SCIRES it
SCIentific RESearch and Information Technology
Ricerca Scientifica e Tecnologie dell'Informazione
Vol 4, Issue 2 (2014), 117-126
e-ISSN 2239-4303, DOI 10.2423/i22394303v4n2p117

DRAWINGS ON PAPER. DIGITAL HISTORICAL ARCHIVES OF THE FORMER RADAAR DEPARTMENT AT THE UNIVERSITY SAPIENZA SCHOOL OF ARCHITECTURE IN ROME

Emanuela Chiavoni *

* Department of History, Drawing and Restoration of Architecture - Sapienza Rome University, Italy

Abstract

The paper presents the work now being carried out to develop digital archives of the historical drawings amassed by the former Department of Architectural and Environmental Surveying, Analysis and Drawing (Radaar) at the University Sapienza School of Architecture in Rome. These archives, consisting of original drawings on paper, are a collection of graphic material produced in connection with the courses in Monumental Surveying, Elements of Architectural and Monumental Surveying and Life Drawing held between 1935 and 1980, and provide invaluable testimony to the type of academic training offered to architects in those years.

Keywords

Architectural drawings, Historical archives, Historical photographs, Digital archives, University Sapienza School of Architecture in Rome

1. *The historical archives of drawings*

The historical archives of drawings from the former Department of Architectural and Environmental Surveying, Analysis and Drawing (Radaar[1]), now the Department of Architectural History, Drawing and Restoration[2], are a large collection of drawings on paper produced at the Roman university in the years between 1935 and in the 1980s[3] .

This graphic material, a small portion of which also consists of photographs, is a fragment of the historical memory of the teaching activities carried at the School of Architecture in Rome in those years, bearing witness not only to the programs and disciplines that were covered, but also to the work of the instructors and students at the School during this period. The archives consist for the most part of drawings produced by students for their examinations, as well as of images on a variety of supports used in the past as teaching aids in the courses in *Monumental Surveying (Parts One and two), Elements of Architectural and Monumental Surveying and Life Drawing*. Many different professors held these courses over the years, and the collected material provides a wealth of documentation that can help us gain an understanding of how architects were trained in these disciplines (Figure 1).

This interesting Heritage on paper was stored for many years in cabinets at Radaar, which was located since the time it was established at the School of Architecture's site in Piazza Borghese[4] .

[1] Radaar was established in 1984, bringing together educators in the drawing disciplines from the Schools of Architecture and Engineering.

[2] The Department of Architectural History, Drawing and Restoration (DSDRA) was established on July 1, 2010 by merging the existing Dept. of History of Architecture, Restoration and Conservation of the Architectural Heritage and Dept. of Architectural and Environmental Surveying, Analysis and Drawing as part of the reorganization of the Università Sapienza in Rome.

[3] The entire archives are housed at the DSDRA Department in Piazza Borghese 9, Rome. The archives' scientific supervisor is Prof. Emanuela Chiavoni (www.dsdra.it).

[4] The School of Architecture in Rome has a number of sites located in the north of the city: a building at Piazza Borghese 9, a building in Via Gramsci (the historic Valle Giulia site), a building in Via Gianturco, and a building in Via Flaminia.

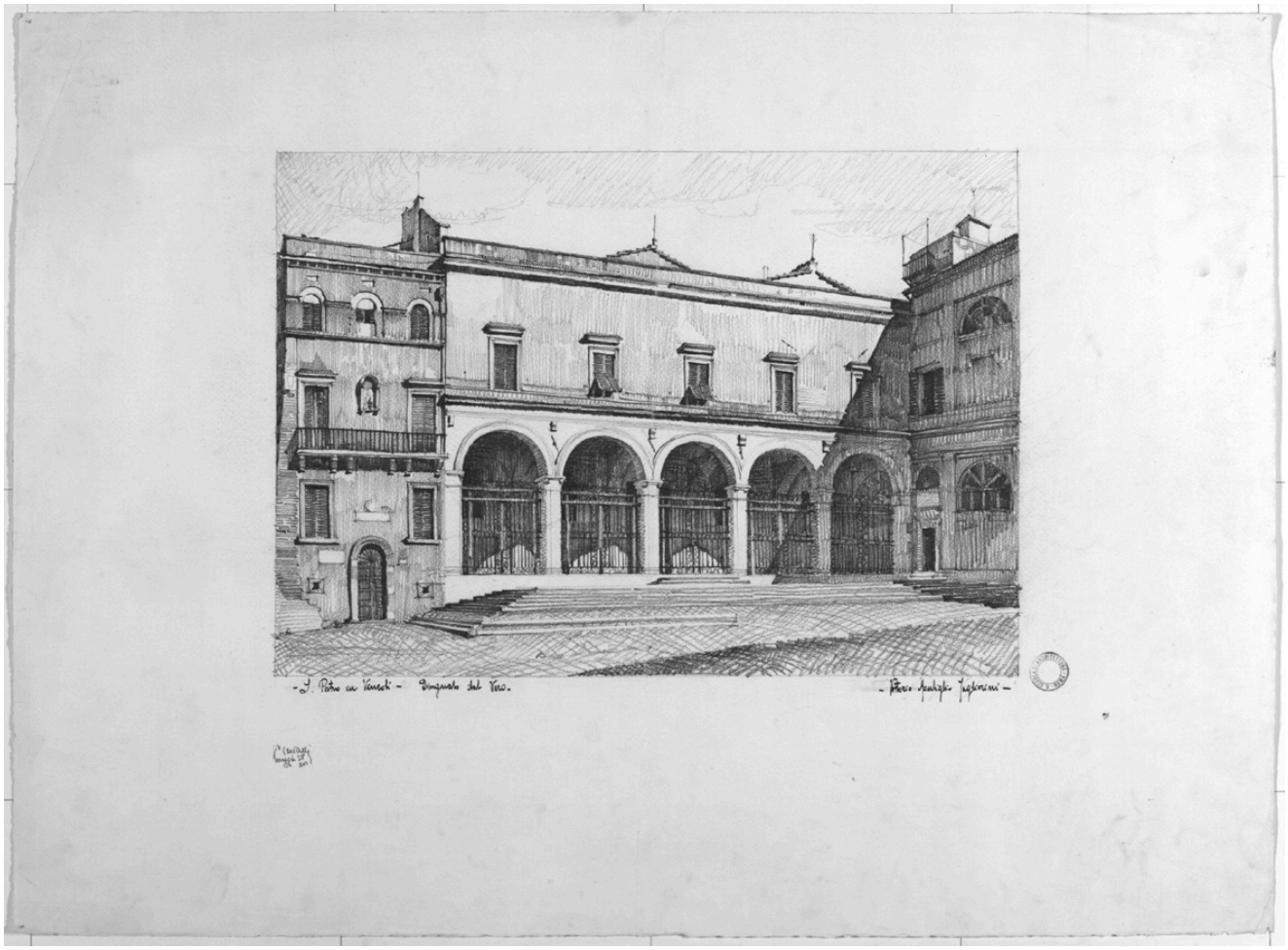

Fig. 1: Drawing for the course in *Life Drawing* held by Prof. anonymous, 1938, church of San Pietro in Vincoli, perspective sketch, pencil. Student: Taglierini

Over the years, some of the papers were damaged as a result of poor storage conditions and maintenance work at the site, making them difficult to use. To safeguard this Heritage, as first action to understand, study and analyze the documentation and its description was appointed a committee of faculty members. During the Nineties, the documents were examined by a number of faculty members who teach courses in drawing, including Professors M.Docci[5], A. Gurgone, L. Corvaja, G. Testa, A. Sartor, L. De Carlo, P. Albisinni, G. Stockel[6] and E. Chiavoni[7]. The best drawings for each examined subject were selected in order to provide a description of the teaching objectives pursued in each course, and to document the different types of architecture that were considered.

2. *The drawings*

The archival material includes many drawings of well-known Roman monuments such as churches, palaces, schools, bridges, fountains and squares, as well as representations of minor architecture such as the rural houses and farmsteads in the Roman countryside. The drawings in this collection are executed using all the various methods of representation: plan views, elevations and sections of entire buildings, as well as perspective and axonometric projections and bird's eye views, some complete with shading. There are also detail drawings of architectural orders and significant elements such as portals, windows, balustrades and so forth. Rigorously proportioned freehand sketches stand alongside scale drawings executed with straightedge and

[5] Prof. Mario Docci always involved department faculty members in organizing the archives of drawings, and encouraged their conversion into digital format

[6] Prof. Giorgio Stockel, in addition to selecting and checking the drawings, was the first to conceive of and establish the database for the digital archives.

[7] All of the faculty members mentioned hold courses in subject classification code ICAR 17, Drawing (my apologies to any whom I may have inadvertently omitted).

Fig. 2: Drawing for the course in Architecture held by Prof. De Plaisant.
Color study of the church of Sant'Ambrogio. Student: U. D'Andrea, matriculation number 5224

try-square using different ink and pencil techniques. Evidence of teaching methods is also provided by colored drawings done with marking pens and tempera, and by watercolors of buildings and details on tracing paper and on white or light colored paperboard (Figure 2). Some of the drawings are personalized with interesting calligraphy, lettering in various styles, or even with original and well-conceived graphic compositions.

Together with the drawings, the collection also includes a number of architectural photographs, mostly in black and white, which can be useful in making comparisons with the same buildings' present situation and their urban setting.

3. The teachers and the school

The drawings in the historical archives, most of which relate to architectural surveying, were produced in courses held by university professors who had gained renown in the disciplines of drawing, surveying and restoration, made major contributions to the development of the School of Architecture in Rome, and were prominent in the period's cultural debate. They included figures as Enrico Del Debbio, Giuseppe Perugini, Vincenzo Fasolo, Franco Minissi[8], Giulio Roisecco, Tommaso Valle[9], and many more. In the early years of the twentieth century, in fact, studies regarding the investigation and analysis of monuments enabled Gustavo Giovannoni[10], one of the main promoters of Italy's first University School of Architecture, in Rome, to organize a method of inquiry that he then introduced at the

[8] Franco Minissi (1919-1996), architect and full professor of *Exhibition Design and Museum Techniques* at the Università La Sapienza School of Architecture in Rome, UNESCO expert in museum techniques and restoration.

[9] Tommaso Valle (1934) was architect and university professor. From 1958 to 1971 he was assistant professor in charge of the course in Elements of Architectural and Monumental Surveying at the Università Sapienza School of Architecture in Rome.

[10] Gustavo Giovannoni (1873-1947), was architect and engineer active in both professional practice and in academic work. He engaged in historical and artistic studies, with a particular interest in studies of architectural history. In 1921, he and Marcello Piacentini founded the journal "Architettura e Arti Decorative", which was issued until 1931.

School. He assigned particular importance to the *"direct study of the monument [...] or in other words, the anatomy of the construction; the stylistic affinities, and thus reference to similarities with other known works of architecture".* Gustavo Giovannoni, who can be regarded as the founding father of this school, puts *"architectural surveying at the basis of historical studies and restoration, a tool for interpreting the monument"* and introduces another important concept: *"the need for direct contact with the construction in training young people"*. In addition, he emphasizes that surveying is also a significant part of educational programs, precisely because it leads to "*an awareness of the relationship that exists between the real work and the drawing that represents it [...] between the graphic representation and the built reality: in this sense, surveying is to the surveyed work as the plan is to the built work*"[11].

Other educators who followed Giovannoni's line in these years included Prof. De Angelis d'Ossat[12], who also maintained that surveying is fundamental to interpreting a monument, not only because it is useful in providing documentation, but also as a source of knowledge and of critical analysis which makes it possible to check the methods used to design the building, the systems of measurement employed during the period of its construction, and the geometrical and proportional relationships.

4. *The surveying campaigns*

In this line of research that also affects teaching, it is important to cite the surveying campaigns (Figures 3-4-5) carried out by the School of Architecture in the period covered by the archives. One particularly significant example was the survey directed by Enrico Del Debbio of the farmsteads in the Roman countryside, an important stock of minor architecture that has undergone many changes over time, not all of which were well controlled. Given that part of the related material is conserved in the archives, this paper presents only a few of the drawings produced by the students enrolled in Prof. Del Debbio's course during these survey campaigns[13] (Figures 6-7).

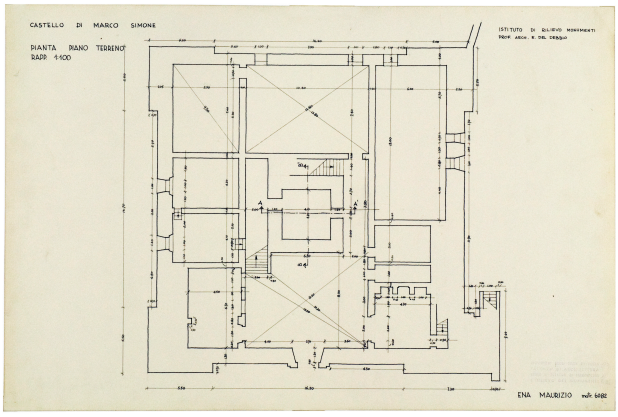

Fig. 3: Drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio, Institute of Monumental Surveying. Castle of Marco Simone, plan view of the ground floor, 1:100 scale, India ink drawing. Student: M. Ena

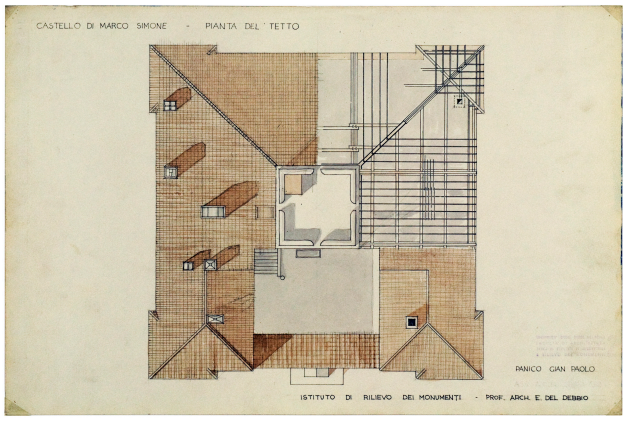

Fig. 4: Drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio, Institute of Monumental Surveying. Castle of Marco Simone, plan view of the roof in India ink and colors. Student: G. P. Panico

After the Second World War, *"in 1946 Del Debbio returned to teaching, to which he was to dedicate most of his energies, with an active participation in the life of the School [...] The active relationship thus promoted by Del Debbio can be exemplified by the many significant surveys of architectural works of great value (the Piazza del Campidoglio and its palaces, the Orvieto cathedral*

[11] Docci 2001b.

[12] Guglielmo De Angelis d'Ossat was an architectural historian born in Rome in 1907, appointed full professor of Stylistic and Constructional Features of Monuments at the University of Rome in 1960, and director of the Institute of Architectural History. He founded the School of Graduate Studies in Monumental Restoration in Rome, and served as its dean from 1971-1972 to 1977.

[13] Archival material relating to farmsteads in the Roman countryside from the course held by Prof. E. Del Debbio was selected by Claudio Impiglia, PhD in Architectural History, Drawing and Restoration.

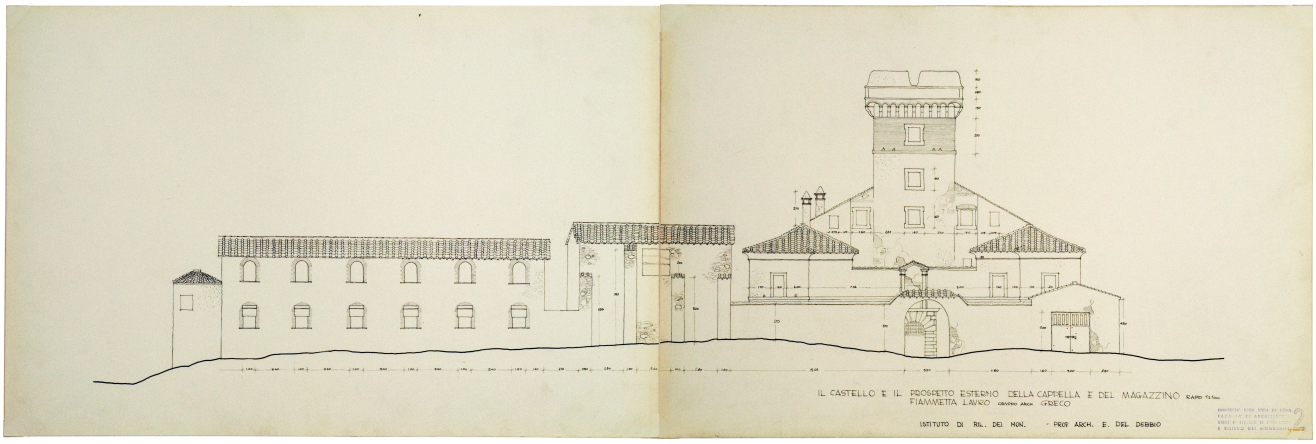

Fig. 5: Drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio, Institute of Monumental Surveying. Castle of Marco Simone, the castle and outside elevation of the chapel and storehouse, 1:100 scale, India ink drawing. Group: Mr. Greco, student: F. Lauro

the farmsteads of the Valle dei Casali, and others) which together make up an important part of the Drawing Archives he set up at the Institute of Monumental Surveying and Drawing, the first institute of the School of Architecture in Rome, which he himself founded in 1955"[14].

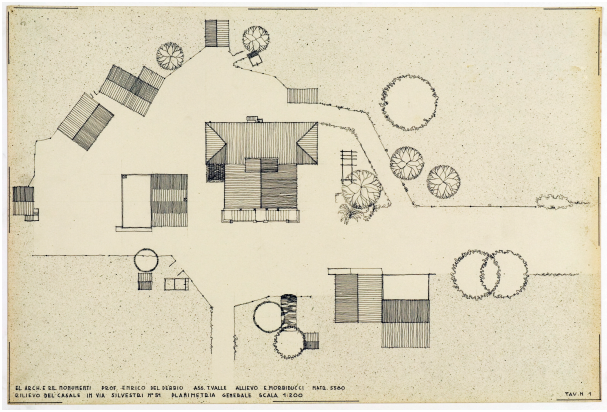

Fig. 6: Drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio, Institute of Monumental Surveying. Survey of the farmstead in Via Silvestri 51, 1:100 scale. General plan view, 1:.200 scale. Plate 1, India ink drawing. Group: Prof. T. Valle, student: E. Morbiducci, matriculation number 5580

Surveying absorbed much of his energies from the Fifties to the Seventies, when his goal was *" to establish archives of monumental surveys […] where all the Schools of Architecture in Italy and abroad would be involved, contributing the technical-scientific documentation collected for all the most important monuments"*[15] that could be consulted by many scholars. According to Del Debbio, these archives could become of major interest in achieving an understanding of historic architecture, and should receive economic support from the government and funding from agencies such as UNESCO, the Italian National Research Council and other international organizations involved in architectural matters.

Other survey campaigns were carried out during these years, including one of the Campidoglio directed by Prof. Giuseppe Perugini[16] that was of particular significance.

5. *Digital archives*

The decision to create digital archives was dictated by the need to safeguard all the drawings and ensure that they can be accessed more easily. The introduction of digital technologies in document management has made it even more important to classify documents correctly so that they can be retrieved and identified by management systems. Indeed, protecting archives begins from the moment they are formed. From the outset, then, it is essential that the foundations be laid for an organic, functional organization of the documentation, so that over time the archives can assume a form that is appropriate to their purpose in conserving and retrieving documents. This good practice will also be the best guarantee for the archives' future conservation as a historical source.

[14] Neri 2001, p. 345.
[15] *Ibid.*
[16] Giuseppe Perugini (Buenos Aires 1914 - Rome 1995), architect and professor at the School of Architecture in Rome, and leading proponent of the use of the computer in architectural drawing.

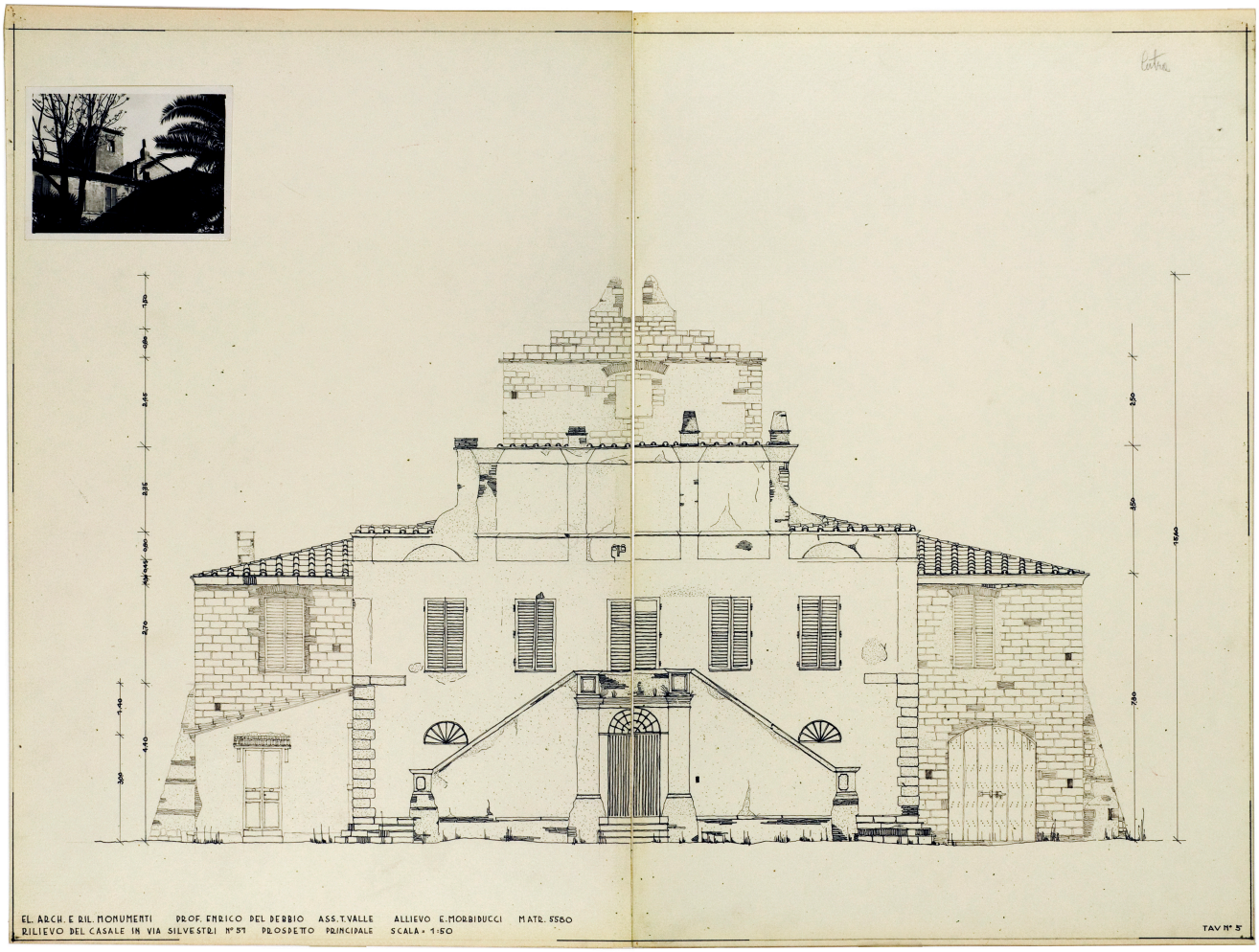

Fig. 7: Drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio, Institute of Monumental Surveying. Survey of the farmstead in Via Silvestri 51, 1:100 scale. Main elevation, 1:50 scale. Plate 5, India ink drawing. Group: Prof. T. Valle, student: E. Morbiducci, matriculation number 5580

The drawing archives in question are a complex collection of considerable size that were organized to reflect the specific needs associated with the different architectural types, which were analyzed (drawings of buildings done on site, and survey drawings at different scales of representation). After a selection of the hardcopy material had been made, the documents were digitized by scanning each individual drawing to create a database in which all the information contained is linked according to a particular logical model[17] to make it possible to manage the data effectively and interface with the scholarly user's queries.

The digitization project entailed several different stages in sequence: first, the subject to be digitized was identified with its inventory number and located. The paper document was then inspected to determine its state of preservation, format, and the cleanliness of the support. In the second stage, the drawing was scanned using an A3 flatbed scanner. Larger drawings were photographed using a digital camera on a tripod. For this operation, the drawings were positioned vertically on a wall-mounted panel. To ensure good image quality, scans were performed at the maximum resolution permitted by the instruments available at LIRALAB, the Department's Laboratory for Innovative Architectural Surveying, Representation and Analysis[18] and by the state of preservation of the original drawings. Particular attention was devoted to the many pencil

[17] Database; hierarchical, network or object-based relational logic model that operates thanks to special dedicated software applications.

[18] LIRALAB is coordinated by Prof. Carlo Inglese, while technical staff includes Marco di Giovanni, Paolo Toppi, Lorenzo Monno, Roberto Locchi.

drawings in the archives, not least because of their very light lines and low contrast.
In this process, the quality of the scan, the resolution and the depth of color are very important, as they ensure that drawing production and reproduction will continue to improve as technologies advance. Lastly, each drawing was returned to its place in the archives, and the source file was named and saved together with a backup copy on the server. Each file thus created can be viewed, printed or emailed at any time.
One of the problems of digital technology is the lack of knowledge regarding the actual duration of the various supports on which acquired data are stored: hard disks, CDs, DVDs, etc. It must thus be borne in mind that digital supports may deteriorate through exposure to light, heat and dust, or as a result of incorrect procedures and the use of materials that are not appropriate for the specific purpose. When designing and creating digital archives, it is thus necessary to give considerable thought to the long-term protection of digital data, a problem whose complexity and breadth is beyond the scope of this paper[19].

These digital archives, which are still being completed, can be implemented at all times and will enable scholars in the field to navigate through a wealth of drawings quickly and easily through searches that, obviously, always refer the user to the original drawing so that it can be investigated directly.
The digital archives were organized on the basis of a series of data common to most of the drawings (not all of the information is provided on every original), i.e., the academic year in which the drawing was executed, the architectural subject it represents, the title of the course, the name of the professor concerned and of any assistants who worked with him or her, the location of the architectural work, the scale of representation, the name of the student who produced the drawing, the student's matriculation number, the technique used and, at times, the date and number of the plate. Many drawings also bear an ink stamp, now faded, with the seal of the Università Sapienza School of Architecture and the name of the course.

This material is still being archived[20], and, to now, the archives can be consulted by students only within the university structure (local network database), but they could soon be made available on the web for outside users as well[21].
In the future, one of the objectives of these digital archives is to serve as an experimental testbed which, together with the traditional activities of conserving, restoring and cataloging drawings, could also be used in research, promotion and training, thus assisting the discipline's scientific and dissemination activities.

[19] Long-term protection of digital data is an enormous problem worldwide, and a large number of studies are currently under way.

[20] The part that has been reproduced and archived in digital form accounts for approximately 75% of the entire set of drawings. Drawings were digitized by Mr. Roberto Locchi, one of the technicians at the DSDRA Department's LIRALAB laboratory (today the Coordinator is prof. Carlo Inglese).
[21] This further step is currently in preparation.

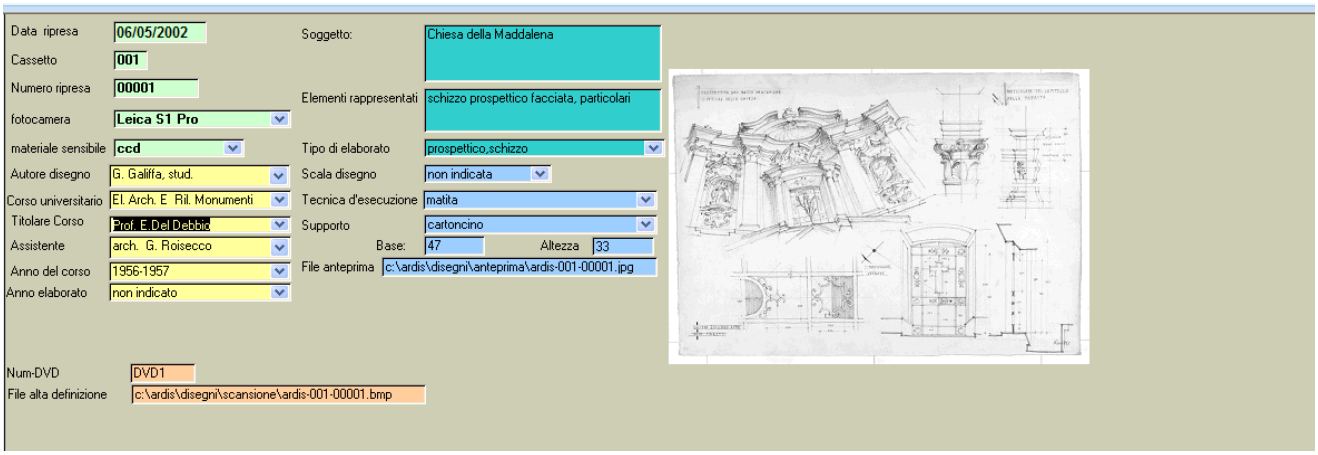

Fig. 8: Image from digital archive; drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio. Chiesa della Maddalena. Group: Prof. G. Roisecco, student: G. Galiffa, 1956-1957

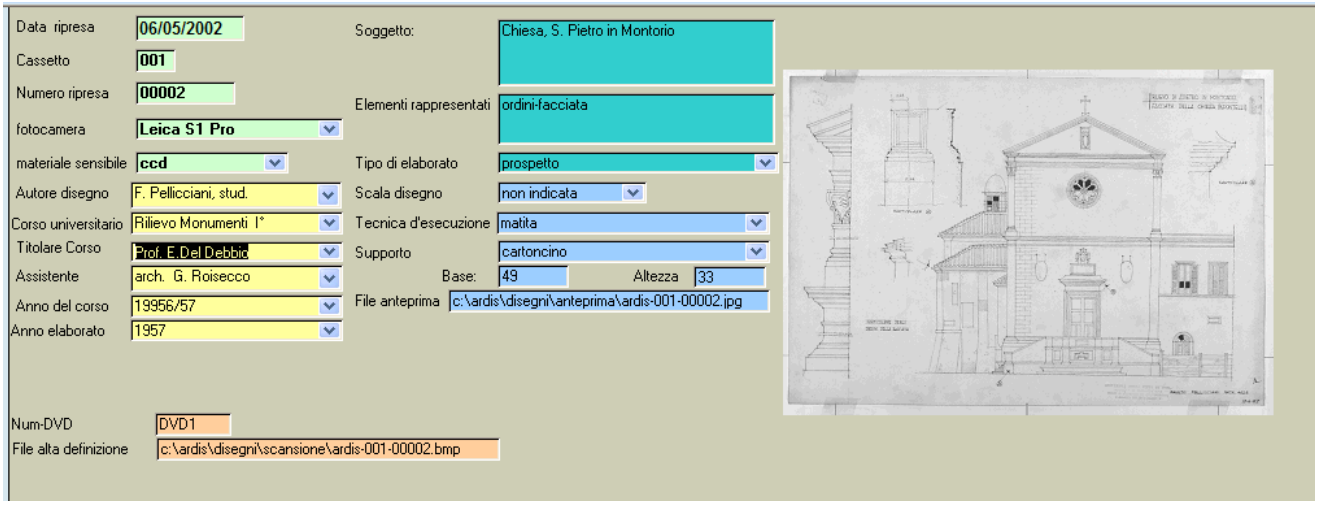

Fig. 9: Image from digital archive; drawing for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio. San Pietro in Montorio. Group: Prof. Roisecco, student: F. Pellicciani, 1956-1957

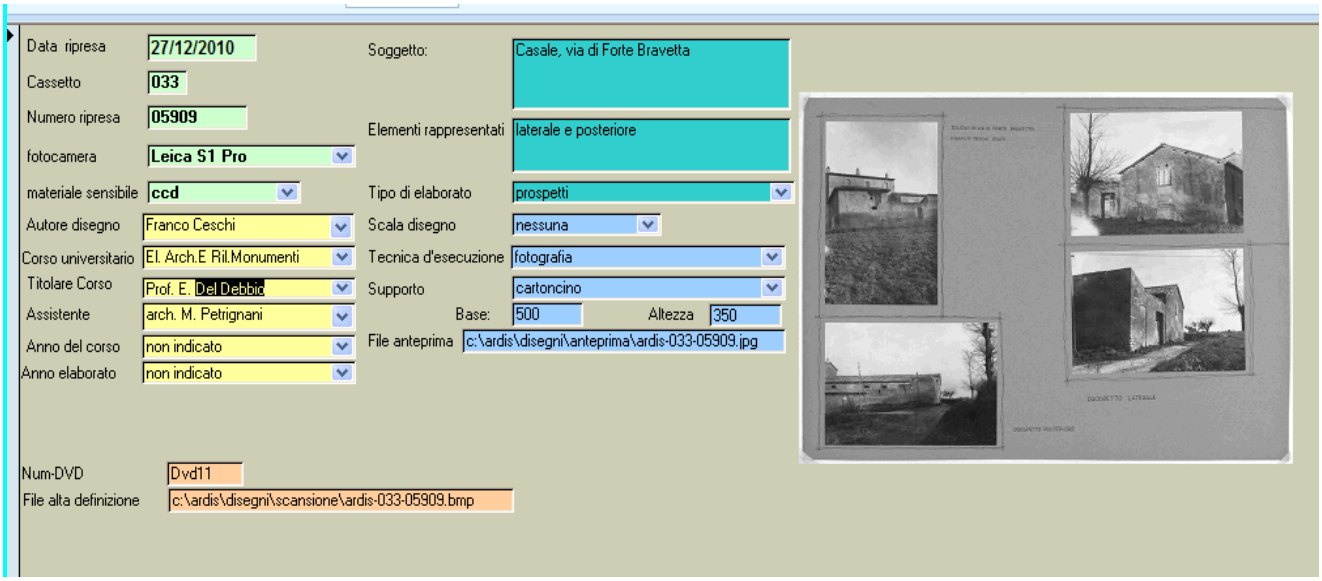

Fig. 10: Image from digital archive; photographs for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio. Casale, Via di Forte Bravetta. Group: Prof. M. Petrignani, student: F. Cesch

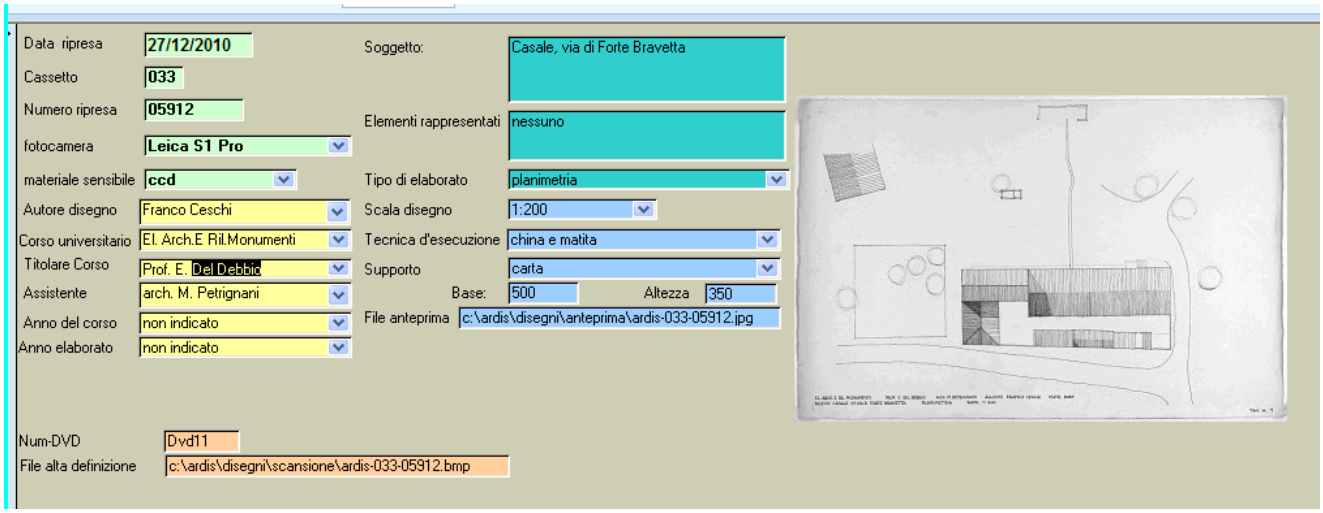

Fig. 11: Image from digital archive; photographs for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio. Casale, Via di Forte Bravetta. Group: Prof. M. Petrignani, student: F. Ceschi

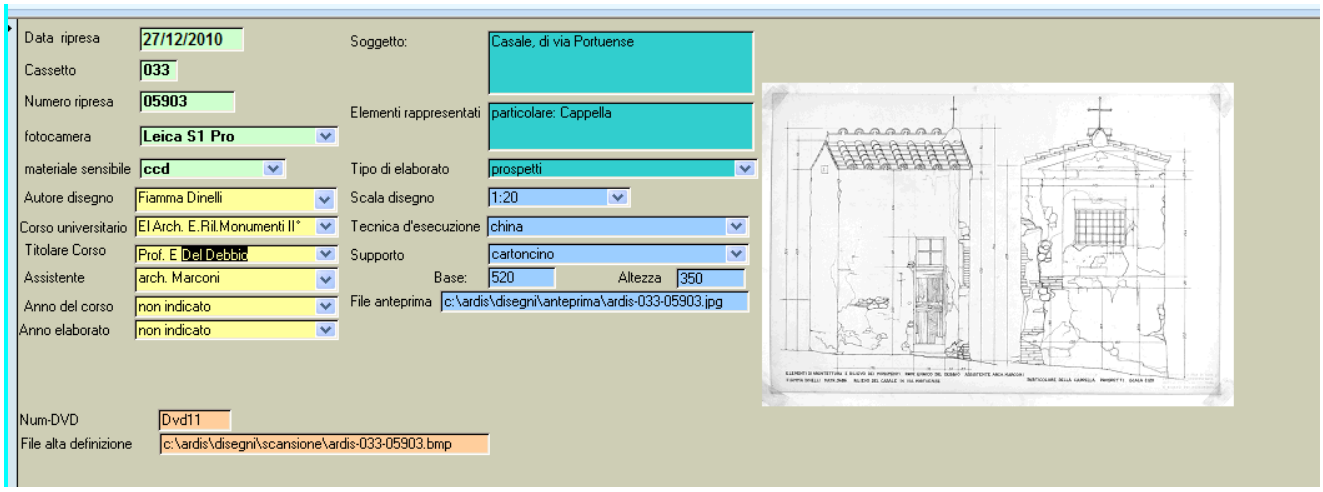

Fig. 12: Image from digital archive; photographs for the course in *Elements of Architecture and Monumental Surveying* held by Prof. E. Del Debbio. Casale di Via Portuense. Group: Prof. P. Marconi, student: F. Dinelli

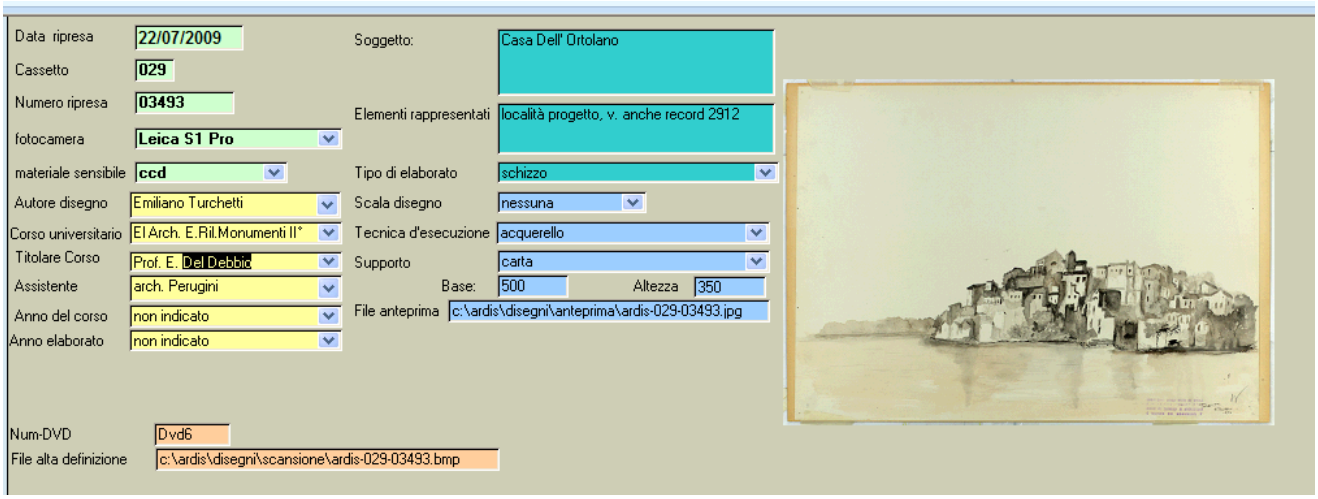

Fig. 13: Image from digital archive; drawing in watercolor for the course in *Elements of Architecture and Monumental Surveying* II°,held by Prof. E. Del Debbio. Casa dell'Ortolano. Group: Prof. Perugini, student: E. Turchetti

REFERENCES

Albisinni P. (1986). Dietro il disegno. Per una selezione critica dall'archivio dei disegni del Dipartimento di Rappresentazione e Rilievo, in *Fondamenti scientifici della rappresentazione,* Atti del Convegno Roma, 17-19 aprile 1986 (pp. 211-216).

Corvaja, L. (1986). I modi della didattica. Rilevare, cosa e perché, in *Fondamenti scientifici della rappresentazione,* Atti del Convegno Roma, 17-19 aprile 1986 (pp. 205-210).

De Carlo L. (1986). Sulla «lettura» dei disegni, in *Fondamenti scientifici della rappresentazione,* Atti del Convegno Roma, 17-19 aprile 1986 (pp. 217-222).

Docci, M. (2001a). Presentazione. In V. Franchetti Pardo (a cura di), *La facoltà di architettura dell'Università di Roma "La Sapienza" dalle origini al duemila. Discipline, docenti, studenti* (pp. 9-10). Roma: Gangemi Editore.

Docci, M. (2001b). La scuola romana e il rilevamento. In V. Franchetti Pardo (a cura di), *La facoltà di architettura dell'Università di Roma"La Sapienza" dalle origini al duemila. Discipline, docenti, studenti* (pp. 255-263). Roma: Gangemi Editore.

Gurgone, A. (1986). L'archivio dei disegni di «rilievo»: vicissitudini, valori, prospettive, in *Fondamenti scientifici della rappresentazione,* Atti del Convegno Roma, 17-19 aprile 1986 (pp. 199-204).

Migliari R. (2001). L'insegnamento del Disegno. In V. Franchetti Pardo (a cura di), *La facoltà di architettura dell'Università di Roma "La Sapienza" dalle origini al duemila. Discipline, docenti, studenti* (pp. 265-276). Roma: Gangemi Editore.

Neri, M.L. (2001). Arte, architettura, società. Il ruolo di Enrico Del Debbio nella cultura architettonica italiana. In V. Franchetti Pardo (a cura di), *La facoltà di architettura dell'Università di Roma "La Sapienza" dalle origini al duemila. Discipline, docenti, studenti* (pp. 317-372). Roma: Gangemi Editore.

Tunzi, P. (2013). Il disegno di progetto dei professionisti abruzzesi tra Ottocento e Novecento. In F. Toraldo, M. T. Ranalli, R. Dante (a cura di), *L'Architettura sulla carta. Archivi di Architettura in Abruzzo* (pp. 145-151). Villamagna: Tinari Casa Editrice.