VITRUVIUS' BASILICA AT FANO: THE DRAWINGS OF A LOST BUILDING FROM *DE ARCHITECTURA LIBRI DECEM*

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ABSTRACT

In his "*De Architectura" libri decem* book 5, I, VI, Vitruvius describes a Basilica designed by himself and erected at *Fanum Fortunae*, present-day Fano, a Roman colony standing at the Adriatic end of the *via Flaminia*. It is the sole building so far known to have been designed and constructed by the author of the famous treatise. It is an extraordinary building, especially so in that it constitutes a turning point in the design of basilicas.

Today nothing is left of it and research has been going on for some years at our Department to understand and recreate this building and protect its precarious and ephemeral memory. The part of the research addressed herein regards a complex cataloguing effort (of hundreds of editions of "*De Architectura*" published in the world) and a critical analysis of the drawings which ever since 1522 have attempted to depict it based on the sole text, the original drawings never having been found. An *ad hoc* hypertextual data-base has been set up employing a widely used software (File Maker V.5). This work has three main objectives with reference to the drawings and the information archived in the data-base:

1. cataloguing;
2. interpretative association with the individual texts from which they derive;
3. critical consultation.

In relation to the possible uses of the content of the data-base, however, at least five important applications directly connected with this work can be envisaged:

1. **Critical consultation of the archives;**
2. **Support to models of reconstruction of the Basilica;**
3. **Epistemological investigation of the reference cultural models contemporary to the drawings;**
4. **Comparison and verification of the points of congruence with, and of the references to, extant ruins of Roman basilicas;**
5. **Publication and diffusion on the Web;**

We have collected more than 500 editions, translations and epitomes of "*De Architectura*" (including later editions of the original) published in various countries. Many of them are unknown to the main European libraries, of others very few copies survive, and those commonly held by Italian libraries (and in most European ones) are no more than 60-70. Not all are illustrated and many use drawings and diagrams already published in previous editions. Thirty-five original drawings connected with approximately 150 editions of "*De Architectura*" have been entered in the data-base.

1. THE BASILICA'S MEMORY IN DRAWINGS

« *...No less egregious dignity and beauty may be achieved with types of basilicas of the kind that I designed and had built at Colonia Juliae Fanestris…*» (De Architectura, Pierre Gros ed., Einaudi, Turin, Italy, 1997). Thus begins the first chapter of book V, one of the best known and most controversial of Vitruvius' celebrated treatise on architecture. Here, Vitruvius describes, synthetically though accurately, the fabric universally known as the "Fano Basilica", which he built around 19 BC in *Colonia Juliae Fanestris*, present-day Fano, Marche. The colony, founded where the consular road Flaminia reaches the sea, was busy and prosperous in imperial times. For some years our Department has been studying various aspects of the historical, construction and archaeological issues relating to the building. All such issues are inextricably linked to the fact that the Basilica was destroyed, probably in the 5th century AD; this results in the need for recovering its memory, forms and appearance using an interdisciplinary approach including philology, virtual reality, and the study of ancient sources. At a previous Isprs workshop (Ayutthaya, Thailand, 2001), we illustrated the progress of research into the building's virtual reconstruction. Here we address the more recent work regarding our analysis of the drawings of *De Architectura*.

Vitruvius drew the Basilica besides its description. Those drawings, like the other *diagrammata* in the treatise, are lost. This loss eventually prompted attempts by celebrated writers, architects and scholars (among whom Francesco di Giorgio, Andrea Palladio, Fra' Giocondo, Giovan Battista da Sangallo, Giovanni Poleni, and Raphael, to name but a few) to interpret Vitruvius' text and rules. These efforts have produced a rich and valuable repertoire of graphic reconstructions of the Basilica. The story begins in 1486, when the first edition (without drawings) of *De Architectura* was published in Rome by Heralt, edited by Giovanni Sulpicio da Veroli (*editio princeps*).

The Fano Basilica is an extraordinary building for several reasons. First of all, as mentioned, it is the only building identified by Vitruvius as his own in "*De Architectura libri decem*", where he describes it in detail in book 5, I, VI. This fact alone, considering the strong influence of Vitruvius and his work on the modern knowledge of ancient architecture and on the definition of the body of construction norms of architecture from the 16th century to the present day, justifies the adjective "extraordinary" and elicits the interest of all those scholars desiring to study the sole example of building where Vitruvius might have implemented the many precepts listed and discussed in his text. And here is the second (though not in importance) reason of interest.
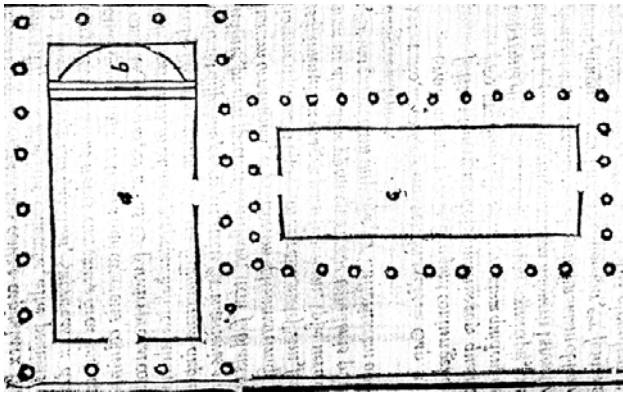
Fig. 1. The Fano Basilica in the reconstruction of Frà Giocondo, 1522, the first printed drawing of the Vitruvian fabric

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20th century architecture. Our decision to study, using the indispensable informatics technologies, an anomalous case of documentation of architecture-an ancient building that is no longer there, which draws its eternal and multi-faceted life from the dialectic exchange between text and drawings-can be viewed as an instance of such an interest. This exchange has taken on different features over the centuries, in the different cultures and with the evolution of thought. Such evolution is reflected in the diverse traits and renderings of the building, which do not portray the Fano Basilica but several Fano Basilicas, as many Basilicas as there have been interpretations of the Vitruvian text and as many as the cultures that have generated and nurtured each author.
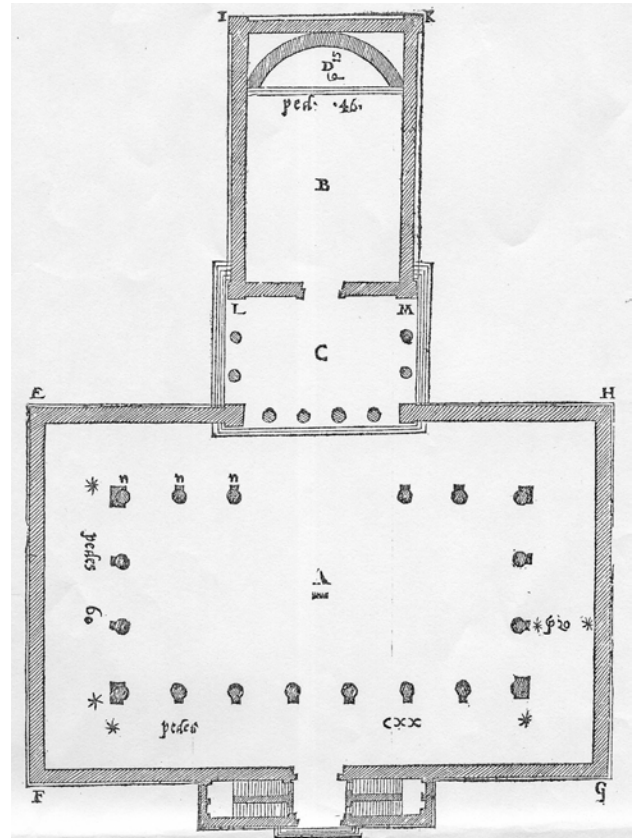

Fig. 2 The Fano Basilica in Andrea Palladio's drawing, 1556

Thus, documenting Fano's Basilica(s) does not merely equal documenting a work of architecture, but rather 2000 years of vision and concepts of architecture. That which happens in historical buildings bearing centuries-old stratifications, where identification and analysis always need a comparison with extant buildings, also obtains in the case of paper media bearing similar stratifications, which thus represent extraordinary tools to read History. Naturally, the choice of the present topic also stems from the need for preserving and protecting architectural works via the instruments that generate it, i.e. the drawings. Today, preservation and protection (which eventually become communication and knowledge) are made easier and more effective by informatics technologies; these allow to set up extremely articulated data-bases endowed with enormous potential for the consultation, diffusion and communication of all types of materials. These tools are no longer the preserve of specialists, but can be accessed and employed by those users, such as historians of architecture, art and drawing, who need them for reading and historical interpretation.
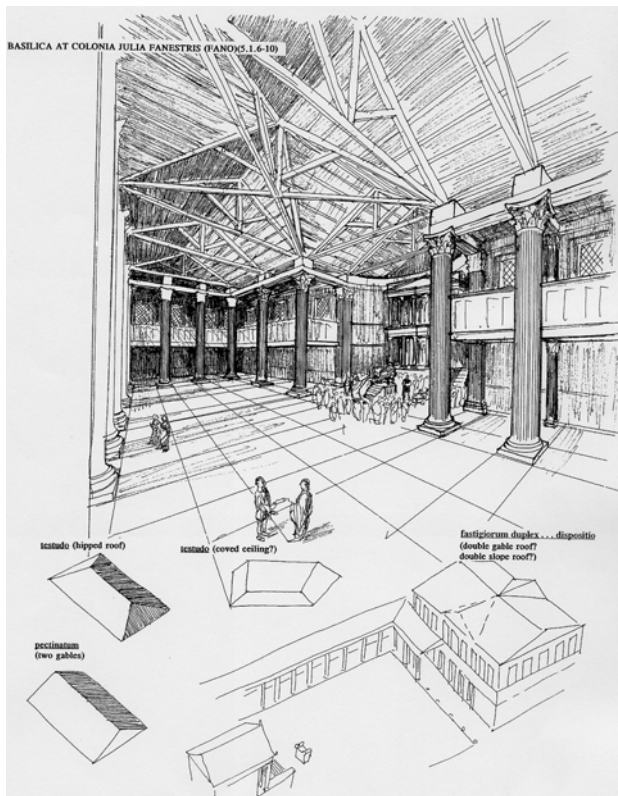
Fig. 3 Interior of the Fano Basilica according to Ingrid Rowland, 1999

There is a further circumstance, mentioned above, which recommends the preservation and study of the drawings: it is that they are not drawings *of* Vitruvius' Fano Basilica, but of *several* Vitruvius' Fano Basilicas, the drawings that writers and commentators have produced by reading an often corrupt text taken from different codes which, signally, does not address, or does not do so exhaustively, some essential aspects regarding construction (e.g. materials, decoration, structure).

As a consequence, these drawings give us "several different Vitruvius' Basilicas, some clearly and grossly distant from the text; others more respectful of the formal and aesthetic rules, of static-constructive canons, of modular generations, and so on.

Far from being simple graphic renderings of a clear description, the drawings are thus interpretations of an often obscure text that are largely mediated by the contemporary cultural climate or by the wish to support and sanction specific theories and concepts on architecture in general and on Vitruvius in particular. This is why the present study aims not only at drawing up lists, but especially at understanding and comparing those different interpretations to gauge their reliability, the respect of the text, the influence received and exerted, and, last but not least, at providing suitable tools for a reliable reconstruction of the Fano Basilica. This is a goal which many have pursued, though possibly by omitting to analyse the graphic history of the Basilica and thus the solutions which a rigorous historiographic study of the mistakes and the misunderstandings of these reconstructions highlights as more reliable.

It must be noted that he drawings of the Fano Basilica included in the various editions of *De Architectura* are clearly not all the existing drawings of the building. Several researchers (including the author) have addressed the reconstruction of the Basilica independently of the editions of Vitruvius' text. The present work and data-base, at least in this first phase, do not take into

consideration these drawings, though some have already been collected. The reason for this is that they are felt to belong to a different cultural attitude from the one of the editors of *De Architectura* involved over time in an exhaustive effort of comprehension and rendering of Vitruvius' work. Their effort involves a continuous comparison with their own times, from which they absorb theories, concepts and thoughts that become reflected in their drawings. The more philological aim of those drawings places them on a culturally different and overall less interesting plane and makes their analysis and study less momentous.

2. AIMS AND CONTENTS OF THE DATA-BASE

The present data-base has three main objectives with reference to the drawings and the information archived:
1. cataloguing;
2. interpretative association with the texts from which they derive;
3. critical consultation.

To pursue these objectives, a series of fields within the archives cards were identified, when designing the data-base, and assigned to be managed by a main interface mask (Fig. 4).

Based on the description that follows, each drawing appears in *ad hoc* image fields, shown in fig. 4. As regards the more general phase of consultation (**objective 1**), the following fields have been envisaged:

- progressive entering number;
- enter date and latest update;
- title of the drawing;
- name, year and editor of the edition of *De Architectura* from which it is taken;
- author, type, drawing technique and scale;
- general notes and comments on the drawing.

In addition to these fields in the main interface mask, links are provided to fields containing information regarding the editor and detailed critical data on each drawing. A button also allows to access the card of the relevant edition of *De Architectura* from another data-base[*].

Given the fundamental association of each drawing with the text which it interprets, a specific image field has been envisaged reporting the printed text of the relevant edition of *De Architectura* in its original graphic form. Clearly, this field is associated with the specific drawing, so that the graphic solutions can be related to the text source.

Critical consultation was addressed by identifying all the interpretative questions raised by the Vitruvian text(s) and by showing the various solutions implemented in the drawings (Fig. 5). Analysis of the drawings included in the data-base and of the relevant texts allowed to identify about 50 possible interpretative variants regarding various aspects of the building (shape, construction technique, materials, etc.); a specific check list field of the main interpretative variants was prepared. As illustrated in figure 5, this field allows to associate to each drawing the accredited variants for each of the interpretative nodes and to produce an exhaustive repertoire of the formal technical and construction solutions associated with the various renderings of the Basilica. For instance, the user can rapidly obtain the list and relevant video and graphic material of all the

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[*] For a few years I have been updating a data-base structured into cards regarding all the editions, translations and codes of *De Architectura* since 1486 (as regards editions). This continuously updated data-base has been connected to the drawings' data-base to allow users to trace immediately from the drawing the text from which it has been taken.

planimetric reconstructions of the Basilica that do not include pilaster strips on the columns and immediately compare them by visualising them simultaneously.

As this list is based on the analysis of the drawings and, frequently, on the choices of the editors themselves, who often legitimised solutions even clearly at variance with the text, it is obviously subject to continuous additions as new drawings are consulted and analysed.
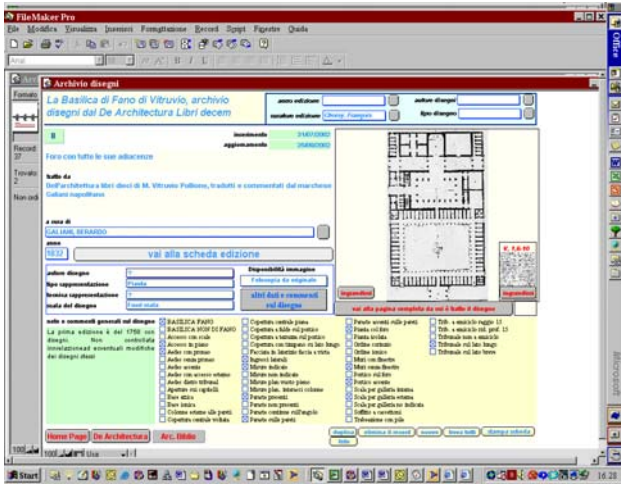

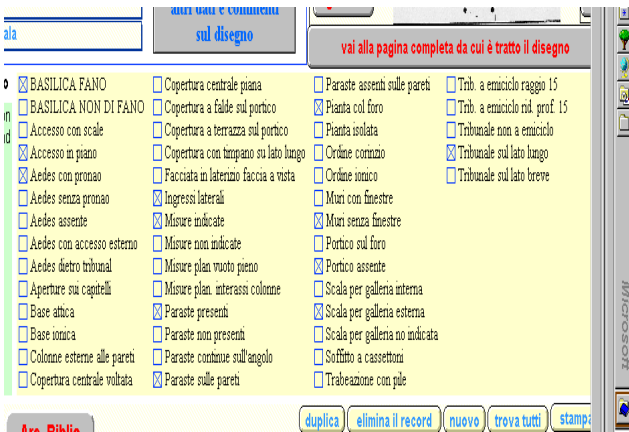Fig. 4. Main mask for data entering

Fig. 5. The interpretative questions raised by the Vitruvian text

3. CRITERIA FOR THE CONSTRUCTION AND MANAGEMENT OF THE DATA-BASE

The work consisted in the preparation of a data-base for the cataloguing, consultation and analysis of the drawings of the Fano Basilica that appeared since 1586 in the various editions of *De Architectura*. To begin with, 35 graphic documents were preliminarily entered (as described below) with a view to structuring the data-base and testing the mechanisms for its management and consultation. The software source used, File Maker 5.0 (Claris Corporation), is a user-friendly, multi-platform (PC and Mac) data-base which-if the programme is correctly set-allows data to be immediately published as Web pages. This flexible software allows to manage multimedia hypertexts, images and clips easily and without excessively taxing the system's memory. This program has already been employed by the author to set up similar data-bases applied to procedures of analysis and consultation of drawings and images.
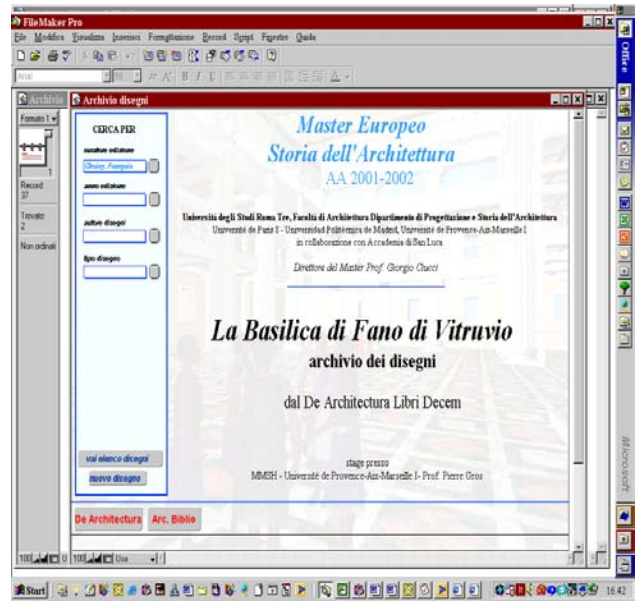

Fig. 6. The home page

Access is through a home page (Fig. 6), whence a scroll menu immediately allows to search for the editor, year, author of the drawings and type of representation. From within the home page the user can also enter a new drawing or access the list of drawings, visualised as in Fig. 7.

From this list, users can recall each drawing's card; select lists of plans, sections, perspectives, details or spatial views and order the records progressively or according to year or editor. They can also visualise simultaneously the contents of the records they have selected, as illustrated in Fig. 8.

These views are very effective to compare immediately the drawings made using the same method of representation and already ordered according to the criteria mentioned (year, editor). The views can thus also be directly printed.

Each drawing's analytical card can be accessed by clicking on its icon.

From this card, users can consult the drawing and access the consultation interfaces:

- a magnified image of the drawing;
- the reproduction of the relevant text of the edition of *De Architectura*;
- the reproduction of the whole page from which the drawing has been taken;
- a page with the critical notes regarding the drawing;
- notes regarding the editor of the reference edition;
- card of the relevant edition from the other connected data-base.

The data-base is articulated into 12 layouts and contains 20 instruction scripts relating to various automatic procedures (search, comparison, shift to other data-bases, etc.).
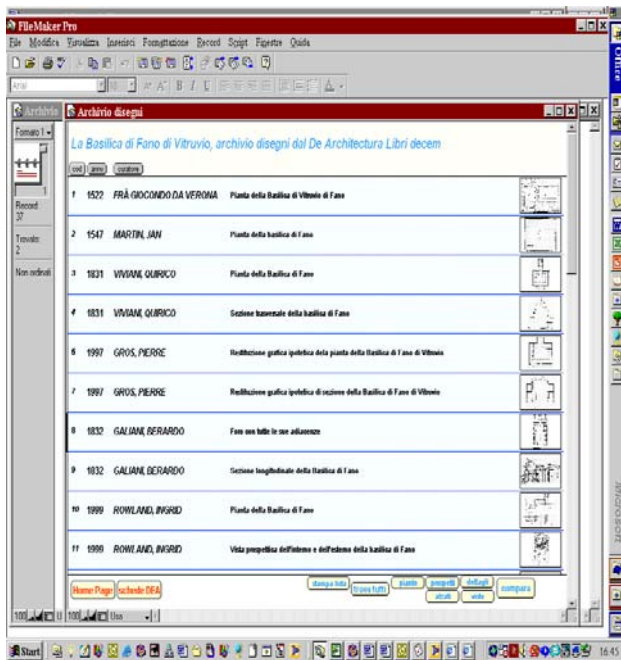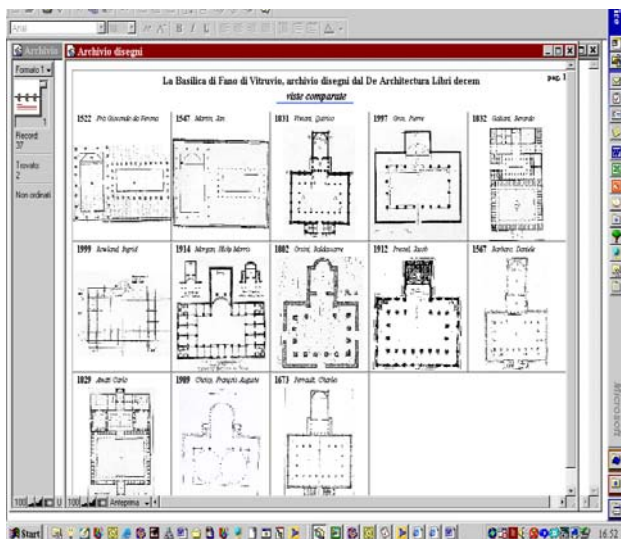
Fig. 7. A view with the list of drawings

Fig. 8. Simultaneous views of the plans included in the data-base

4. DEVELOPMENT OF THE RESEARCH - CONCLUSIONS

The work done in this prevalently methodological phase can already be considered as a significant, though simple, instance of electronic processing of info-graphic data regarding drawings of a no longer extant ancient building to aid historical studies. This is thus an instrument of protection and preservation of memory (and of the drawings themselves, dispersed as they are among several treatises held in different parts of the world). This instrument, made flexible by informatics technologies, can easily be modified and adapted to new needs connected with the various possible utilisations of the data-base. It is thus a tool which, by allowing to manage in an integrated manner static and dynamic data, is also suitable, with minimum adaptation and adjustments, for other utilisations with different contents.

By contrast, in terms of the possible utilisations of this data-base, the features discussed above appear at present of secondary importance, as at least five important applications directly connected with the current research work can be envisaged at a later stage:
1. Consultation and cataloguing of the archives;
2. Support to models of reconstruction of the Basilica;
3. Epistemological investigation of the reference cultural models contemporary to each drawing;
4. Comparison and verification of the points of congruence with, and of the references to, extant ruins of Roman basilicas;
5. Publication and diffusion on the Web.

The reliability of these applications will naturally depend on how many drawings are recovered, collected, and filed. At present, 35 have been entered from 30 editions of *De Architectura*. There are currently about 200 editions, translations and epitomes of *De Architectura* (including the later editions of the originals) published in various countries. Many of them are unknown to the main European libraries, of some others few copies remain; those held by Italian libraries (and largely by European ones) do not exceed 60-70. Part of the difficulty will thus lie in finding as many editions as possible of *De Architectura* and thus (if illustrated) of the Fano Basilica.

The following is a detailed illustration of these applications.

1 Consultation and cataloguing of the archives

"Mere" consultation of the archives is the most immediate utilisation of the data-base. It can supply a large amount of information for different uses; however, it should be stressed that it derives itself from a cataloguing which is already an instrument of protection and preservation of the drawings in the ways and with the implications described above. The critical preservation and collection of these drawings held all over the world is thus one of the main aims of the work.

2 Support to models of reconstruction of the Basilica

The archives of the drawings of the Basilica are an extraordinary and invaluable repertoire of spatial, formal, technical and building solutions for the reconstruction of a spatial model of the Basilica. From this viewpoint, the data-base allows to collect, collate and compare the types of drawings, visible as plans, perspectives, sections, details and spatial views, and easily group similar solutions and identify different ones in connection with critical analysis and comparison with the text. After checking their full consistency with the text, the more common and recurrent solutions can be considered as reliable and credible and used to guide a model of reconstruction. As regards the different solutions, the reasons underpinning them– related, as mentioned above, to different readings of the text, different cultural environments, different technical interpretations of the text, gross mistakes, etc-need to be studied. By conferring more or less reliability on the various solutions, the understanding and critical analysis of the possible sources of diversity will also guide the selection of the more credible and documented. It should also be considered that, starting from the plan, which is always present when graphic reconstructions are attempted, the interests and skills of editors or authors and the time of their production generally result in drawings with specific features which privilege formal and aesthetic aspects, technical and construction ones, the urban context (hypothetical location of the *forum*), or the spatial configuration (through the proposal of fascinating axonometric or perspective views). This allows to obtain an exhaustive repertoire of all the elements and details of the building, to evaluate them critically and to incorporate them into a reconstruction model with the potential to become a graphic

synthesis of 2000 years of history of the drawings and interpretations of the Basilica by collecting the more reliable, realistic and rigorous.
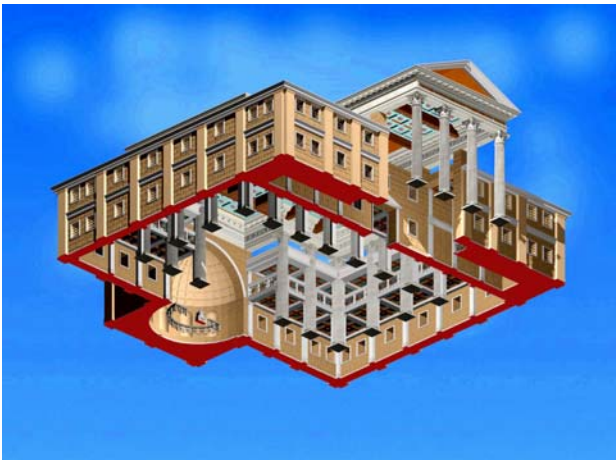

Fig. 9 Virtual model of the Fano Basilica reconstructed by DARDUS, Ancona

According to the methodological scheme described here, one operative development will be the reconstruction or, better, the review -in the light of the recent exhaustive study of these drawings and the publication of a new critical edition of *De Architectura* (Gros, 1997)-of a 3D model of the Basilica built by the author in 1996, on the occasion of his doctoral thesis. The synthesis between these recent studies and the analysis of the historical drawings of the Basilica is expected to allow a philologically correct model to be reconstructed.

3 Epistemological investigation of the reference cultural models contemporary to each drawing

The reflection of different cultural models and the authors' desire, especially between the 15th and the 16th century, to attribute to Vitruvius definite theoretical solutions in architecture, or the attempt to legitimise buildings that may have been erected by the same editors of the text or the authors of the drawings are among the intriguing keys to the analysis of the drawings of *De Architectura*, especially as regards the derivations and interpretations of the text to which they provide interpretive and graphic support. Where no gross mistakes have been made in interpreting and reading the text or the manuscript codes (a more frequent case than commonly expected in the presence of presumed corruptions of the text), this seems to be the basic motive of the graphic reconstructions, which often resemble more contemporary buildings than the one described by Vitruvius, and at other times are jarring though not similar to specific buildings.The Fano Basilica is a case in point. The anomaly of being the sole building described by Vitruvius as his own, together with the fact that it is significantly different in space, form and building technique from the "ordinary" basilica type described immediately before seems to have considerably concerned those who drew the Basilica. These works still reflect the authors' *preoccupation* with entrusting to a drawing, the sole evidence of a Vitruvian building, objective responsibilities in terms of the affirmation and legitimisation of cultures and architectural theories or of their consecration *a posteriori* to reference models of works which they maybe built themselves.
A possible development of this work will thus be a new reading of the drawings through the history or, better, histories of the characters that they recount and to find in them the source of the various readings, diversities and variants.

4 Comparison and verification of the points of congruence with, and of the references to, extant ruins of Roman basilicas

A further application of the present work may be the analysis of one of the sources of the drawings, i.e. the Roman (or presumed such) basilicas known to the authors, from which they, especially with reference to the more modern editions, may have drawn solutions and elements that today may have disappeared or be unknown. This special relationship with actual buildings may indeed derive from the need to deal for the first and only time with a building that was effectively built, and by Vitruvius himself. The authors may thus have legitimised those solutions using actual buildings as sources (and not necessarily basilicas).

5 Publication and diffusion on the Web

The configuration of the data-base, the type of software used and the method of processing the results allow for the immediate publication of the archives in the Web and thus for making publicly available their content independently of the platform adopted for consultation (Mac or PC). This possible development of the work (requiring its completion and, obviously, reasonably frequent updating) is directly connected with the aspects discussed above, especially under par. 1. It regards an extension of the scope for consultation highlighted there, but particularly a specific form of communication and diffusion of the contents that can also achieve the object (given the enormous dimension of the consultation area) of collecting data and information on unknown editions of *De Architectura* and, thus, on new possible reconstructions and readings of the Fano Basilica. Given the well known potential for consultation, communication and visualisation of all type of material on the Internet, this point does not require further discussion.

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De Architectura Libri decem, **Marcus Vitruvius Pollio, end of 1st century BC**
Read in the following original or anastatic editions:

year	author, editor, town
1522	Fra' Giocondo da Verona, Eredi Filippo Giunta Florence, Italy
1547	Jan Martin, Barbè, Paris, France
1567	Daniele Barbaro, De' Franceschi, Venice, Italy
1673	Claude Perrault, Coignard, Paris, France
1802	Baldassarre Orsini, Carlo Baduel, Perugina, Italy
1829	Carlo Amati, Pirola, Milan, Italy
1831	Quirico Viviani, Fratelli Mattiuzzi, Udine, Italy
1832	Berardo Galiani, Alessandro Dozio, Milan, Italy
1909	Choisy François Auguste, Lahure, Paris, France
1912	Jacob Prestel, Strasbourg, France
1914	Morgan Hicky Morris, Harvard University Press New York, NY
1997	Pierre Gros, Einaudi, Turin, Italy
1999	Ingrid Rowland, Cambridge Univ. Press, Cambridge, UK