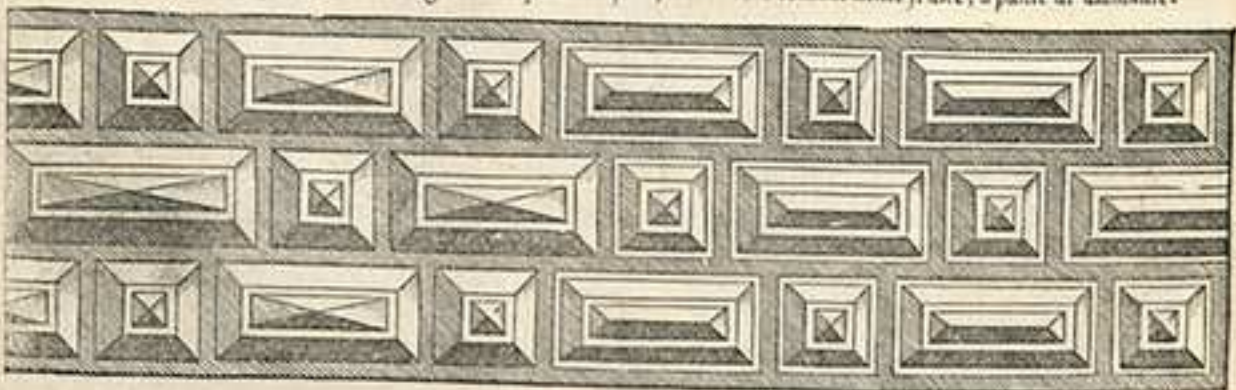
A ltri Arcòtetti uolendo imitare diamanti lavorati fecero in questo modo lavorandogli con piu pulitezza.



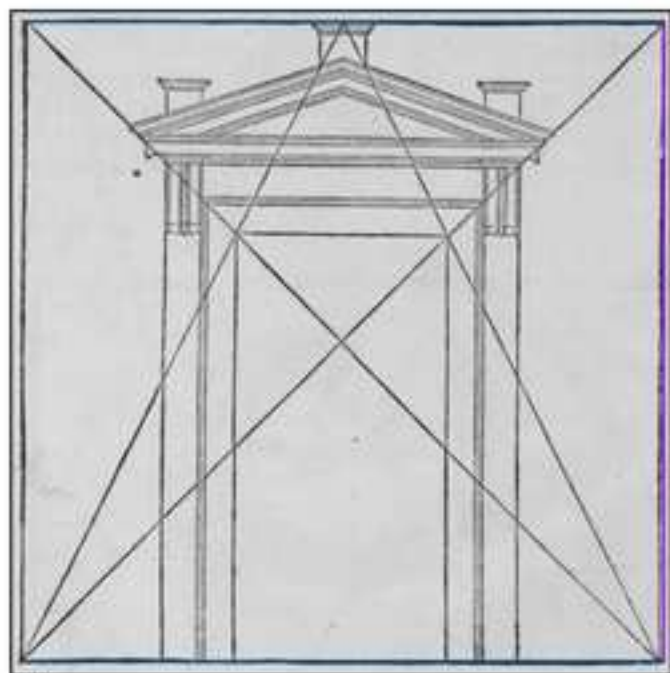
*E*t così di eta in eta si è uenuto variando tal operar quando ad imitation di diamante in tauola plana, & quando con maggior relieuo, si come si uede qui sotto dissegato.



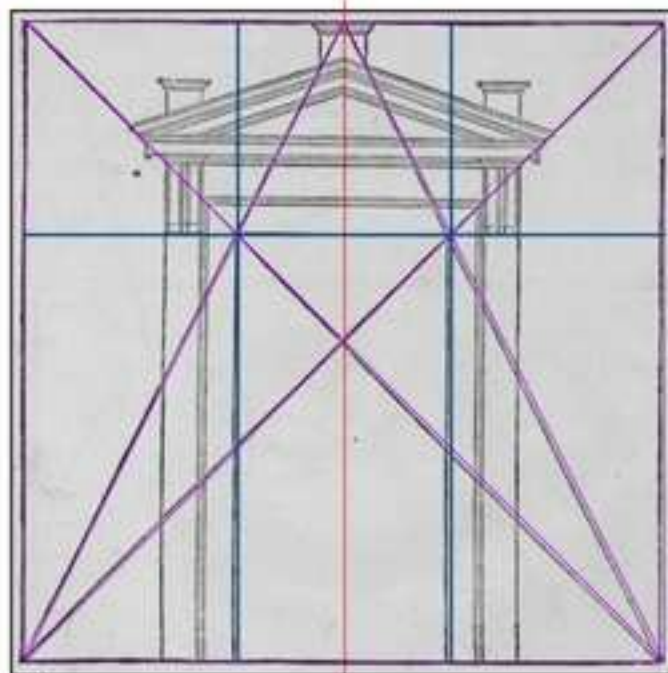
A leuni altri Architetti hanno voluto usar maggior delicatezza, & piu ordinato compartimento, non dimeno, tutta tal'opere ha hauuto origine da l'opera Rustica, anchora che comunemente si dice, a punto di diamante.



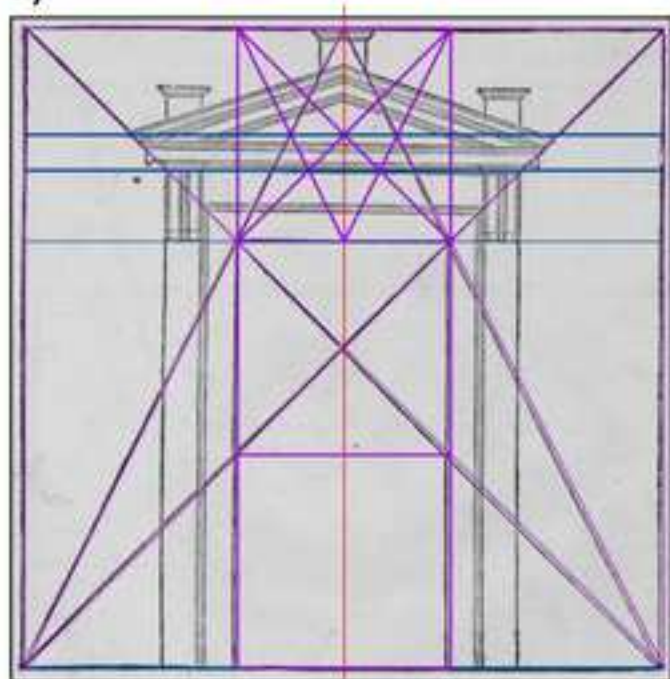
FINITO L'ORDINE THOSCANO ET RVSTI-
CO INCOMINCIA IL DORICO.



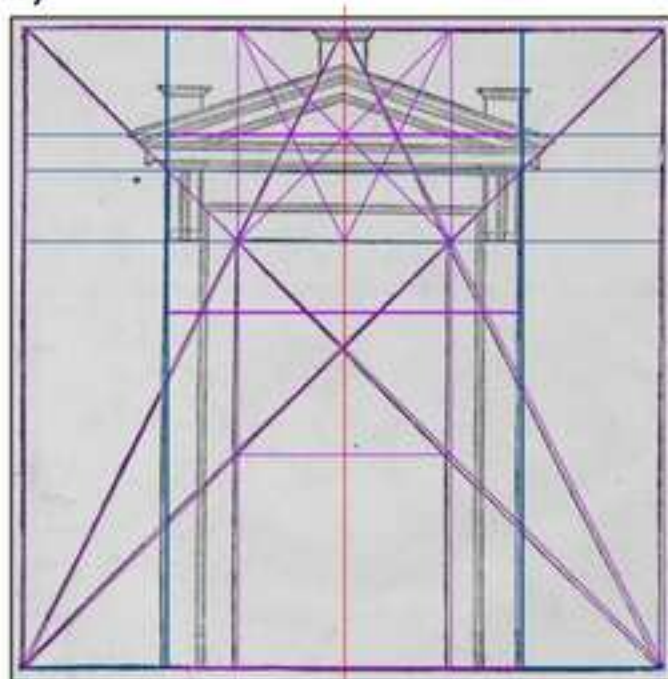
a)



b)

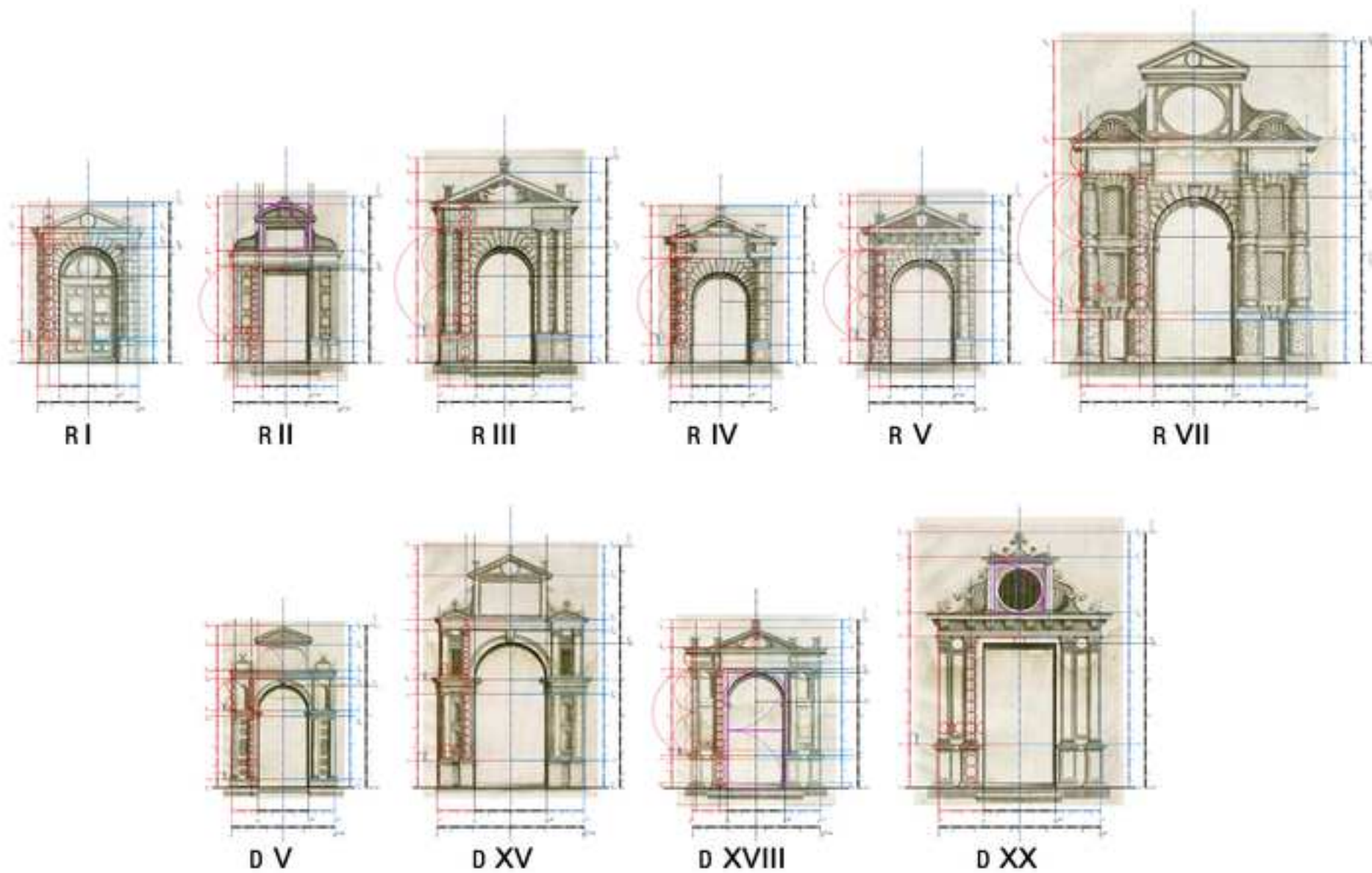


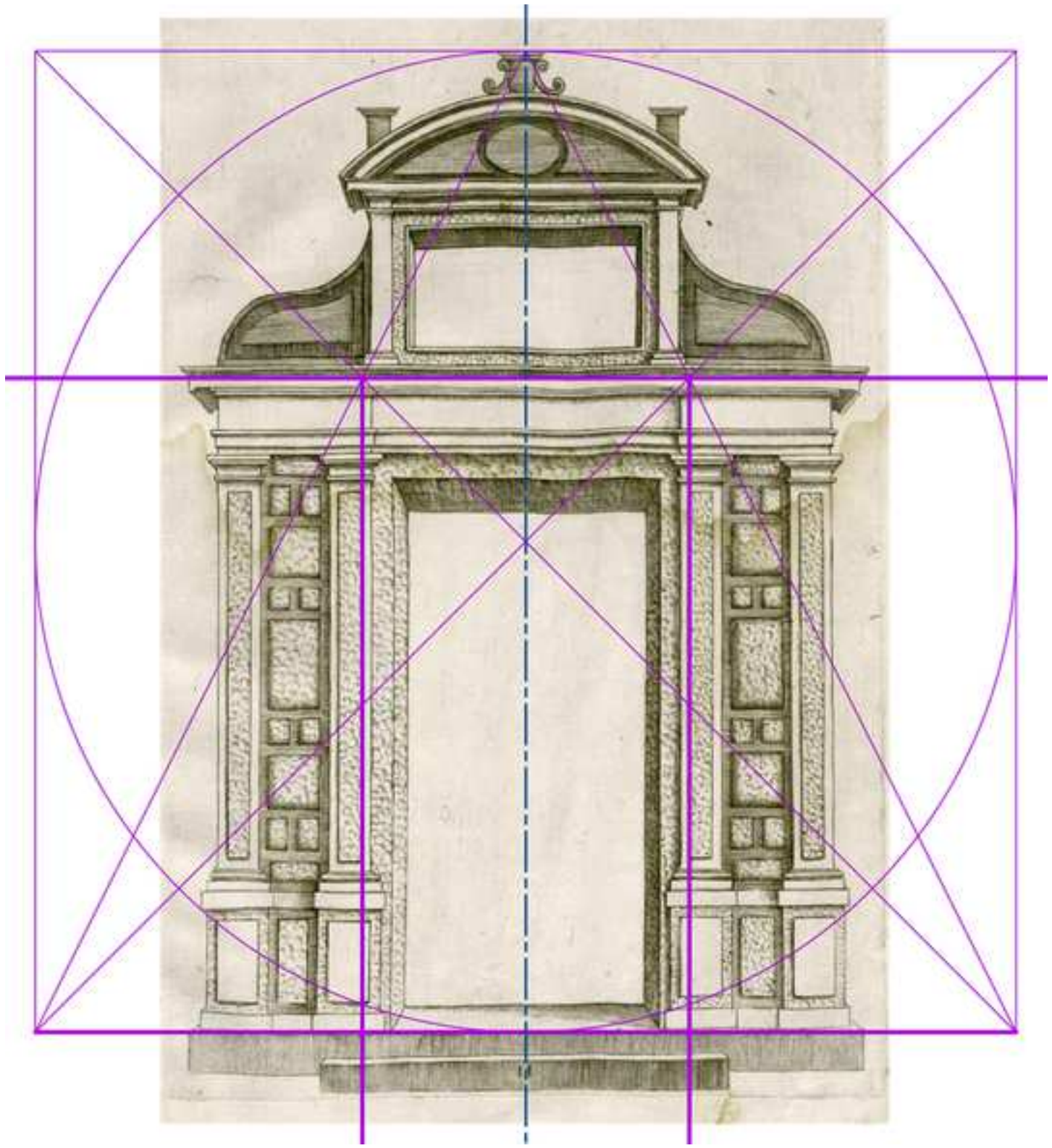
c)

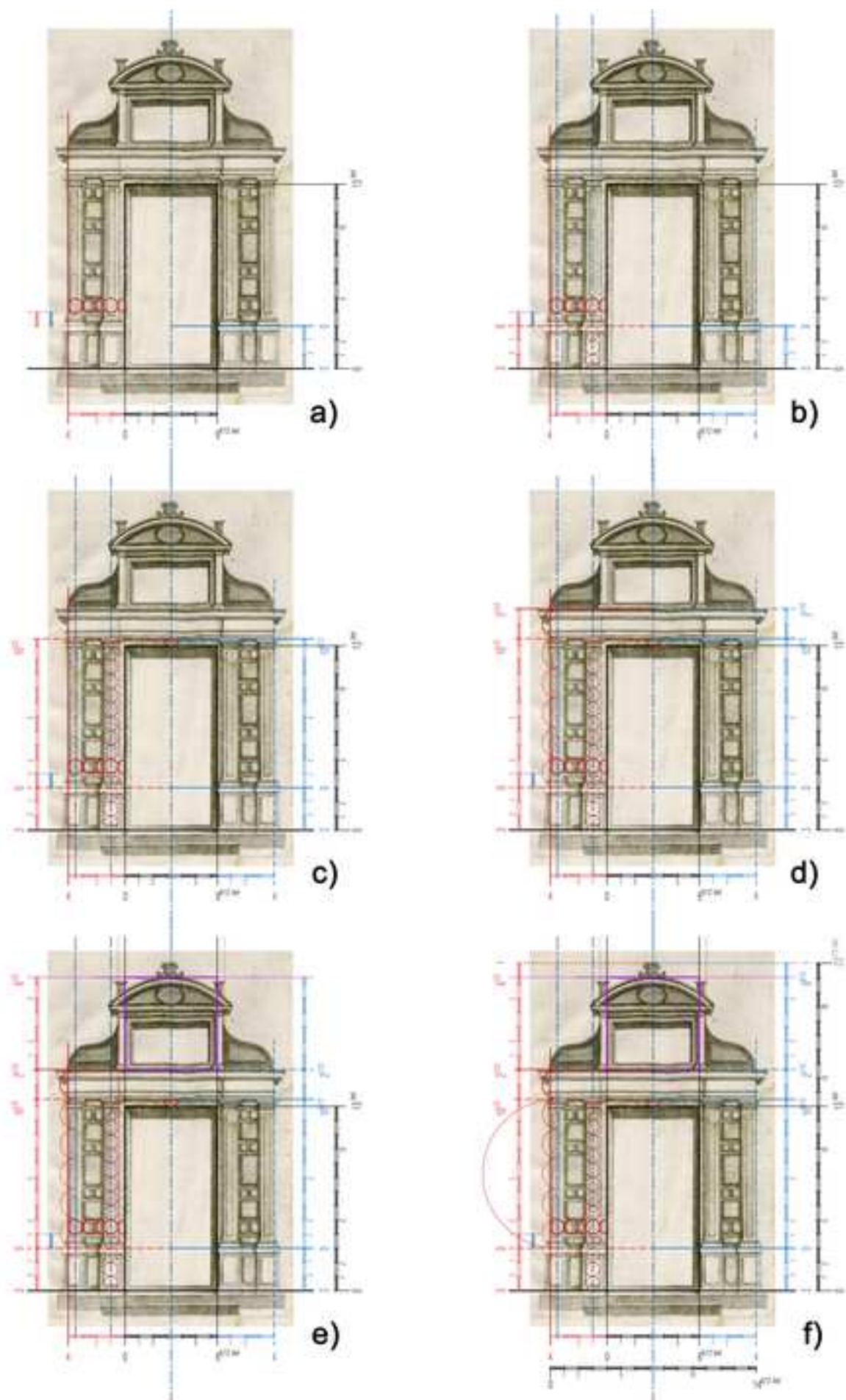


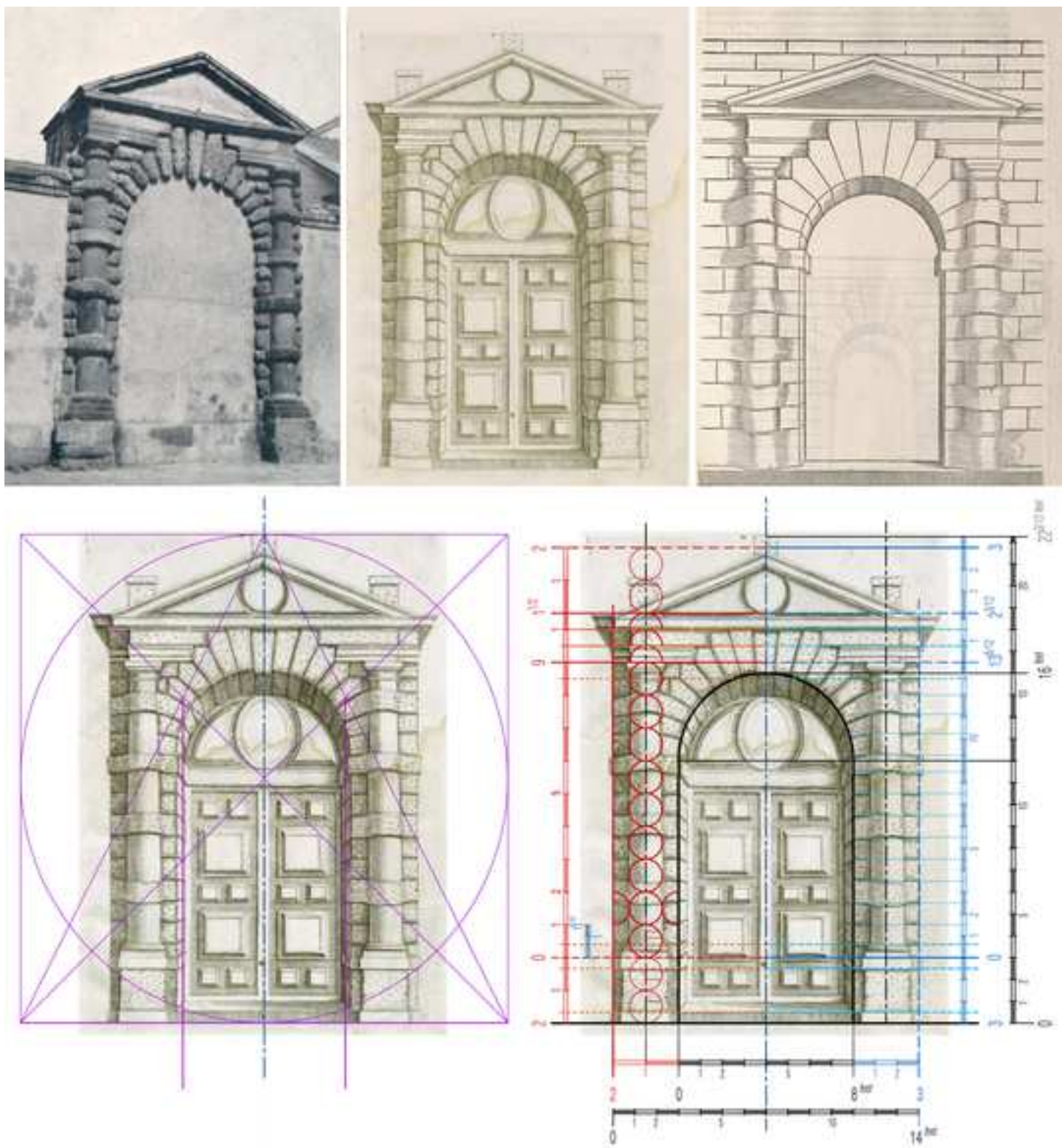
d)





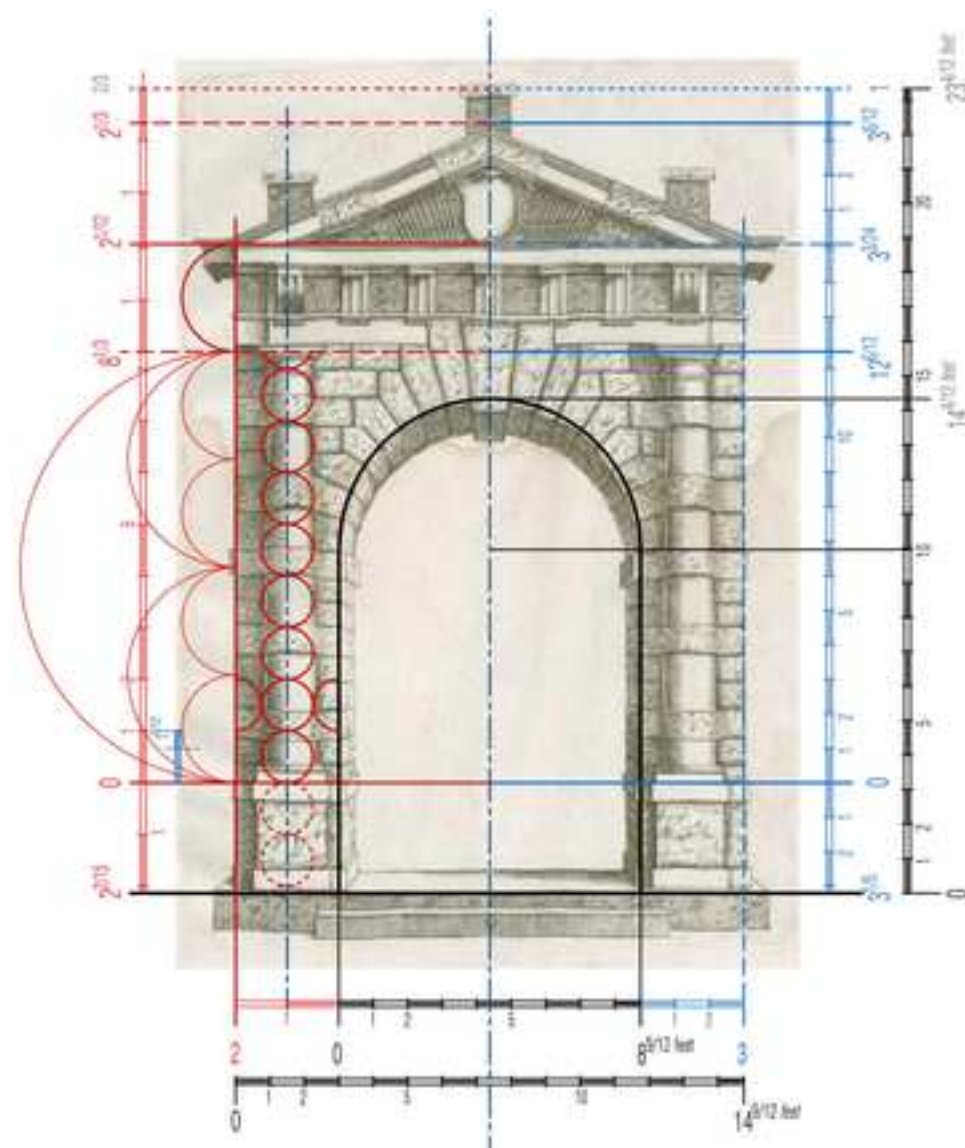
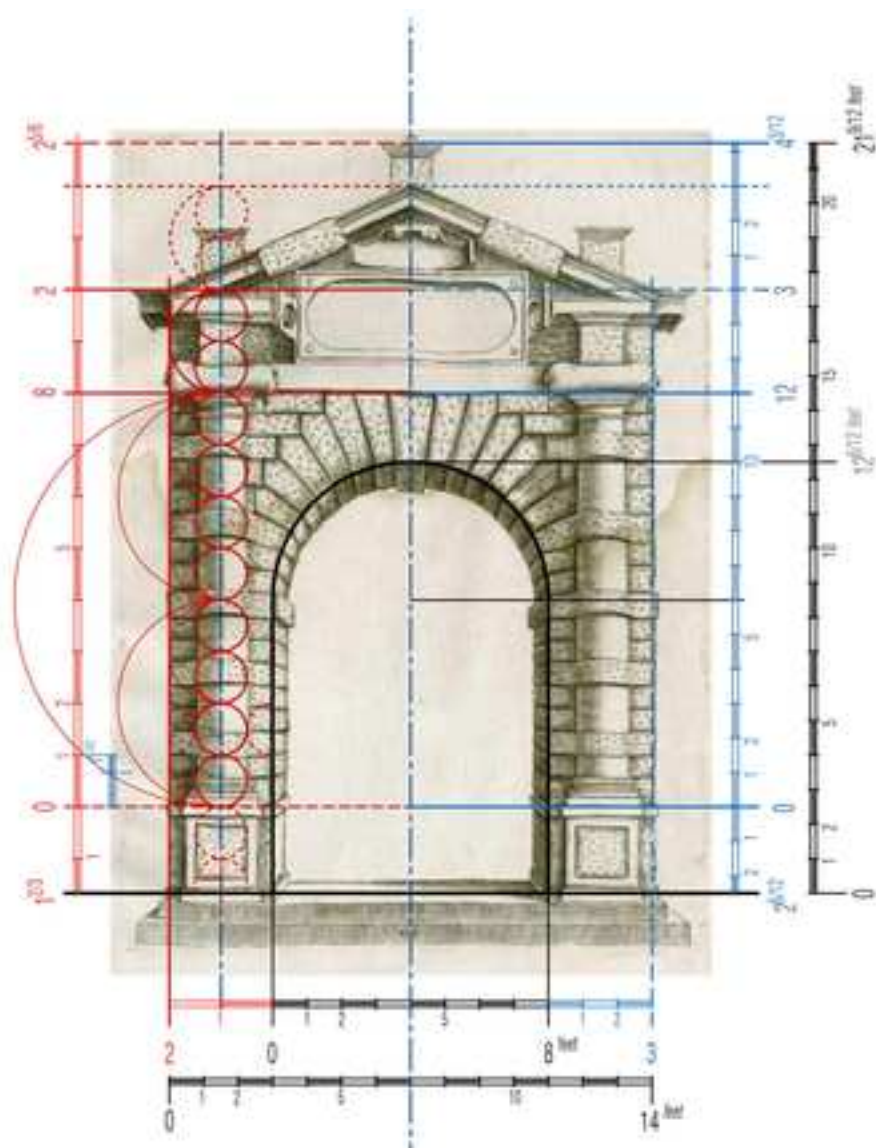


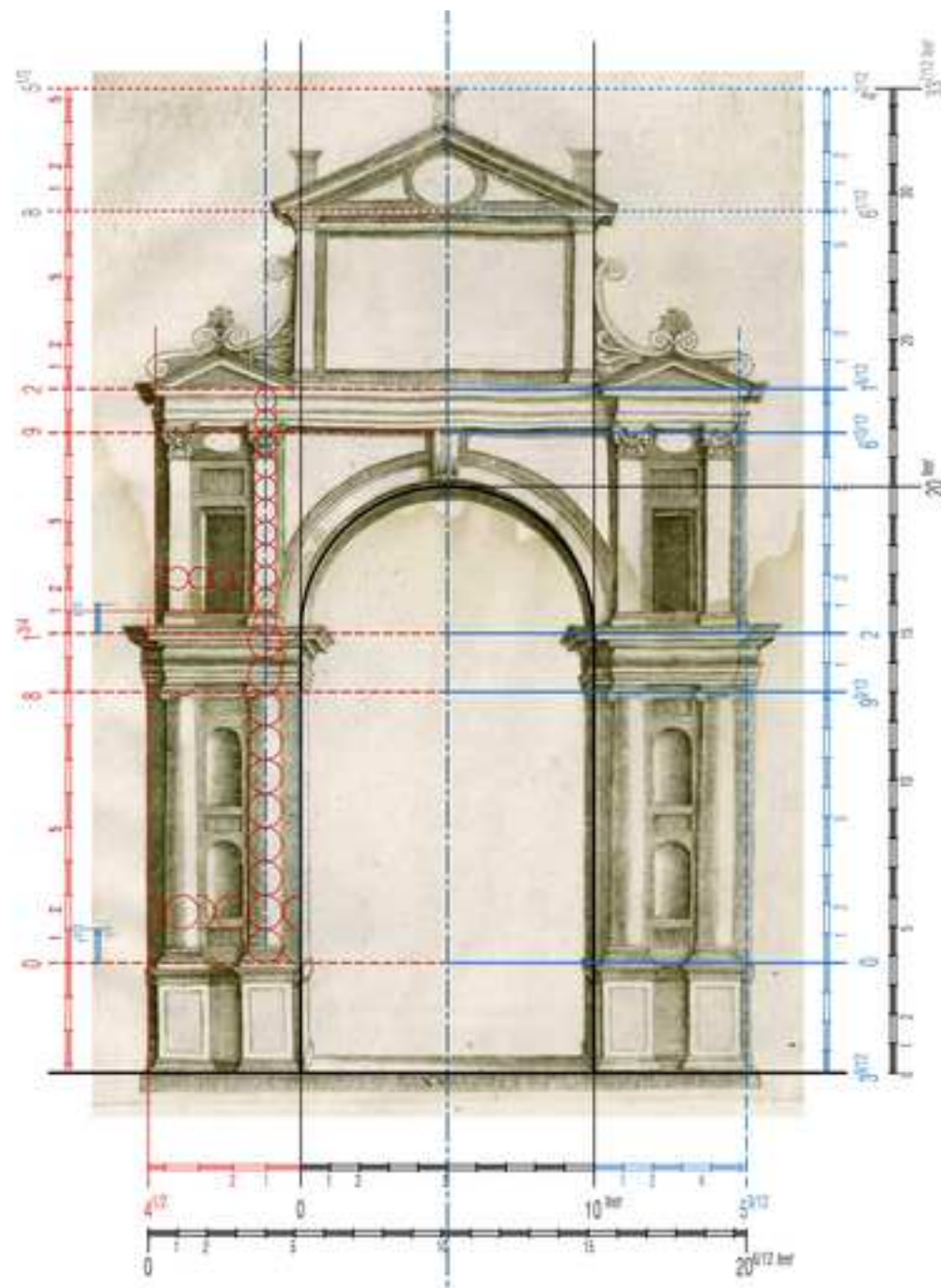
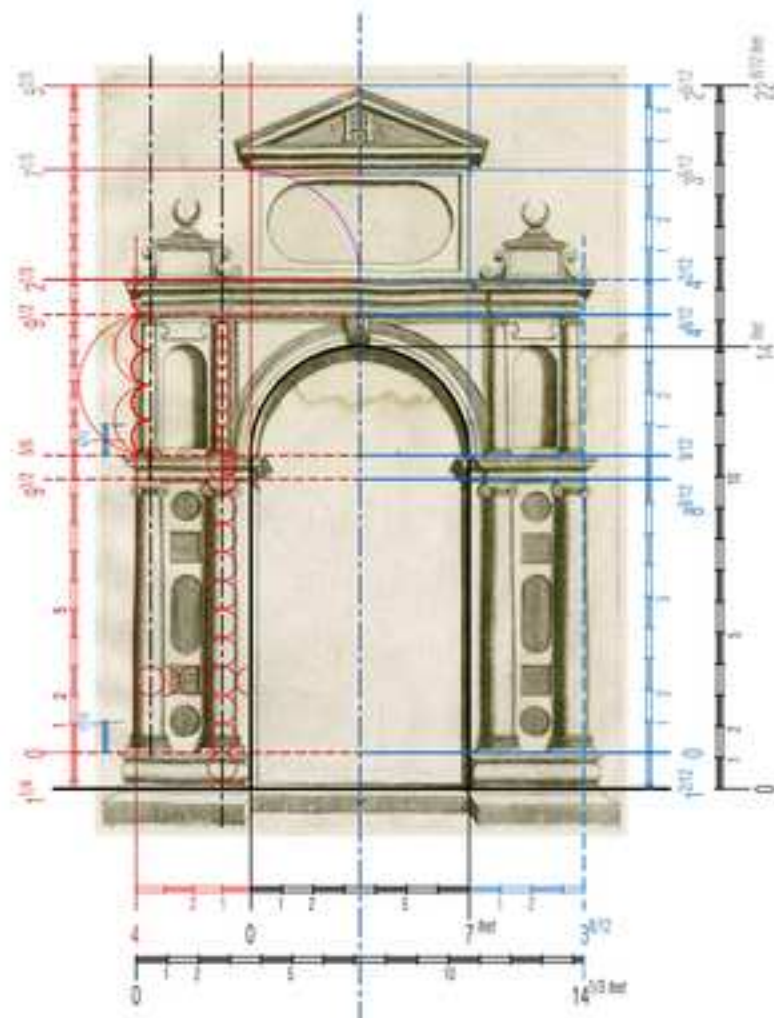




Figure

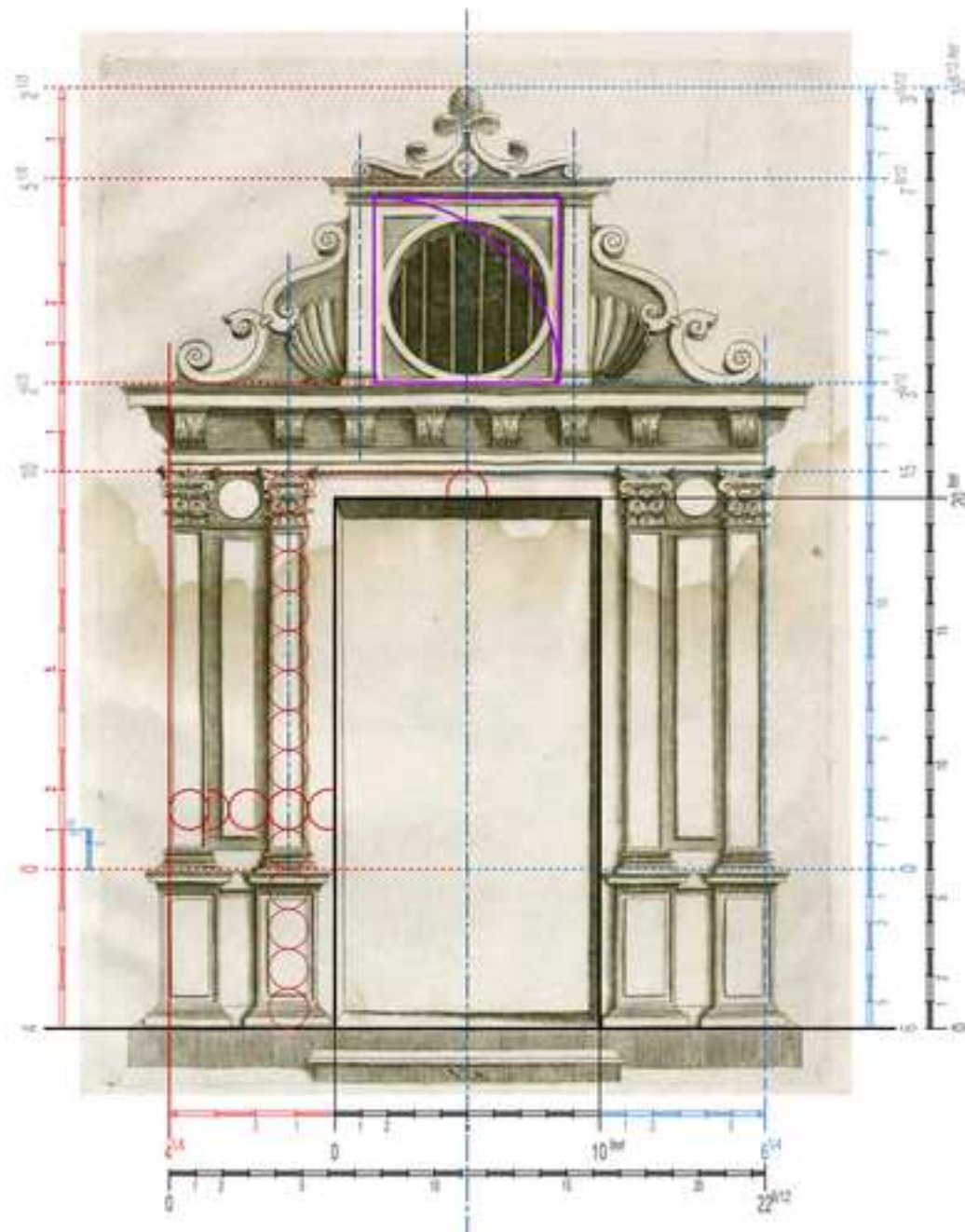
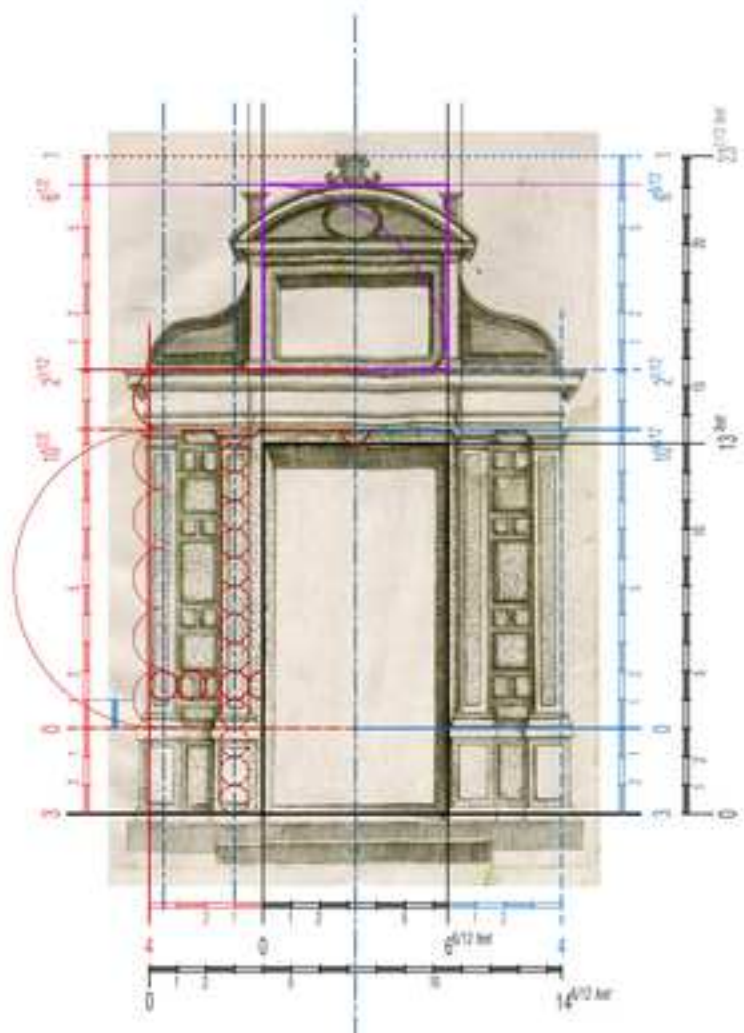
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Figure

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Figure

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