FAM

59/ 60

Drawing and design

Scientific Committee

FAMagazine. Research and projects on architecture and the city is the on-line magazine of the Festival of Architecture on a quarterly temporality.

FAMagazine is a scientific e-journal in the areas of the architectural project (Anvur disciplinary areas: 08/C - Design and technological planning of architecture, 08/D – Architectural design, 08/E1 – Drawing, 08/E2 - Architectural restoration and history, 08/F - Urban and landscape planning and design) that publishes critical articles compliant with the indications in the Guidelines for the authors of the articles.

FAMagazine, in compliance with the Regulations for the classification of journals in non-bibliometric areas, responding to all the criteria on the classification of telematic journals, was considered scientific journal by ANVUR, the National Agency for the Evaluation of the University and Scientific Research.

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Each article is given a DOI code (Digital Object Identifier) that allows indexing in the main databases such as DOAJ (Directory of Open Access Journal) ROAD (Directory of Open Access Scholarly Resource) Web of Science by Thomson Reuters with the new ESCI index (Emerging Sources Citation Index) and URBADOC of Archinet.

For the purpose of the publication, the contributions sent to the editorial staff are evaluated with a double blind peer review procedure and the evaluations of the referees communicated anonymously to the proposer. To this end, FAMagazine has set up a special Register of reviewers who operate according to specific Guidelines for article reviewers.

The articles must be submitted according to the procedure described in the Online Proposals section.The magazine publishes its contents with open access, following the so-called gold road, ie making the articles available in both html and pdf versions.

From the foundation (September 2010) to the number 42 of October-December 2017 the FAMagazine articles are published on the website www.festivalarchitettura.it (Archivio Magazine). From January 2018 the magazine is published on the OJS platform (Open Journal System) at www.famagazine.it

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Author Guidelines

FAMagazine comes out with 4 issues a year and all the articles, with the exception of those commissioned by the Direction to renowned scholars, are subjected to a peer review procedure using the double blind system.

Two issues per year, out of the four expected, are built using call for papers that are usually announced in spring and autumn.

The call for papers provide authors with the possibility to choose between two types of essays:
    a) short essays between 12,000 and 14,000 characters (including spaces), which will be submitted directly to the double blind peer review procedure;
    b) long essays greater than 20,000 characters (including spaces) whose revision procedure is divided into two phases. The first phase involves sending an abstract of 5,000 characters (including spaces) of which the Direction will assess the relevance to the theme of the call. Subsequently, the authors of the selected abstracts will send the full paper which will be submitted to the double blind peer review procedure.

For the purposes of the assessment, the essays must be sent in Italian or English and the translation in the second language must be sent at the end of the assessment procedure.

In any case, for both types of essay, the evaluation by the experts is preceded by a minimum evaluation by the Direction and the Editorial Staff. This simply limits to verifying that the proposed work possesses the minimum requirements necessary for a publication like FAMagazine.

We also recall that, similarly to what happens in all international scientific journals, the opinion of the experts is fundamental but is of a consultative nature only and the publisher obviously assumes no formal obligation to accept the conclusions.

In addition to peer-reviewed essays, FAMagazine also accepts review proposals (scientific papers, exhibition catalogs, conference proceedings, etc., monographs, project collections, books on teaching, doctoral research, etc.). The reviews are not subject to peer review and are selected directly by the Management of the magazine that reserves the right to accept them or not and the possibility of suggesting any improvements.
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For the submission of a proposal it is necessary to strictly adhere to the FAMagazine Editorial Guidelines and submit the editorial proposal through the appropriate Template available on this page.

The procedure for submitting articles is explained on the SUBMISSIONS page

ARTICLES SUMMARY TABLE

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n.	Id Code		date	Type essay	Evaluation	Publication
1	758	865	set-21	Long	Peer (A)	Yes
2	759	854	set-21	Long	Peer (A)	Yes
3	767	876	set-21	Long	Peer (A)	Yes
4	769	882	set-21	Long	Peer (B)	No
5	773	873	set-21	Long	Peer (B)	Yes
6	774	881	set-21	Long	Peer (B)	Yes
7	780	852	set-21	Long	Peer (A)	Yes
8	781	872	set-21	Long	Peer (B)	Yes
9	783	783	set-21	Long	Peer (C)	No
10	785	867	set-21	Long	Peer (A)	Yes
11	789	866	set-21	Long	Peer (A)	Yes
12	791	880	set-21	Long	Peer (A)	Yes
13	798	877	set-21	Long	Peer (B)	Yes
14	800	800	set-21	Long	Peer (A)	Yes
15	806	879	set-21	Long	Peer (C)	No
16	807	888	set-21	Long	Peer (A)	Yes
17	843	853	set-21	Long	Peer (A)	Yes

NEXT ISSUE

61 July-September 2022.

**Oblivion and rebirth of regional and identity architecture
in the era of globalisation**
edited by Ugo Rossi

In 1961, the philosopher Paul Ricoeur wrote: «The phenomenon of universalization, if on the one hand it constitutes an advance of the human race, on the other it corresponds to a sort of subtle destruction not only of traditional cultures - which could perhaps not constitute a mistake irreparable – but also of what for the moment I will call the generating nucleus of great civilizations and great culture, that nucleus according to which we interpret life, what I will first of all call the ethical and mythical nucleus of mankind. This is where the conflict arises. We have the feeling that this one world civilization is at the same time exerting a kind of attrition or attrition to the cultural resources that created the great civilizations of the past. This threat is expressed, among other disturbing effects, by the spread before our eyes of a mediocre civilization which is the absurd equivalent of what I have just called elementary culture.

Ricoeur's writing is a pretext for Kenneth Frampton to reflect and define the concept of "Critical Regionalism", exposed for the first time in his *Modern Architecture: a Critical History* 2. Frampton speaks of Critical Regionalism as one of the possible answers to the question raised by Ricoeur and lays the foundations for a reflection on the development of a regionalist architecture. Forty years after Frampton's writing and almost sixty after Ricoeur's statements, after the process of simplification and cultural internationalization has taken on planetary proportions, today defined as "global", the questions that this issue of the magazine would like to address consist of some questions: 1. Are there today architectures that can be traced back to critical regionalism? 2. Does a regional architecture exist today? 3. What is the purpose of talking about regional architecture today? 4. What meaning does regional architecture have today? 5. How or in what has regional architecture evolved in the last forty years? 6. In which regions of the world, how and why does regional architecture acquire meaning and recognition? 7. Why, in what context and on what occasion is regional architecture still relevant? 8. Which architectures can be defined as regional today? 9. What examples can be cited today as regional architectures? 10. In terms of the design process, how does regional architecture differ from international and/or global architecture?

59/60 Drawing and project

Editorial

Chiara Vernizzi, Enrico Prandi
More on the relationship between drawing and project

Abstract
Is there still a need to reflect on a classic theme of the disciplinary research of architecture such as the relationship between design and project? We think so, for a few reasons. It is no coincidence that many architects – defined Masters for their suggestion of a way forward in the project – have directly or indirectly expressed an opinion on this crucial theme of architectural research, reaffirming its importance as an irreplaceable tool. But the ultimate reason is the change in the boundary conditions given by the evolution (or involution) of the expressive instrumentation available to the practice of the project. Faced with the danger that CAD will turn from a tool to help drawing into a design tool, it is not superfluous to reiterate on the one hand the fundamentals of the design discipline and on the other the importance of hand drawing.

Keywords
Drawing — Project — Representation — Architectural Composition

It is no coincidence that many architects – defined Masters for their suggestion of a way forward in the project – have directly or indirectly expressed an opinion on this crucial theme of architectural research, reaffirming its importance as an irreplaceable tool.

In addition to the specific research of the discipline, entire schools have been built in the world that have made drawing a characteristic feature of the methodological approach such as the Auckland Drawing School; research centres and a multitude of archives have been built (starting from the MAXXI in Rome, the CSAC in Parma or the AAM in Rome) that aim to collect, enhance and show the project through drawing.

Is there still a need to reflect on a classic theme of architecture such as the relationship between design and project?

Yes, if we consider the change in boundary conditions caused by the evolution (or involution) of the expressive instrumentation available to the design practice. Faced with the danger that technological tools to help drawing (the so-called CAD) will be transformed from "tools to help drawing" to "design tools" it is not superfluous to reiterate on the one hand the fundamentals of the design discipline and on the other the importance of a conscious use of this tool and the consequent recovery of hand drawing. By awareness we mean an attitude of subordination of the it tool with respect to a project idea. The mind that naturally guides the hand containing the pencil should also be the protagonist in guiding the technological medium constituted by the mouse or digital pen. In the background of this hope there is always the fundamental call to understand architecture as an expression of a complex thought (of a system of values, including symbolic) and its representation a sign (de-sign) never reducible to a simple image. In or-

Fig. 1
Guido Canella, *Auguri per il 1958 da Michele Achilli, Daniele Brigidini, Guido Canella.*
Guido Canella Archive Milan.

On the following pages: images taken from the articles of the selected authors.

der for the many images that carry simplistic and codified design solutions (as captivating as they are empty of meaning) that nowadays anticipate the project for promotional purposes to become authentic representations of the project, it is necessary that the image becomes a "figure", that is, introducing a metaphorical third dimension of depth that encloses the many aspects of architecture.

The aim of the call for papers underlying this issue of FAM is to solicit critical reflections on the relationship between design and design, understood as a tool for the elaboration, development and expression of the design idea, first, and as a means of final communication of the technical and formal data of the project, then.
The dual purpose (towards the authors of the texts and the final readers) is to stimulate a reflection on the meaning of the design of the architectural project, on its intrinsic value of figurative expression, on its being an instrument of study, prefiguration, evaluation and communication of the design results, but also (and above all) on its meaning as an instrument of reflection and expression of poetics, Not only architectural, of those who use it to express themselves.
Referring to the debate started in 1980 by the Centro Studi e Archivio della Comunicazione - CSAC in the working meetings on *Il disegno dell'architettura*[1] (Bianchino 1980), – recalled in the number of the article by Lucia Miodini –, and continued over the years at national level thanks to numerous studies and thematic exhibitions, including, for example, the one on *Architectural drawings. Five Italian stories. Carlo Aymonino, Guido Canella, Gabetti & Isola, Paolo Portoghesi and Aldo Rossi*[2] –, intends to start a reflection on the close relationship between drawing and design with particular reference to some themes such as the always current and essential role of manual drawing, and in particular of the "sketch", in the early creative phases of the project and the role played in the last thirty years by digital tools for the representation and management of the project. Today, in fact, we cannot speak of project design without reflecting on the revolution that since the end of the last century has invested architecture and its formation: the advent of digital design in all its forms. In this sense, if a type of drawing (the initial one, the sketch) continues to be practiced

as an essential tool for communicating the idea in its initial stages (and its teaching becomes an element of cultural resistance), the representation of the project has been completely invested by the digital revolution. Not to mention, finally, the tools used for the communication of the project that uses the same images represented.

The current challenge is undoubtedly that of a conscious use of digital drawing as a personal tool and characterizing the subjective poetics of each author. Some contemporary architecture firms have shown how it is possible to bend computer science (and, specifically, digital design) in the characterization of the project, exploiting its peculiarities not only for the management of the design process (from conception to executive design), but also to control new, unconventional forms, whose visualization and subsequent development would be impossible with traditional tools.

The goal today is to be able to integrate the two approaches, traditional and digital (and related interoperability aspects now essential) in the full conviction that the sketch, an intimate act of approach to the project idea, remains an irreplaceable moment of reflection and intrinsic dialogue and that, only later, the use of the vast panorama of digital tools and processes can develop and best express the potential of the project, declined according to the most personal graphic-expressive poetics.

In this regard, within the Italian architectural culture of the second post-war period (the context in which the magazine traditionally moves) some figures of Italian architects (from Aymonino to Rossi, Canella, Portoghesi, Gabetti & Isola, Purini, etc.) have in fact used drawing not only as a tool of mere technical representation, but as a personal expression of the language of the project, pushing it further, to the point of attributing to it an essential role in the construction of the theory as well as of the poetic specification, as emerges in the study by Carlo Mezzetti (2003).

Originally, in order to make the contributions more intelligible, it was planned to organize the articles into two sections: the first, drawing as a tool for project ideation; the second, drawing as a communication/prefiguration tool for the project.

The first section should have investigated the role, the ways and the expressive poetics related to the sketch as a moment of personal approach to the architectural project; its role in the formation and refinement of the project idea; to the tools and ways used in the definition of a real personal expressive poetics, which becomes a peculiar stylistic code but above all that defines a modus operandi, a method of approach and development of the primitive idea.

The second section should have focused on the ways and tools (digital or not) through which the project is refined (even in the formal aspects) expressed and communicated in its most advanced stages of definition, in search of lines of expressive poetics that in the most canonical application of the codes of representation strongly define the individual design personalities, with particular reference to three-dimensional prefiguration views of the final outcomes and their relationship with the context. This section also highlights the role of digital design and modeling tools in the definition and management of new design forms.

Except that, in this lies the responsibility of those who scientifically take care of a collection of disciplinary contributions, the contents of the articles arrived in the editorial office (it is always remembered of high quality to underline a liveliness in this case of the younger generations of scholars in training to whom the call was reserved) and subsequently selected did not

allow such a clear division. Among the selected emerged a predominance of articles in which starting from a specific figure of architect – Mario Ridolfi (Andrea Alberto Dutto), Alessandro Anselmi (Alessandro Brunelli), Lina Bo Bardi (Caterina Lisini), Jo Noero (Samanta Bartocci), Livio Vacchini (Tiziano De Venuto), Peter Märkli (Vincenzo Moschetti), Francesco Cellini (Laura Puja), Louis I. Kahn (Michele Valentino) – an analytical journey was made in the peculiarity of the use of drawing in the practice of Project: not only and not always sketch properly understood but also other representations almost always witnesses of a specific method and poetic. However, there are sub-themes that from time to time have been deepened beyond the specific poetics.

The remaining grouping of articles ranges over cross-cutting themes effectively explained by drawing on broader repertoires. This is the case of the articles *Existenzminimum forms between drawing and design* (Giovanna Ramaccini), *The drawing of the territory's form* (Luigi Savio Margagliotta), *ETFAS towns: rural architecture in Sardinia* (Lino Cabras), *The poetic of Francesco Fichera* (Graziana D'Agostino), *The Auckland Drawing School. On the margins of architectural representation* (Marco Moro), *From "soft media" to concept: legacy of Le Corbusier and his collaborators in the projects and teachings of Jerzy Sołtan* (Szymon Ruszczewski).

As a result, some peculiarities of treatment of the most articulated themes have emerged that it is useful to follow in the critical presentation of the contents.

Drawing between language and figurative expression

The case of Mario Ridolfi and in particular the experience of the Architect's Manual and the Marmore Cycle, is led to testify that drawing plays a decisive role in the mediation between technical knowledge and aesthetic quality of architecture as the author Andrea Alberto Dutto reminds us on the basis of the careful critical considerations of Cellini and D'Amato. Some exponents of the Roman School of the late twentieth century, which we remember gave considerable importance to architectural design, not only as a means of communication of the project but as an aesthetic fact, are the subject of two articles in the issue. So it is for Alessandro Anselmi, former member of GRAU, then author of an autonomous design path and so it is for Francesco Cellini, slightly younger than the members of GRAU. In his article Alessandro Brunelli, among the countless qualities of Anselmi's drawing, underlines that of being "thought and language": even before being an instrument of verification it is an irreplaceable tool (much less by the computer) of progressive definition of the architectural idea in its path. While Laura Pujia, analyzes Cellini's drawing bringing as an example the graphic narration of the project for the Rowing Center at Lake Corbara, 1993-1996. Cellini introjects the lesson of Ridolfi (and that of Carlo Aymonino) personalizing it but perhaps granting less than other authors to the drift of drawn architecture.
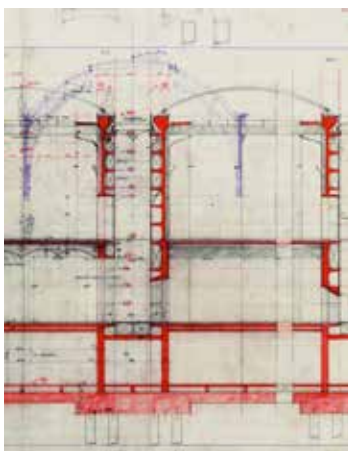
The drawing that reflects the context

A similar experience, although in a completely different context, is the one conducted by Jo Noero in South Africa, in which the drawing is closely linked to the context also reflects the complexities and historical, social and cultural contradictions. Samanta Bartocci shows us how an evolution of the initial historical-social conditions (apartheid South Africa) is followed

by a specific reflection also underlined by the representation. But perhaps the most interesting aspect is Jo Noero's re-return to drawing projects. "The practice of retrospective redesign is a theoretical commitment around one's own thinking on architecture in search of codes, principles of form and structure".

Caterina Lisini's interesting analysis of the Italian-Brazilian architect Lina Bo Bardi whose drawings are "violently emotional" is different. Once again the design, also of the project, is charged with the architect's experience on the culture of the place as well as on the specific design theme. "Lina Bo Bardi draws what she is thinking and planning, indeed she thinks by drawing and at the same time she thinks looking at the world". So that in front of the warm drawings of Lina Bo Bardi we can anagram that "it is not possible to look / design / draw without involving the heart and mind".

Drawing as code

Tiziano De Venuto insists on the link between drawing and thought, calling into question the experience of Livio Vacchini which is in a certain sense antithetical to that of Bo Bardi. If in the latter the drawing is almost an expression of the emotions of the life of a place (Bahia or Brazil in general) to such an extent that it can be defined as autobiographical as Visini suggests, in Vacchini modesty curbs the expressiveness of the drawing forcing it to bring it to the level of the indifference of the sign so much so that it consigns it to the executivity of the machine (computer). In doing so, however, Vacchini focuses on drawing as an expression of thought and consequently on architectural drawing as an expression of the logical structure of composition.

We have now left the logic of drawing as a mere instrument of formalization in architecture. I reflect on what I draw in the case of the sketch, but I can also reflect on how I draw to ensure that what I draw takes on a methodological code character. This means anticipating the reflection from the sheet to the mind, greatly increasing the expressive possibilities of the drawing.

The latest examples show how reflecting on the meaning of drawing and how to make it part of the architectural composition and poetics pushes it into a field in which it itself becomes part of the compositional structure; in outlining and understanding it.

If on the one hand drawing helps the understanding of architecture, that is, it allows to decompose to understand, on the other hand it helps composition, that is, it allows to understand to compose.

To this last category belongs the experience of the Ticino architect Peter Märkli on which Vincenzo Moschetti works and performs a compelling analysis between design and project in the form of language. Through a progressive numbering of the drawings, Peter Märkli establishes the link between prefiguration and reality: "the territory of representation becomes (...) the field on which to flow and prefigure the physicality of architecture and its doing".

Drawing to communicate at different scales

In 1965 Roberto Gabetti wrote an essay entitled *Drawing to communicate* (Gabetti 1965) in which, starting from a historical premise, he analyzed the different types of design commonly used by architects in architectural design.
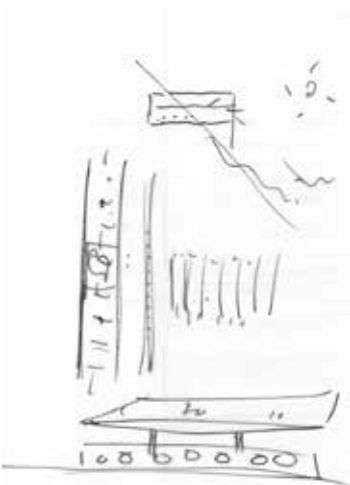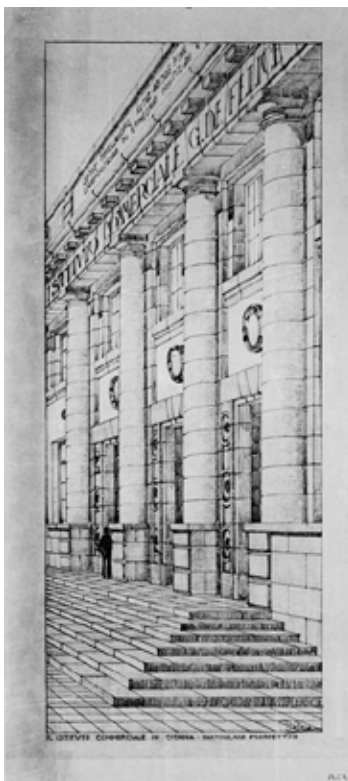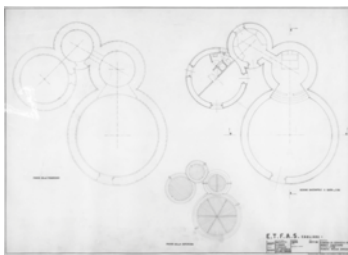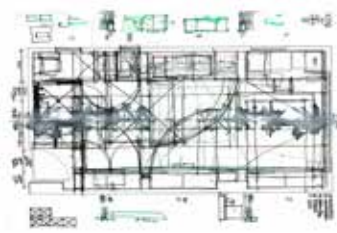
If we consider the scalar extension of the design, what is commonly indicated with the motto "from the spoon to the city" it is easy to understand how even the representation and therefore the drawing need to adapt in order to communicate its contents. We then move from the language of executive design in which relationships are often reversed by also making enlargements to that of territorial design with the difficulty of managing (including design) the large scale. If in the first case the objective is to enter into the matter of construction, in the second it is a matter of making a look as comprehensive as synthetic of the territory.

Giovanna Ramaccini addressing the theme of existenzminimum focuses in particular on the value of drawing in plan as "not abstract scheme but as a tool for the slow and progressive definition of the minimum forms maximally adequate to life". The design of the housing plans made comparable, as already shown by Klein, becomes a tool not only for a definition of the correct functional design in conditions of minimum surface, but also for the study of the flexibility of use that the recent experience of Covid19 has helped to make evident. Interesting in this regard are Chang's studies on the flexibility of his 32 sqm accommodation over thirty years of life.

On the contrary, Luigi Savio Margagliotta considers the geographical scale to derive not only the type of design necessary for the representation of reality but that type of design that from the "representation" flows into the "vision" of the territory. Since the sixties in Italy the reflections around dilated spatiality produce new forms of representation (between concept and image) that tend to design through the simultaneous highlighting of the form and structure of the territory (*Form and structure of the territory* is the famous series that Giancarlo de Carlo founded for the publishing house *Il Saggiatore* which not by chance publishes many important international studies on the subject). It is in this period, in fact, that the term drawing goes beyond the sense of an instrument to become synonymous with composition as the term "urban design" demonstrates. In this there is also a certain difficulty in transmitting outside the Italian geographical boundaries a deeper and more meaningful meaning of urban design than the generic "urban design" with which it generally translates into the international arena.

Drawing as knowledge and historical-critical investigation
Participating in the conference on *Il disegno dell'Architettura: incontri di lavoro* held in Parma in 1980, Manfredo Tafuri argued that the purpose of an archive should be the collection of documents (drawings) for the formation and transmission of the architectural project. "This is what fundamentally characterizes architectural drawing" (Bianchino 1980; 41). Although with different arguments, the two contributions of Lino Cabras and Graziana D'Agostino are part of this trend, that is, the pedagogical-educational role of drawing in the dissemination of historical-critical knowledge. The first article examines the experience of ETFAS in Sardinia engaged in the construction of settlements for agricultural use after World War II. The availability of archival drawings makes it possible to re-evaluate two particularly significant projects of the Italian twentieth century (by Figini and Pollini and Zanuso and Crescini) enhancing them by opening them to new research perspectives compared to other similar experiences such as those conducted by ECA, UNRRA-CASAS and Olivettiana. The second article concerning the design activity of Francesco Fichera in Catania goes further by identifying in new technologies (including augmented reality) the tool

for knowledge and dissemination of thought and work: although based on a small sample – the project drawings of the "De Felice" institute in Catania – it is not difficult to imagine an extension to other projects.

Drawing: from profession to school
The article by Szymon Mateusz Ruszczewski considers the importance of sketching tools (which he defines soft-media) in project design and teaching. Through the experience of the Polish architect Jerzy Sołtan, former collaborator of Le Corbusier's Parisian studio, the sketch becomes the "possibility of exploring what is yet to be discovered". The methodology that Corbu adopted in his studio, in turn acquired and transmitted by Sołtan himself, was based on the interpretation of the sketch by his own collaborators. What is defined as "pictorial thought" is nothing more than the invitation not only to decipher the signs but to dig into the subconscious to give shape to the idea. Sołtan also transferred Lecorbusieri's imprinting to his teaching at the Harvard Graduate School of Design in which he urged his students (including a young Michael Graves) to "buy clay, charcoal and butcher paper to explore ideas and focus on the essence in the search for true architecture". It is the article that builds a bridge between profession and school, between methods commonly used in the study of architecture and methods of teaching the project.
No other school of architecture, however, has ever experimented so much in the field of drawing as that of Auckland which has earned the nickname of Drawing School. Starting from the centenary celebrations that took place in 2017, Marco Moro analyzes some aspects referring to the criticisms of the same scholars (among many Mark Wigley, Craig Moller and Mike Austin), who in the deconstructivist period were the link between the American theoretical reflection, primarily by Peter Eisenmann, and the New Zealand one. The drawing declares itself in its form of analytical design in support of a reaffirmation of theoretical thought as the basis of the project.
Finally, an article by Michele Valentino on the role of drawing in Louis Kahn that he himself declared in a short essay of the '30s (Kahn 1935): a theme certainly not new but always interesting, especially for the pervasive role that drawing has in the works and projects of the great Estonian-American architect. Among the many aspects, the author takes into consideration that kind of drawing in which form becomes thought. In the case of Kahn, in fact, in addition to the drawings made in his travels, the design perspectives and so on, it is particularly interesting to question the idea through the drawing, rationalizing it problematically. This is the meaning of the multitude of diagrams in which Kahn translates the different design choices to bring out the best choices by exclusion. In this sense, the study of his diagrams combined with the projects appears particularly pedagogical from the point of view of the teaching of the project.
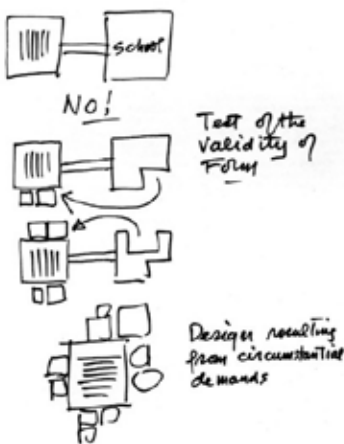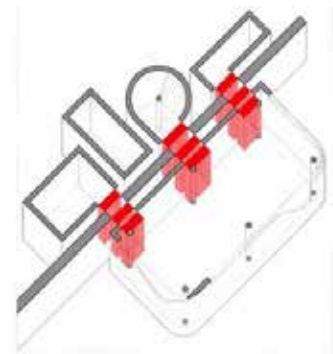
Finally, the issue is completed by some articles – by Lamberto Amistadi, Raffaella Neri, Livio Sacchi and Chiara Vernizzi – and by an unpublished lesson by Guido Canella on the theme of drawing, *Drawing, in an interlocking game*, held in 1997 at the course of Theories and techniques of architectural design of the Faculty of Civil Architecture of Milan Bovisa. Taking as a pretext the various types of drawing (impression drawing, line and square drawing, atmospheric design, futuristic drawing, drawing without erasures or sketches), in a narrow intercalation between text and image, as befits a university lesson, Canella leads the reader on a journey into

architecture, into the theory of (architectural) design that goes back, As Baudelairian indicates at the beginning of the lesson, "From impressions to principles". And it is no coincidence that Canella calls into question the "true founder of modern criticism" who as an architect, professor of architectural composition, director of «Hinterland» first and then «Zodiac», received in 1995 at the VI Bienal Internacional de Arquitectura de Buenos Aires the CICA award (Comité lnternational des Critiques d'Architecture)[3], the body founded within the UIA (*International Union of Architects*) in 1978 by Pierre Vago (president of UIA), Max Blumenthal (director of «Techniques & Architecture», Paris), Louise Noelle Gras de Mereles (co-director of «Arquitectura», Mexico), Mildred F. Schmertz (associate director of «Architectural Record», New York), Blake Hughes (USA), Jorge Glusberg (director of the CAYC in Buenos Aires) and Bruno Zevi (then director of «L'Architettura Cronache e Storia») who was its first president. The architect draws, draws often, always draws, and drawing makes a personal interpretation of what he sees or what he thinks: a critical operation on reality.

In the face of the speed that dominates contemporary processes, including design processes, drawing can be an extraordinary tool for recovering the (slow) times of the project even if it is of reflection (also theoretical), analysis, study and knowledge of architecture.

Notes

[1] Introduction by Giulio Carlo Argan, reports by Manfredo Tafuri, Gillo Dorfles, Vittorio Gregotti, Corrado Maltese, Giovanni Klaus Koenig, Arturo Carlo Quintavalle and interventions by Bruno Zevi, Alessandro Mendini, Giancarlo Iliprandi, Gino Pollini, Costantino Dardi, Pierpaolo Saporito, Wim de Wit.

[2] The exhibition, curated by Tito Canella, Massimo Martignoni, Luca Molinari, was promoted by the Portaluppi Foundation in Milan where it was set up from 29 September to 22 December 2005. In 2006 it was rearranged in Bari at the Norman Swabian Castle from 7 March to 12 April 2006.

[3] Among the most important members of the CICA are Julius Posener (Berlin), Dennis Sharp (editor of the «Journal of the Architectural Association», London), Moniek Bucquoye (editor of «Neuf», Brussels), Mario Gandelsonas (editor of «Oppositions», New York), Elémer Nagy (co-director of «Magyar Epitomuvészet», Budapest), Toshio Nakamura (editor of «A+U», Tokyo), Marina Waisman (director of «Summa», Buenos Aires), Lance Wright (editor of «The Architectural Review» London). The 1987 CICA yearbook, published by the CAYC of Buenos Aires, lists 70 members, including Giulio Carlo Argan, Rudolph Arnheim, André Chastel, James Marston Fitch, Ada Louise Huxtable, Lewis Mumford, Joseph Rykwert, who will be joined by others, such as Peter Davey (new editor of the London «The Architectural Review») and Kenneth Frampton.

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Guido Canella
On drawing, in an interlocking game*

Abstract
In 1997 Guido Canella, professor of Theories and techniques of architectural design at the Faculty of Civil Architecture of Milan Bovisa, held a lecture on drawing in Architecture. The Wednesday lessons had become the central moment of the newborn School that Canella had helped to found: an event that attracted the interest of students and the curiosity of teachers from other disciplines in the confirmation that the project is the central moment of training in Architecture.
Taking as a pretext the various types of drawing, in a narrow interspersed between text and image, as befits a university lesson, Canella leads the reader on a journey through architecture that dates back Baudelairian "from impressions to principles". It is no coincidence that Canella calls into question the "true founder of modern criticism" who as an architect, teacher, director of important magazines, received in 1995 the CICA prize (Comité International des Critiques d'Architecture) at the VI Bienal Internacional de Arquitectura de Buenos Aires.

Keywords
Drawing — Criticism and Design — Architectural composition

Today I will consider drawing in an interlocking game.
Last time I mentioned how ours is an oblique, diagonal, non-deductive reading, which tries to give an account of the impression we get from the works and images. I seem to have mentioned, again last time, Baudelaire, the French intellectual, poet, writer, art critic who is considered the true founder of modern criticism.
Baudelaire argued that criticism must be partial, passionate, political, in the sense of being exclusive but at the same time opening up to all possible horizons of knowledge. Baudelaire, always with regard to criticism, said that it must go back from impressions to principles. These principles are a bit like the theories we try to talk about, following Baudelaire's procedure. Today we are dealing with the theme of drawing and you know that drawing in architecture is something different from drawing, from the sign in painting. The drawing for painting is structural, and I would say inherent in the birth and development of the work. There is the design of the music that is made on the musical scores and has its own trace, its own logic, its own coherence that translates into something else. Drawing is also present in the alphabets, in the signs of the language, with which the language is transmitted.
Drawing in architecture is something that can be similar to that of painting, sometimes precisely to that of music or language, in the sense that drawing in architecture is sometimes inside the construction of the work, while drawing is outside, contemplates it from the outside.
The drawing we are going to talk about today concerns the different genres of drawing that have to do with architecture, some of these, because they are many: there is the impression drawing, there is also a team design that

Fig. 1s
Piazza del Popolo a Roma, 1625.
[Quaroni 1969, p.279].

Fig. 1d
Johann Wolfgang Goethe (1749-1832), *Roma da Porta del Popolo*, 1780 circa.
[Femmel 1977, ill.1].

tends to the executivity of the work, there is an atmospheric design, which in some way wants to make up for reality and therefore describe together with the work, also the target context. There is a futuristic design, that drawing that portrays a perspective of a time to come. Then there is the drawing without erasures, that is an intuitive design that in my opinion is the most innate to architecture, it is the famous architectural sketch, which already contains in germ the genetic assumptions of the work of architecture.

Here, we will talk a little about these genres and improvise some impressions from the images and comparisons that we will tend to establish.

Here you can see an engraving of 1625 of Piazza del Popolo in Rome (Fig. 1s) with a sketch by Johann Wolfgang Goethe, made during the trip that this extraordinary character made to Italy in about 1780 (Fig. 1d).

If you notice, you see how in the engraving, Piazza del Popolo is surrounded by a building connective that does not appear in Goethe's drawing. The two points of view are different, but in both cases you can recognize the central obelisk (Goethe's vision was at a high altitude, so much so that you see the dome of St. Peter's), the Door is always that of Bernini and Vignola, yet in Goethe's sketch intervenes a sort of rarefaction for which the countryside predominates over the built.

We can attribute this vision of Goethe to what he personifies in the history of modern culture, that is, where Classicism, Neoclassicism tends to open up to Romanticism and therefore the naturalness of Goethe's vision involves a sort of archaeological enhancement of the architectures that are chosen to fit into this naturalness. It is what with a current term could be called an "early ruinism", "ruinism of ruin", that is, the fact of considering architecture in a sense, in an archaeological dimension. Think that the architectures that Goethe reproduces within his sketch are not so far from being considered archaeological finds. They are architectures that date back to 150 years before, yet he treats them in this way, the impression is this, the vision is panic, that is, overall, in which the architecture is reduced in turn by painting.

This is the architecture designed by Andrea Palladio, built in Vicenza by his pupil Vincenzo Scamozzi, in 1602 (Fig. 2s).

It is the portion of a palace, which there is nicknamed "Ca' del Diavolo", that Goethe still sketches and you can see it in this other image (Fig. 2d). Think that even in this case Goethe considers Palladio's architecture as something extraordinary, as the synthesis of a process that is that of the Renaissance. But we deduce from Goethe's sketch that he dwells on an

Fig. 2s
Andrea Palladio (1508-1580), *Ca' del Diavolo* (Palazzo da Porto Braganza), Vicenza realizzata da Vincenzo Scamozzi, 1602. [AA.VV., ill.129, p.111].

Fig. 2d
Johann Wolfgang Goethe (1749-1832), *Ca' del Diavolo*, schizzo. [Femmel 1977, ill.49].

aspect that particularly interests him, namely the combination of classical orders and the building's civil building purpose. In other words, Goethe extracts from Palladio's architecture, in this case but also in other cases, this domestic coefficient that is inserted within a courtly structure, within a monumental structure. This also underlines Goethe's vision of the transition from a classicist conception to a romantic condition. Another dimension intervenes which is the subjective dimension, the personal dimension, the dimension of a narrower and more subjective scope with respect to the scope, to the presumption of objectivity that Classicism brought with it.

Still talking about the impression drawing, I show a fairly famous painting. This framework has had several attributions. It was initially attributed to Giorgione and later to Titian. The subject is that of a country concert (Fig. 3s).
Here we are interested in considering the reason for these different attributions.
This painting is generally dated around 1510 which if I am not mistaken is the date of Giorgione's death. Titian is younger than Giorgione, both belong to the Venetian School that has its fundamental character in colorism, but the controversy arises on the fact of the predominance of color backgrounds over drawing.
In fact, Roberto Longhi, who is a critic I also spoke about last time, who is the antipole compared to Lionello Venturi, who is another critic to whom we will now refer, argues that the drawing that structures the painting is sufficiently strong to be attributed to Titian's youthful phase.
For Venturi, on the other hand, the predominance of the color backgrounds that dominate the structure of the drawing, is instead to be attributed to Giorgione.
This picture interests us in another respect.
An Italian critic, Giovanni Battista Cavalcaselle, on the mid-800, backpacking travels far and wide Europe and on a notebook, the so-called, "Parisian notebook", analyzes the different paintings, the different works of art, Italian and foreign, but above all Italian who are abroad redesigning them, reinterpreting them.
The drawing you see is precisely a redrawing of the Cavalcaselle of this Giorgionesque or Tizianesque country concert (Fig.3d).

Fig. 3s
Giorgione (1477-1510) o Tiziano (1490-1576), *Concerto campestre*, 1510.
[Venturi 1957, p.102].

Fig. 3d
Giovanni Battista Cavalcaselle (1819-1897), *Analisi e ridisegno del Concerto campestre*. Da Taccuino di viaggio parigino, 1852.
[Moretti 1973, ill.87].

Fig. 4s
Paul Cézanne (1839-1906), *Les grandes baigneuses*, 1906.
[Cachin 1995, ill.219, p.500].
[Argan 1990, p.187].

Fig. 4d
Pablo Picasso (1881-1973), *Les demoiselles d'Avignon*, 1907.
[Argan 1990, p.328].

You see it is important because, I repeat, we are in the middle of the 800 and only in 1906 a great artist, a great painter, Paul Cézanne, paints this picture, Les grandes baigneuses (Fig. 4s) that somehow can remind us of the country concert we talked about.

If you notice, Cavalboxe's notes on the country concert are not so far from the approximation with respect to reality, to the truth with which Cézanne paints. Instead, Cézanne, you know well, is considered a great founder of modern art, of the figurative arts.

What runs between these two works, between these two reproductions of impressions received, half a century apart?

It is the different awareness of this interpretation and distortion of the picture. In Cézanne, there is now the full awareness of a revolution that modern art must accomplish that generally concerns the painting of the past, but even the impressionist painting in which Cézanne was trained.

Another Italian art critic, Enrico Thovez, a critic who was somewhat of an interpreter of Art Nouveau in Italy, argued that Cézanne was a failed painter. He said that he himself admits that he can paint better than he can. In fact, Cézanne, in some notes with which he accompanied his entire career as a painter, claimed that he could not paint more really than he did. His effort was, in fact, precisely to represent reality.

In this half century that goes from the mid-'800 to the early years of the

Fig. 5s
Paul Cézanne (1839-1906), *Madame Cézanne aux cheveux dénoués*, 1890-92.
[Cachin 1995, ill.138, p.347].

Fig. 5d
Roberto Longhi (1890-1970), *da Cezanne. Da Taccuino: Piero della Francesca, Antonello da Messina*.
[Testori 1980, ill.27].

Fig. 6d
Pablo Picasso (1881-1973), *Femme aux Poires*, 1908.
[Gomez de la Serna 1945, tav. X].

'900 (this is one of the last paintings painted by Cézanne), runs the awareness of modern art, modernity, runs the awareness of deformation, runs the awareness that reality is not necessarily the reproduction of the visible, but is instead what affects our ability to perceive. This sense of reality that is the basis of all modern art is represented in the works but also in the autobiography, that is to say in the notations with which Cézanne accompanies his painting.

This picture is a fairly well-known picture that you no doubt know. It is Les demoiselles d'Avignon by Picasso (Fig. 4d). Just think, it is a painting that is painted by Picasso a year after Cézanne's painting. Cézanne died in 1906, and this painting by Picasso is painted in 1907. See how quickly the trigger that starts from Cézanne's painting evolves.

Here we see another painting by Cézanne, painted around 1890, is Madame Cézanne aux chaveux dessones (painted with loose hair) (Fig. 5s).

Roberto Longhi, that critic I was talking about, follows the path of Cavalcaselle and he too has a notebook on which he memorizes the paintings that interest him most. Then draw. Then impression drawing and through this drawing transfigure.

In Longhi's transcription of Cézanne's work, we could also derive the critical judgment he gives of Cézanne's painting. Under this sketch, under this redrawing (Fig. 5d), there are notes by Longhi that recall a phrase by Cézanne where he says: "Treat nature through the cone, the cylinder, the sphere. Put everything in perspective so that each side, each plane converges at a central point." This notation of Cézanne is made its own and incorporated into the considerations that Longhi makes and becomes the critical motif on which Longhi sets the rereading of Cézanne.

I told you that Madame Cézanne is from 1890, while this painting by Picasso that we see is Femme aux Poires (The Woman with Pears) from 1908 (Fig. 6d). You see that acceleration that I was talking about with what intensity it takes place in a decisive decade, which is the one immediately preceding and immediately following the First World War. These are fundamental years for the history of art in general and that in fact identify the birth of modern art.

A last work by Cézanne. It's a landscape. The title is La Carrière de Bibémus (The road of Bibémus) (Fig. 7s), also from the 90s of the nineteenth century.

Fig. 7s
Paul Cézanne (1839-1906), *La Carrière de Bibémus*, 1895. [Cachin 1995, ill.138, p.365].

Fig. 7d
Pablo Picasso (1881-1973), *La bouteille de marasquin*, 1914. [Gomez de la Serna, 1945, tav. XIV].

When I quoted you just now the phrase noted by Longhi in his notebook, Cézanne's phrase, precisely, "to treat nature according to the cylinder, the cone, the sphere, so that each side and each plane converges at a central point".

The painting we see now by Picasso (you will no doubt have recognized him) is from 1914, and is entitled La bouteille de marasquin (The bottle of maraschino) (Fig. 7d). You can see with what acceleration and with what capacity of intuition triggering Cézanne grasps the principles of modern art.

Here, finally let's talk about architecture. Impression drawing. You will have recognized the image of the Acropolis of Athens (Fig. 8s). You see in the central part (the Parthenon remains on the right) the Propylaea and, just next to it, the temple of Athena Nike.

What you see is a sketch by Le Corbusier (Fig. 8d). Corbusier around the age of 25, in 1911, made a journey and this trip gave rise to a book, Voyage d'Orient. Corbusier is impressed by the architecture that he sees in this journey to the East in the different countries of the Mediterranean. I would say that the Mediterranean is precisely the area in which Corbusier's poetics were born and developed. We will see this by comparison. But already now we can grasp with what look, with which eyes Corbusier looks at the architecture of the Mediterranean, the great architecture of Mediterranean antiquity.

In my opinion, Corbusier's regard enhances the presence of synthesis with which the architecture of the past imposes itself on the landscape. This synthesis is the constant of all the poetic development of Corbusier, which passes as for all artists different phases, but which remains the central core from which his poetics develops. So his vision is a vision that enhances the relationship between context, between surrounding surroundings and monument.

Vision of the Propylaea (Fig. 9s) and another sketch by Corbusier (Fig. 9d).

I would say that it should be noted already in this sketch, the decision with which Corbusier treats for example the columns, the decisive, peremptory way with which he even mentions the scaling, the shadow that highlights the individual elements of the composition. Yet the compositional phrase: column, beam, entablature and the different elements that make up the architecture, such as the capital, base, etc., these elements enter into a con-
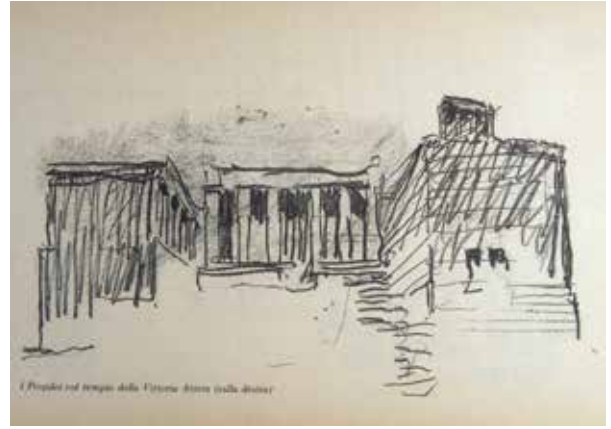
Fig. 8s
L'Acropoli di Atene vista da ovest, V sec. a.C.
[AA.VV. 1967, ill. 39].

Fig. 8d
Le Corbusier (1887-1965), *I Propilei col tempio della Vittoria Attera* (sulla destra), 1911.
[Le Corbusier 1965, p.179].

Fig. 9s
I Propilei, V sec. a.C.
[AA.VV. 1967, ill. 40].

Fig. 9d
Le Corbusier (1887-1965), *I Propilei: sul fondo il Peloponneso*, 1911.
[Le Corbusier 1965, p.180].

certation, which is precisely a synthetic concertation of Corbusier, as a value of synthesis. This is the important aspect that, to the young Corbusier who was born in 1887 and therefore, in 1911 he was around 25 years old, gives a point of view that through these impression drawings we will be able to confirm and see in the development of his future career.

Here, see this famous painting by Picasso that must be from 1922, Deux femmes courant sur la plage (La course), (Fig. 10s).
See also a sketch by Corbusier that is from 10 years later, from 1933, Deux femmes nues assises sur des rochers en bord de mer (Fig. 10d).
What I show you is the parenthesis of the speech I am making, to say that there is this progressive evolution in the career of an artist.
Picasso moves from the era of Cubism to the period that is called neoclassical, like other great artists. You know that Stravinsky also has a period called neoclassical. Much of the Italian painting of the '900, for example Carrà, in the immediate post-war period, follow this sort of watchword which is precisely the return to order. So from the explosion of Cubism, Futurism, etc., we return to a greater concentration and therefore to a deformation of a different order that involves, for example, the reintegration of the represented body, be it the human body, a still life, or a landscape.
You also see Corbusier who has a sort of poetic development quite parallel to that of Picasso, so much so true, and we will talk about it in a while, that an Italian critic, Edoardo Persico will establish a sort of equation, saying that Corbusier is to Cubist painting, as Gropius is to painting, to neoplastic poetics. Thus, it is the conclusion that Persico proposes, the new Italian architecture should look at metaphysical architecture. This is a parenthesis that I make to see how even in continuity and fidelity to one's own of understanding, feeling and depicting there are different periods in the development of an artist.

Fig. 10s
Pablo Picasso (1881-1973), *Deux femmes courant sur la plage (La course)*, 1922 ca.
[Gomez de la Serna, 1945, tav. XXIV].

Fig. 10d
Le Corbusier (1887-1965), *Deux femmes nues assises sur des rochers en bord de mer*, 1933.
[AA.VV. 1963, tav.XXXVIII, n.87].

We are faced with the Temple of Apollo in Corinth (Fig. 11s) which is prior to the Parthenon which is from the fifth century and at the same time we see an impression drawing by another great architect, Louis Kahn (Fig. 11d).

Unlike Corbusier who made his journey to the East in 1911, Kahn made it forty years later, in 1951, at the beautiful age of fifty. You know that Kahn is an architect who has matured, he has come to fame late.

At this point we are interested in defining the differences that exist between these two architects. They are both architects, uprooted artists, so to speak. You know that Corbusier was born in Switzerland, which he left to go to France. You know that he becomes a citizen of the world in the sense that he continues to travel from Latin America to North Africa, to India where he will have important assignments. Louis Kahn is Estonian by birth, but he also moved to the United States with his family in his early childhood. There takes place the incubation of his poetics that explodes precisely in Italy.

In fact, in these early 50s, in 1951, Kahn found himself with a sort of scholarship at the American Academy in Rome and from there he made a series of excursions in the Mediterranean basin, to chase the monuments of antiquity.

What is the difference between portraying Corbusier and portraying Kahn? I would say that in the case of Kahn we are completely outside what is Corbusier's Mediterranean climate. That bluish, that greenish, that orange, etc., which becomes stringy, as if they were fabrics, as if it lost the stone with which these architectural elements are built, lost its peremptory, its solidity, its integrity. It is like an electric shock that in portraying Kahn's pastel tends to consider the individual architectural elements for what they are, as if in Kahn's sensibility we always started from a geometric, abstract figuration, that is, distracted from the context, from the landscape in which it is located and in this abstract, mental figuration, there was a process that tends to establish the way to disaggregate the solid-geometric figure into elementary parts. This way of understanding that Kahn introduces in these representations comes from a culture so to speak technical, which Kahn had and which gives a constructive capacity of an almost industrial character, almost as if the precision, the perfection with which Kahn builds interlocking, as if there were no need for a binder, almost as if one element superimposed on the other, With a sort of magnetic cohesion, they stay together as if there were no need for mortar, or consolidation additives. Here, this interlocking way that Kahn has is precisely the one that starts

Fig. 11s
Tempio di Apollo visto da sud ovest, Corinto, metà del VI sec. a.C.
[AA.VV. 1967, ill.1, p.35].

Fig. 11d
Louis Kahn (1901-1974), *Colonne del Tempio di Apollo a Corinto*, 1951.
[AA.VV. 1979, ill.8, p.26].

from within the form and therefore his archaeological vision is a vision that is always inside the work, almost as if this archaeological vision, this detached vision, this diachronic vision, that is not contemporary, could even be found by going through his works, looking at his works from the internal space for example to another internal space, or from the external figures to the interior space. In this sense I would say that Kahn's compositional process is so to speak opposite to that of Corbusier, even if both these two great architects looked at the world of classical antiquity as an indispensable source of inspiration.

This is a temple of Ramesses in Thebes, (Fig. 12s) that as you can see Kahn redraws with that sketch (Fig. 12d). In the other sketch there are the famous pyramids of Menkaure and Chephren of the XXVI century BC (Fig 13s).
We conclude here provisionally the question of impression drawing, about which we have tried to understand through the eyes of the artist, the painter, the architect, the principles that guided its interpretation.
Here we are faced with another type of drawing, as you can see, it is the row and square drawing, the drawing that, started with the square, the parallel line and then passed to the drafting machine, arrived today on your table with the computer.
What is the line and square drawing for?
It is first of all that product that is destined for those who have to carry out the architectural work. But it is also that design that serves didactically not only to scholars of architecture, to lovers, as they say, but also for example to customers, and in general to those who must enjoy a forecast, something to see before the work is realized.
The drawing you see is a drawing made by Viollet-le Duc, (Fig. 14s) a famous scholar of architecture, author of several books, including the famous Entretiens sur l'architecture, which represents in summary the phrase of the Doric style. The work of Viollet-le-Duc is precisely that immersed in the culture of Positivism. The work of art, the work of architecture, the artefact of architecture are considered as the equal combination of different elements, almost as if the architectural composition had to correspond to a process by anastylosis. You know that anastylosis is the method by which the finds of a ruined, ruined monument are reassembled through
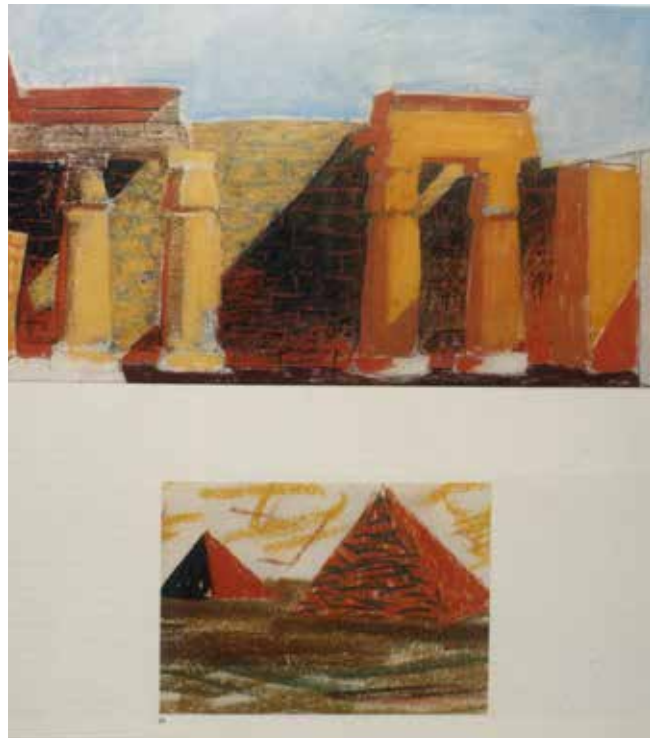
Fig. 12s
Tempio funerario di Ramesse II, Tebe, XIII sec. a.C.
[de Cenival 1964, p.109].

Fig. 12d
Louis Kahn (1901-1974), *Ramesse a Tebe.*
[AA.VV. 1979 ill.9-10, p.27].

Fig. 13s
Piramidi di Micerino e Chefren, Complessi funerari di Giza, XXVII-XXVI sec. a.C.
[de Cenival 1964, p.36].

original pieces. Viollet-le-Duc's conception, regardless of whether it has to do with historical artifacts from antiquity, is precisely this mechanics of construction. But, mind you, it is a mechanic that takes place with pieces that have a weight, therefore a typically architectural weighting. There is no mechanism in what we will later have the opportunity to deal with le Duc's conception, but a mechanic, something that uses juxtaposition, also because le Duc operates in a period of time in which the processes of industrial reproduction begin to assert themselves. So he generally conceives the destiny of architecture, as a destiny in which reproducibility tends to become a mystifying element; the architectural work will no longer be a unicum, but will tend to have to refer to some models and the models are those of Classicism.

I told you, these reasonings on architecture are about the middle of the last century and about ten years later, Camillo Boito, an Italian architect, draws this table for a work that he will be able to realize and it is the Municipal Hospital of Gallarate (Fig. 14d).
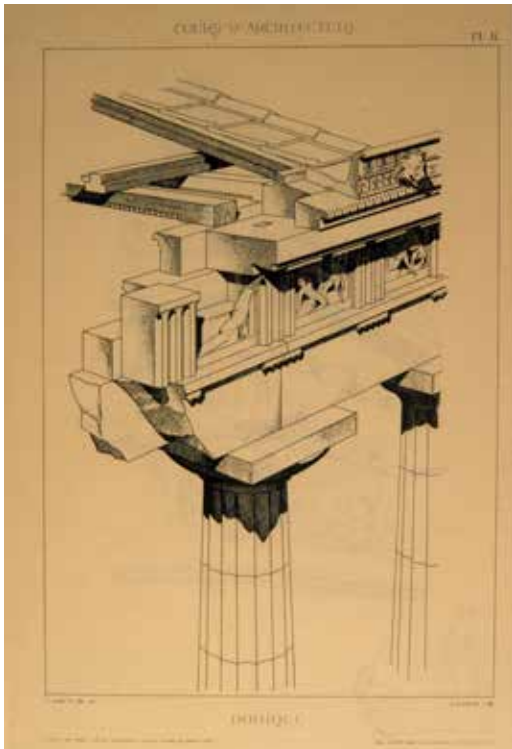
Fig. 14s
Eugène-Emmanuel Viollet-le-Duc (1814-1879), *Il dorico*. Da: *Entretiens sur l'Architecture*, 1863-72.
[Viollet-le-Duc 1977, pl. II].

Fig. 14d
Camillo Boito (1836-1914), *Ospedale Civico di Gallarate*, 1869.
[Grimoldi 1991, ill.8].

You see, however, that although only a decade has passed, Boitian positivism is cloaked in romanticism.

That is to say, from this Boitian drawing you can grasp how there is something that goes beyond the individual architectural elements and that although they are constructive drawings (it is a front and a section), it also focuses on the atmosphere.

Camillo Boito, as you surely know, is an architect called "neo-Romanesque", who looks at the "neo-Romanesque" style as that style in which a sort of Lombard koinè must be found: we are in the years preceding the Unification of Italy, but regardless of the Risorgimento which is a phenomenon of national unification, in the case of Boito there is this desire to root modern architecture, Modern architecture for him, the architecture of his time, to certain contexts and one of these contexts is that of the Lombard Milanese. Boito has a formation partly Lombard, partly Venetian and the same things apply from another point of view in Padua, etc.

But there is a sense of umbratility in this Boitian design, which goes beyond the analytical restitution of the construction to rest even within an atmosphere. This atmosphere is the poetic conception that the architect has and therefore also his possible references to the history of architecture itself.

Let's go back to Corbusier. This perspective you see concerns a neighborhood designed by Corbusier around 1915, the Domino neighborhood (Fig. 15s). It is a district resulting from a technical process that aims to solve the problems of production and reproduction as is now the case in industrial systems.

These houses that you see are structured, they have a skeleton that is what you see in this other image (Fig. 15d): it is a system in which simply pillars, beams and stairwell groups leave the floors completely free, so the distribution arrangement inside the accommodation is very free.

Here, in this regard, however, it is worth making a small digression. How important is machinism in Corbusier's poetics?

Fig. 15s
Le Corbusier (1887-1965), *Prospettiva del Quartiere Domino*, 1914-1915.
[Brace Taylor 1972].
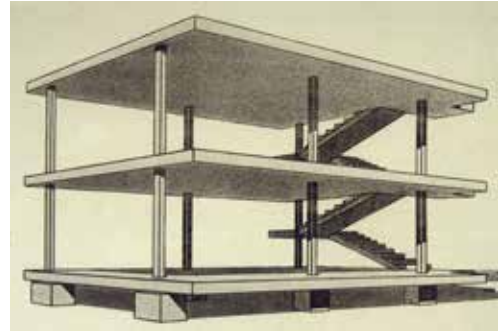
Fig. 15d
Le Corbusier (1887-1965), *Struttura della casa Domino*, 1915.
[Boesiger, Stonorov 1948, p.23].

Corbusier is the architect who looks to the future and conceives the metropolis through a process of rarefaction and consolidation of tall buildings, the so-called Cartesian skyscrapers of Corbusier. He was accused, when he was still alive, but now also in our times, of being an architect who is strongly responsible for the appearance of today's cities.

[TEXT NOT DECIPHERABLE FOR CASSETTE CHANGE]

In my opinion, Corbusier starts instead from that aspect of synthesis that makes him an artist on a par with Picasso, for example, or other artists of his time. He is truly an artist, he is first of all an artist, who then from time to time finds in worldly occasions, that is to say in what the society of the time offers him, the way to always reach this result of plastic synthesis that is what dictates to him inside the soul, the invention, the inspiration. Also in this case, where we are faced with an almost trilithic expression so to speak, of construction, which will then be taken up in many other versions (here we are in 1915, with the so-called prefabricated buildings that will fill the world, there will be a plethora of architects, design institutes that will deal with this problem: producing the house as the consumer goods of industry are produced, for example cars) I said, even in this case you can perhaps see, perhaps with some effort, the plastic intent that is inside this Corbuserian scheme: it will be given by the shading, it will be given by the proportions that the uprights have with respect to the slab, to the floor, it will be that staircase that is freed. There is always at the base of Corbusier's work this extraordinary sense of synthesis, this plastic capacity within which to reduce even the problems of architecture (because Corbusier is not a sculptor, he was also a sculptor as the painter did, but he is above all an architect); There is this capacity in which the laws that govern architecture and therefore oppose it being treated as a sculpture, but he always manages to find through these difficulties, of the architect compared to the pure artist, sculptor or painter, etc., this way of regenerating them plastically.

Then you see how the prospect of this Domino neighborhood is all in all a deception, that is, that sense a bit naïve, watercolor that you see, is a bit that captatio benevolentiae that Corbusier practices towards his customers and you know that Corbusier's customers constitute another aspect quite structured to his way of acting and also of designing.

This image is instead a work that Corbusier does with a sugar industrialist, Henry Frugès, who falls in love with Corbusier. You know that this aspect concerns not only Corbusier but many artists, in the past it is enough to remember Richard Wagner and the relationship he had with Ludwig II of Bavaria.

You know that the client, the client for the architect, but generally for the
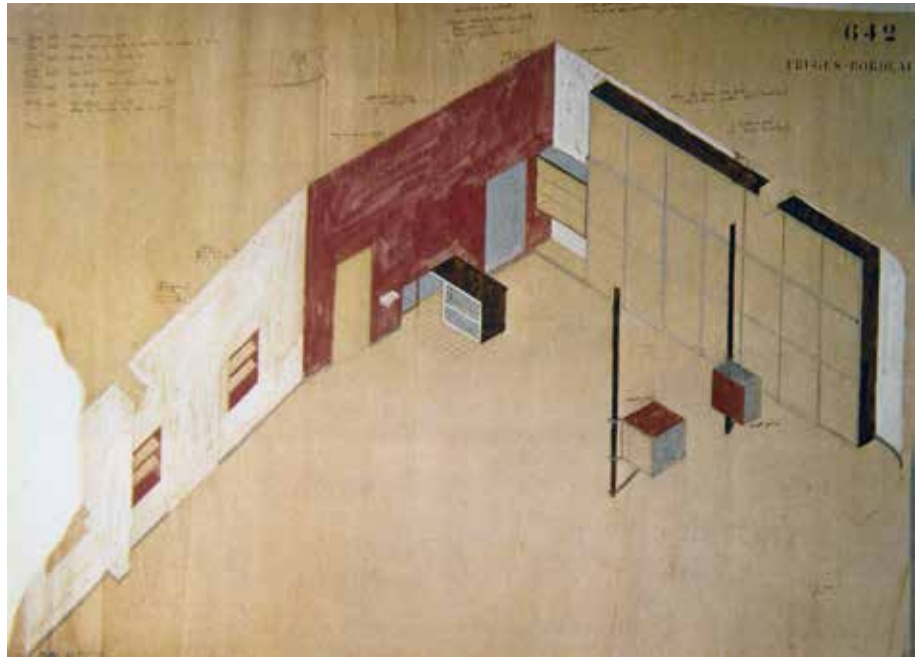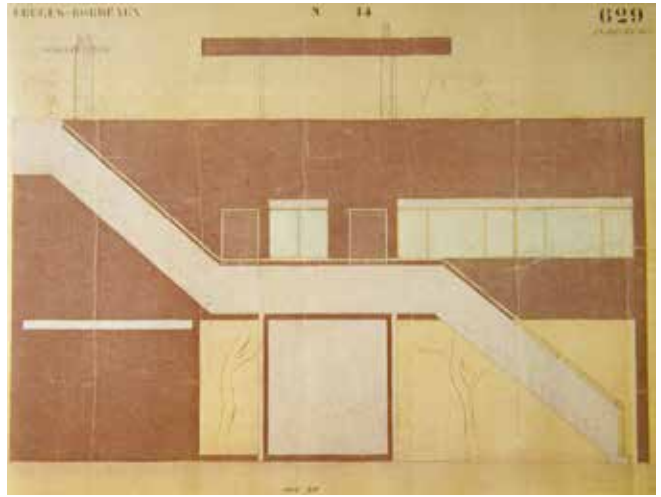
Fig. 16s
Le Corbusier (1887-1965), *Disegni per il Quartiere a Pessac per Henry Frugès*, 1925-1929.
[Brace Taylor 1972].

Fig. 16d
Le Corbusier (1887-1965), *Disegno per la casa 14 del Quartiere a Pessac*, 1925-1929.
[Brace Taylor 1972].

Fig. 17d
Le Corbusier (1887-1965), *Studio per l'ufficio di Henry Frugès*, 1925-1929.
[Brace Taylor 1972].

artist is the decisive element, but this is even more so for titanic personalities such as Corbusier's personality.

These you see are polychromy studies (Fig. 16s) and this is the drawing of one of these houses, house 14 if I'm not mistaken (Fig. 16d).
This is the interior of the studio of Henry Frugès (Fig. 17d), precisely the client. We can see how even in this phase that I would dare to call cubist, in Corbusier's architecture, this sense of plasticity remains, especially in this drawing that is a line and square drawing, with color backgrounds that could be the work of an abstract painter. You see how the same tonalities, the way in which it is composed underlie precisely this plastic sense that Corbusier's architecture has, which is never to be confused with an abstract conception of figuration.
Of course, Henry Frugès, after this experience with Corbusier, fails because this neighborhood in Pessac is not built and will end his years painting, plagiarized by the master.

You will certainly have recognized the image we are seeing, it is a painting by Giorgio De Chirico, entitled Melanconia and is from 1912 (Fig. 18s).
Do you remember that just now I mentioned Persico, this very important

Fig. 18s
Giorgio De Chirico (1888-1978),
Melanconia, 1912.
[Benzi, Tolomeo Speranza 1992,
p.103].
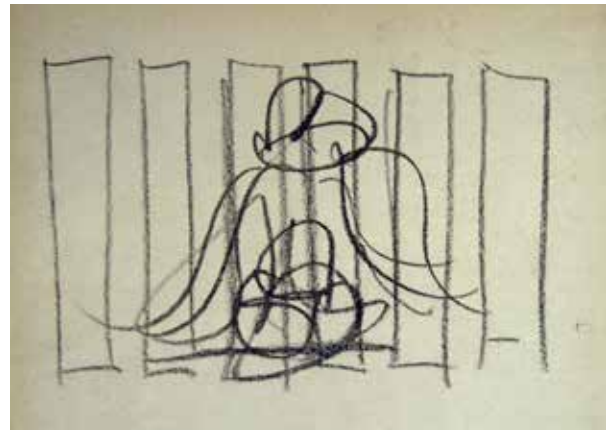
Fig. 18d
Edoardo Persico (1900-1936),
Primo schizzo per il Salone d'O-nore alla VI Triennale, 1935.
[Veronesi 1964].
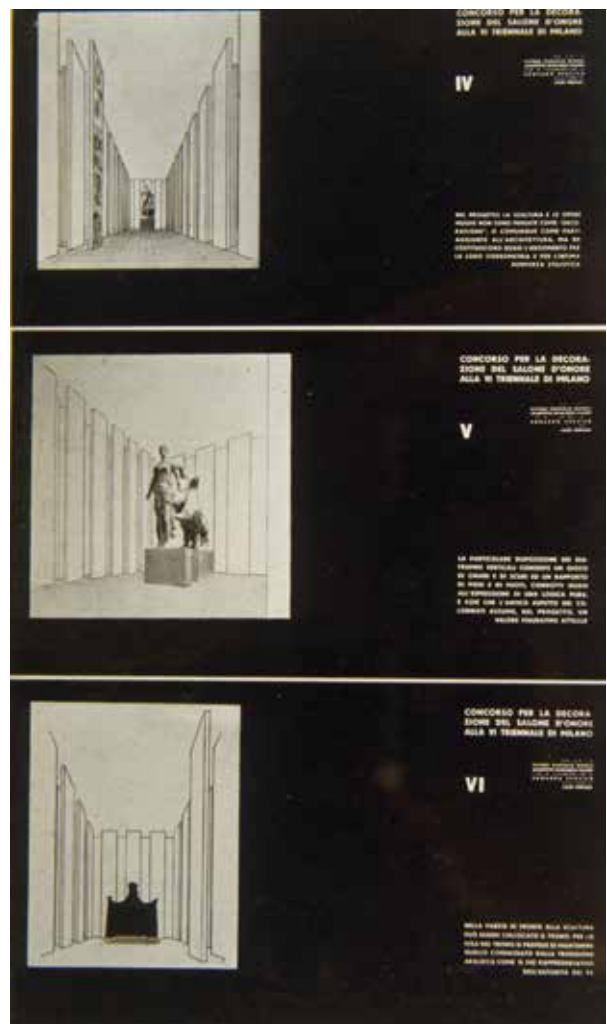
Fig. 19
Edoardo Persico, Giancarlo Pa-lanti, Marcello Nizzoli (grafico),
Lucio Fontana (scultore), *Proget-to per il Salone d'Onore alla VI Triennale*, 1935.
[Veronesi 1964].

critic of the history of modern Italian architecture, who establishes those comparisons and equations: Cubism-Corbusier, Neoplasticism-Gropius, Metaphysics for Italian architecture (modern Italian architecture must look at Metaphysics).

Metaphysics is also the painting of De Chirico, of which he is the main exponent, at least the best known of the culture of his time and still today. The sketch you see is a sketch of Persico's hand, a sketch from 1935: Persico is preparing for a competition that is announced by the Milan Triennale for the preparation of the Salone d'Onore (Fig. 18d). It is a synthetic sketch, but he has already incorporated what will later be the execution of his work.
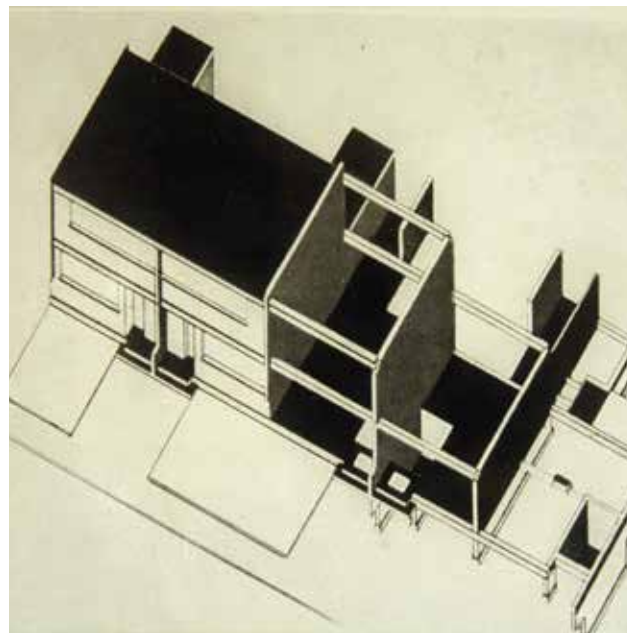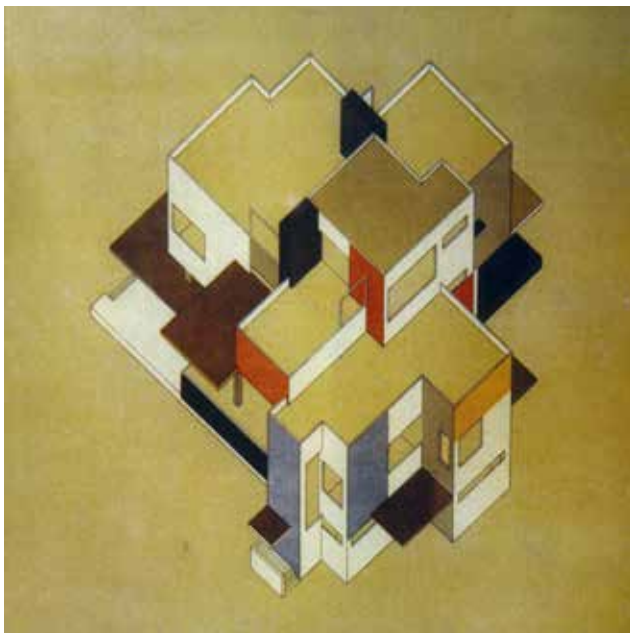
Fig. 20s
Theo Van Doesburg (1883-1931), Cornelis van Eesteren (1897-1988), *Progetto per una costruzione*, 1923.
[Jaffé 1964 tav. 5].

Fig. 20d
Walter Gropius (1883-1969), *Siedlung Törten*, Dessau, 1926-28.
[Argan 1951, ill. 43].

Fig. 21s
Fernand Léger (1881-1955), *Inventions-études*, 1918.
[Lassalle 1989, n.74, p.141].

These are the executive tables that Persico presents at the competition, the sculpture is by Lucio Fontana, Giancarlo Palanti, who was the partner of Albini and Nizzoli as a graphic designer collaborates with him and this is the line that Persico traces and on which he invites young Italian rationalist architects to converge (Fig. 19). He will be followed, but we will talk about it another time, by some of the most promising and sensitive Italian architects of the time, to whom we will mention when we talk about Italian Rationalism.

Corbusier-Cubism equation, Neoplasticism-Gropius. Now I will make a parenthesis: see this project that Theo van Doesburg and Cornelis van Eesteren, as part of the neoplastic movement of which a painter like Mondrian is part, etc., realize in 1923 (Fig. 20s); then you see this project by

Fig. 21d (nella pagina prece-dente)
Le Corbusier (1887-1965), *Due Bottiglie*, 1926.
[AA., VV. 1963, tav. XXVI, n. 68].
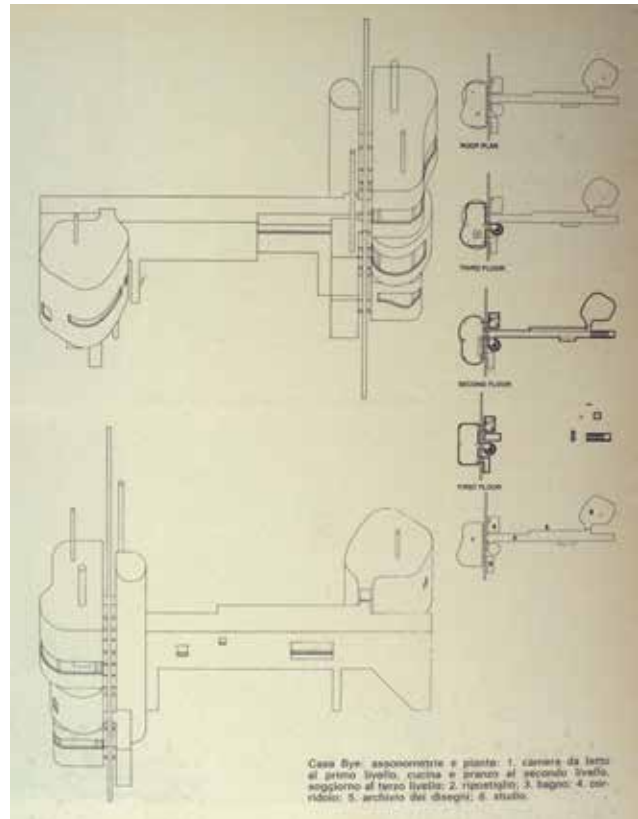
Fig. 22
John Hejduk (1929-2000), *Casa Bye* (*Wall House 2*), Ridgefield, Connecticut, 1973.
[Gubitosi, Izzo 1976, p.67].

Gropius for Siedlung in Dessau (Fig. 20d), which suffers and is shown here for that form of equation that Persico mentioned.

Again, the relationship between figurative art and architecture. You see a painting by Fernand Léger, a painting from 1918, called Inventions-études (Fig. 21f) and then you see a drawing, a painting by Corbusier, who was also a sculptor and painter, entitled Two Bottles, from 1926 (Fig. 21d). This awareness on the part of Le Corbusier with respect to the figurative movements of the time is a constant. We have seen the relationship with Picasso's so-called neoclassical period, now we see it in the purist aspect that has the painting of Léger on the one hand and the feeling of Corbusier on the other.

We were talking about row and square design.

This drawing you see is by a then young American architect John Hejduk, an architect who was born in 1928, this work seems to me to be around the 70s (Fig. 22).

Hejduk is one of those who at the beginning of his career were identified as Five Architects, which also included Peter Eisenman, Michael Graves and others. These Five Architects have particularly tuned in to a fairly European wavelength, contravening a bit the rules of the professional market in the United States, which are those of the large studio that perhaps then operates and establishes a network of production relationships that however end in a form of centralization. North American studies are very large and very powerful.

The Five Architects, on the other hand, operate in the opposite direction. They are, so to speak, sponsored by a form that is more that of the gallerist than the young painters, than that of the professional field. Their affirmation in many cases will be a statement destined to last over time even if individually, because this temporary association lasts a certain number of years and then each of them takes its own path. As I said, this way of theirs has a disruptive effect in the North American cultural and professio-
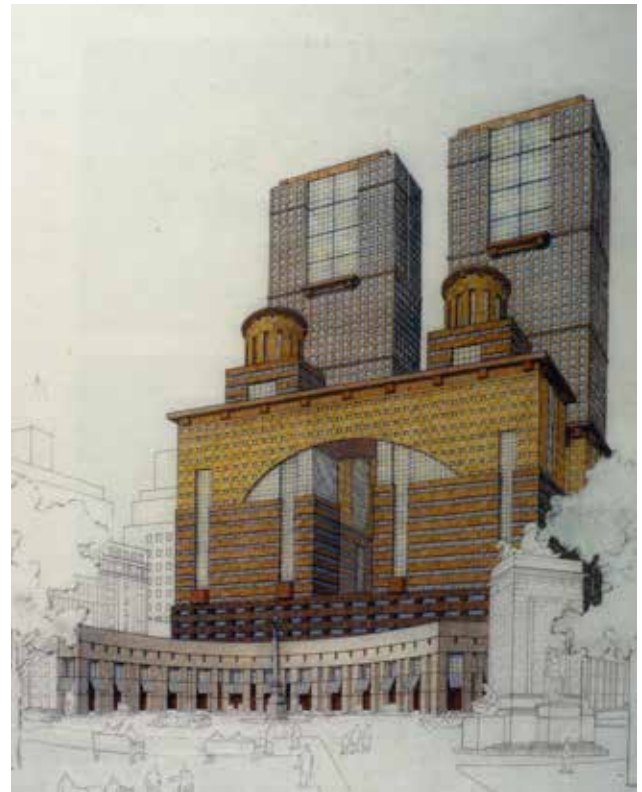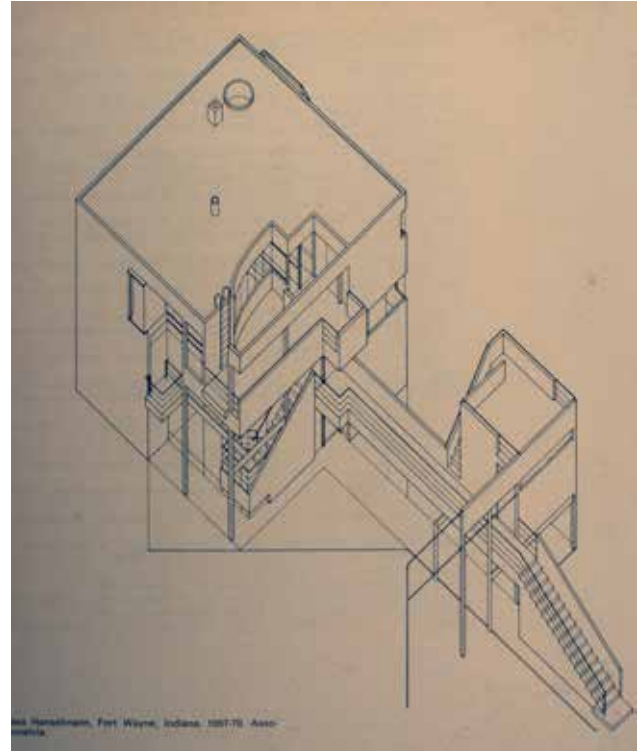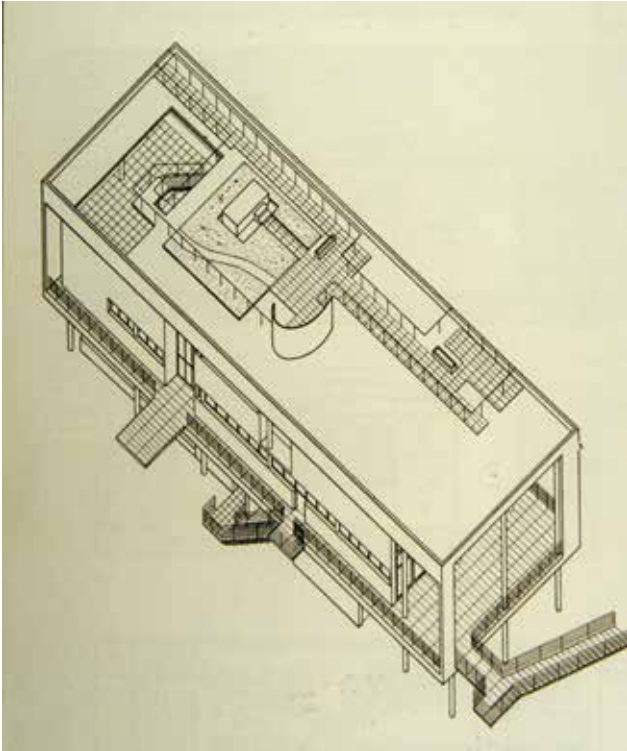
Fig. 23s
Giuseppe Terragni (1903-1944),
Villa sul Lago, 1936.
[Schumacher 1992, p. 102].

Fig. 23d
Michael Graves (1934-2015),
Casa Hanselmann, Fort Wayne,
Indiana, 1967-70.
[Gubitosi, Izzo]1976, p.84].

Fig. 24s
Michael Graves (1934-2015),
Centro Wexner per le Arti, Ohio
State University, 1983.
[AA.VV. 1991, p. 98].

Fig. 24d
Michael Graves (1934-2015),
*Rivalorizzazione del Columbus
Circle*, New York, 1985, vista da
Central Park.
[AA.VV. 1991, p. 167].

nal world. For example, their commission tends not to be that of the great American corporations, that is, office buildings, etc., but tends more to be that of the dwelling house, the villa and then, as their affirmation is consolidated, that for example of the museum.

Meyer is one of the Five Architects and you know that he is the author of numerous museums. These architects look at European architecture and I would say that their sensitivity is first of all figurative and therefore not very ideological, but above all figurative. In this relationship, for example, between rectilinear traces and the freedom of the curve, which is not a geometric shape, but is a deformed conical, there is this recovery of cubism that is the basis of the figurative research of Léger and in that period also of Le Corbusier.

These two images are one a project of a villa at Lake Terragni of 1936 (Fig. 23s) and the other is a project by Graves, also done around the years '70-'75, it is the first way of Graves, intended for the Hanselmann house in Fort Wayne, Indiana, '67-'70 (Fig. 23d).

Here, with regard to European architecture, in the case of Graves, but not only of him, also in the case of Peter Eisenmann and Meyer, there is this particular regard to Terragni. It will happen, but we will talk about it in more depth, for that excavation work that Terragni performs on the volume.

More than a neoplastic construction as we have seen in the case of the project of Theo van Doesburg and van Eesteren, that is, obtained by interlocking juxtapositions of planes, in the case of Terragni it seems that the procedure is that of excavation from the parallelepiped and therefore the strong shading is consistent with this in-depth work. Parallelepiped, if you want box in which parts are torn, in the case for example of Graves' project in the corner part, you see with that arbitrary cut that enters, and that constitute a poetic vein that has distinguished Mediterranean architecture.

The exegete of this Mediterranean architecture was Alberto Sartoris who is still alive for more than a hundred years (he wrote a famous work in three volumes, in which he divided modern architecture into Nordic architecture, Mediterranean, etc.).

In this climate in particular Terragni manages to feed a language that I would say is not at all personal. There is this radiance in Terragni that comes from a series of plots and concerns towards for example the architecture of Sant'Elia, the expressionist painting of Sironi etc., which make it a theme that we will try to address in depth next time.

We are at the end of the row and square drawing and it is the latest version of Michael Graves (Figs. 24s, 24d), the author of the purist project that you have just seen and that we compared with the work of Terragni.

There is this development of Graves' personality, of what we could define today Postmodern, albeit with a certain organicity and with a certain approximation.

I would say that Graves' work is above all a "neodeco" work, that is, a presence of certain American architecture, the Chrysler building for example and others, it takes up that sense of decorated modernity, which has distinguished the most popular aspect of modern art of the 20s and 30s.

Here, we are not so much interested in the path of Graves, as to see how the architecture in line and square brought to a certain level of levitation, tends to become atmospheric architecture, that is, captivating enough that somehow manages to influence its own possible becoming.

In fact, speaking of atmospheric drawing we see an image, an engraving
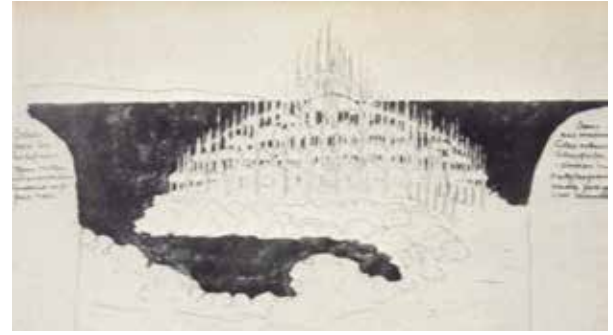
Fig. 25s
Giovanni Battista Piranesi (1720-1778), *Dalla serie di vedute di Paestum*, 1777.
[Focillon 1967, ill. 143].

Fig. 25d
Bruno Taut (1880-1938), *Duomo di vetro a Portofino* (sopra) e *Cupola in reticolato di calcestruzzo sul monte Resegone* (sotto). Da *Alpine Architektur*, 1917.
[Caramel, Longatti 1987 cat. 300, p. 121].

that you surely know how to attribute: it is that series of Views of Paestum that Giovanni Battista Piranesi produces shortly before he died, in the middle of the '700 (Fig. 25s).

Think that Piranesi marks the transition from Baroque architecture to the wrinkling of classical architecture then, to Neoclassical.

These views are a bit counter-faced, we could say of a work instead written by Johann Winckelmann, who is considered the founder of neoclassical art, for writings that he published about ten years before these engravings by Piranesi and which were then spread in Europe, where Winckelmann fed the cult of classical art, denying the period of involution of Classicism of the Baroque and Rococo periods.

Here, vision of atmosphere, ruinism as we said at the beginning, and comparison of this moment of transition reproduced in this representation, with a series of drawings that a German architect, Bruno Taut, draws up in 1918 (Fig. 25d), just after the First World War, in a famous text, entitled Alpine Architektur.

This vision, this atmosphere that Taut builds through these drawings, is the result of a sort of sense of unraveling caused by the war and therefore the hypothesis of a necessary confinement in the utopia of any process of civil regeneration.

What you see above is a glass Duomo in Portofino and the one below is a dome in concrete mesh on our Mount Resegone.

Alpine Architektur of Taut: there is a component of Expressionism of which Taut is one of the main protagonists and representatives, which is also utopia, but we will deal with Expressionism in any case on another occasion more specifically.

What you see now is a famous drawing of St. Elijah, which is part of a series of drawings of the New Town (Fig. 26a). It is an intermodal station we would say today, which has, you see, an aircraft runway, a railway station, and on three levels the possibility of interchanging different transport systems.

The drawing of St. Elijah is a drawing that is backward, compared to his futurist vision. It refers, not directly, to Otto Wagner, to the Viennese Se-

cession, that is, to the Austrian pupils of Wagner; the illustrative aspect, almost cartoonish of Sant'Elia's drawings, combines this precision of drawing with visionary content, which involves certain types, extremizing them in a future context.

The figure of Sant'Elia, whom architecture has identified as the standard-bearer of modern Italian architecture and who almost always constitutes the image of introduction in all the period texts that have dealt with rationalist architecture, is actually a case that should be considered. It should be considered for certain aspects of a traditional nature that the drawings of Sant'Elia preserve, especially with regard to the architectural scores.

Different is the case we see now. This is the Walking City, by two architects who are part of the Archigram group (Fig. 26b).

This drawing-project is from 1963 and the authors are Ron Herron and Brian Harvey. This prediction of the future city is located in New York: you see the skyscrapers of Manhattan in the background. This capsular regime that their architecture proposes, tends to contradict the traditional type structure of architecture, that is, the classical phrase: support, pillar, beam. Thanks to plastics, this vision becomes disruptive.

That architecture that today goes by the name of High-tech, for example, in England, think of Foster, but also in Italy has some representatives, has received a certain impulse from this vision of the Archigram group, which constituted a turning point of a decisive type also in the Anglo-Saxon architecture of that period.

Perhaps the Archigram group was partly inspired by another group of then young architects, Metabolism. One of these architects Kiyonori Kikutake, Japanese, in 1960 designed this Marine City (Figs. 27a, 27b).

Also in this case, the recourse to organic forms, the renunciation of any survival that still smacks of a traditional conception of building, is evident. Perhaps it is precisely these Metabolisms that inspire the same Archigrams. I would say that the inspiration of this Japanese group is to be traced back a bit to the particular conditions in which Japan found itself after the Second World War: the collapse of a whole series of ideals and assumptions that in these architects had also determined a break with traditional architecture, even with the architecture of Japanese rationalist architects, architects like the best known, Tange. And think, it will be this coming and going of inspirations, it will be Tange to be inspired by the Metabolism group, when, for example, he will present that famous and grandiose project for Tokyo Bay.

We have concluded the futuristic design and we are going to conclude with the images.

Here I show you two images of Hadrian's Villa: the Canopus (Fig. 28s) that ends in this exedra, the mirror of water and so on.

Hadrian's Villa was built by Emperor Hadrian in 120 AD. Emperor Hadrian is back from a journey for him too, we could say of the East, whose notebook is not written, but put in stone. Adriano returns to Rome and at Tivoli he builds this villa that is made up of a whole series of places-memories. Each of these places-memories reminds him from time to time of the Canopus, which is this channel that branches off from the Nile to Alexandria in Egypt, Greece, because the Canopus as you see is surrounded by a series of statues of the classical Greek school. It is Hadrian's stone notebook. (Fig. 28d).
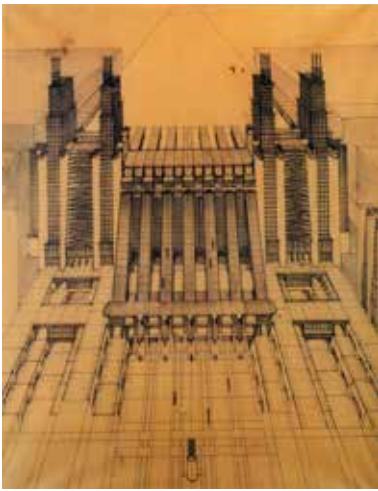
Fig. 26s
Antonio Sant'Elia (1888-1916), *La città nuova*, stazione, 1914. [Caramel, Longatti, 1987, cat. 300, p. 121].

Fig. 26d
Ron Herron (1930-) e Brian Harvey, *A Walking City*, 1963. [Banham 1980].

Fig. 27s
Kiyonori Kikutake (1928-2011), *Marine City*, Disegno, 1960. [Riani 1969, p.228].

Fig. 27d
Kiyonori Kikutake (1928-2011), *Marine City*, Modello, 1960. [Riani 1969, p.229].

Fig. 28s
Villa Adriana, Canopo, 120 d.C.
[Picard 1965, p.124].

Fig. 28d
Villa Adriana, Teatro Marittimo,
120 d.C.
[Picard 1965, p.125].
[Canella 1991, p.6].

Why am I talking to you about this? Because it appears that Leonardo, the great Leonardo, visited at the end of the fifteenth century, Hadrian's Villa in Rome.

Leonardo, you know that he comes to Milan to work with Ludovico il Moro and in a panel that we now see, sketches a composition made up of two fortresses, circular in shape, but of different radius, which have a series of loopholes on the outside and instead a series of loggias inside. At the center there is a machine that is used for lifting weights, it could also be a military device, it is not clear (Figs. 29s).

Here, on this table there are also marked the plan of this Latin cross building that seems to be the S. Spirito by Brunelleschi, as well as the oratory of S. Maria degli Angeli always by Brunelleschi.

Perhaps you yourselves can see a contradiction between Brunelleschi's drawing in its purity and in its classical revolution, compared to Leonardo's sensitization to the moods, to the humidity of the Milanese, for which Leonardo who works after Brunelleschi and even after Leon Battista Alberti, seems in some way to close himself within a conception that makes a virtue of necessity, compared to the Lombard landscape of that period. Lombard landscape that is characterized by the abundance of water, that is, by the availability of water that guarantees wealth to the Duchy of Milan. It is almost as if Leonardo understood that in Milan in those years, there is no room for the language of the Italic center, the language of the Renaissance Italic center and therefore there is like a closing in a fortress architecture, which at the same time is also worldly architecture, perhaps even of delights. It may be that this fortress system is also an integral part of a complex, of a villa, perhaps a choral one. Hence Leonardo's exemplification, for example in the transcription of the Teatro di Curio (Fig. 29d): Leonardo reads Pliny, reads how the Teatro di Curio worked, with these two rotating elements that can from time to time combine in an introverted amphitherical form, or rotating with a complex system of chains, opening into two hemicycles. Here, they are exercises that Leonardo carried out in that period and that were not appreciated perhaps for the potential they have from the typological point of view.

The last drawing I show you of Leonardo is this so-called Preaching Theatre (Fig. 30).

Fig. 29s
Leonardo da Vinci (1452-1519), *Ricordi di edifici brunelleschiani a Firenze* (Santo Spirito e Santa Maria degli Angeli) *e pianta e alzato del padiglione nel giardino del Castello a Milano*, 1490 ca. [Pedretti 1978, ill. 81, pp. 66-67] [Canella 1989, p. 74].
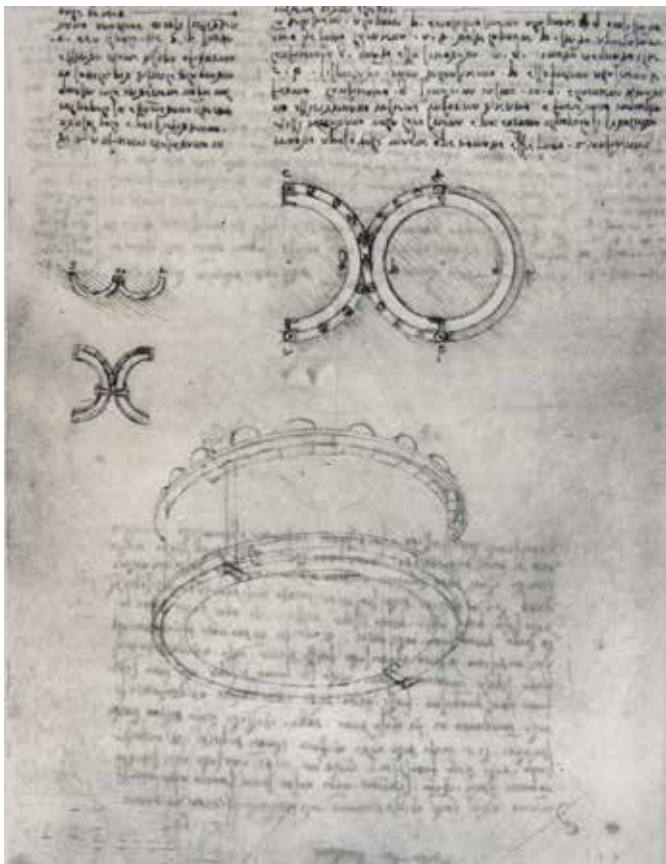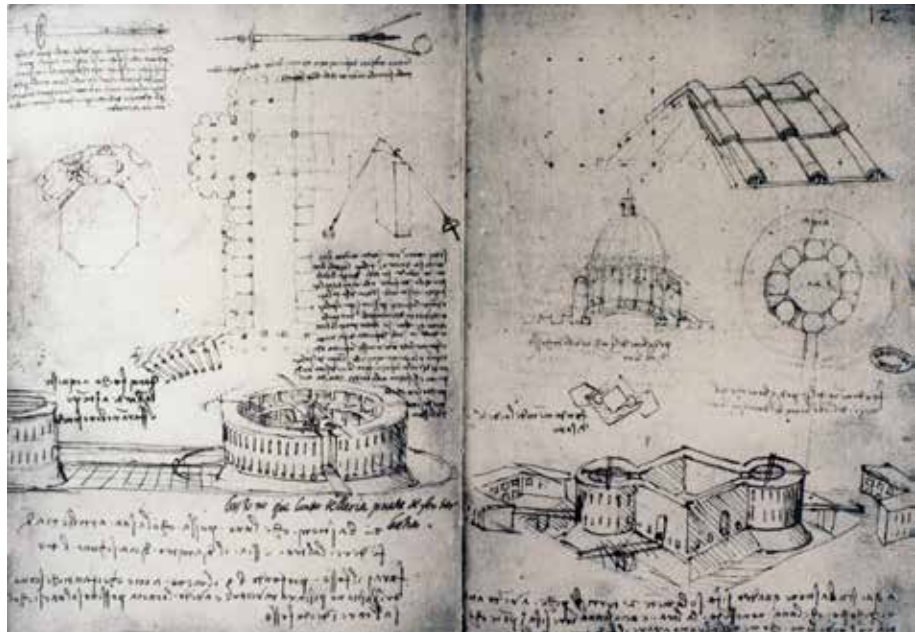
Fig. 29d
In basso a sinistra: Leonardo da Vinci (1452-1519), *Interpretazione del Teatro Mobile di Curzio descritto da Plinio*, 1497. [AA.VV. 1974, ill. 2, p. 270-271].

Fig. 30
In basso a destra: Leonardo da Vinci (1452-1519), *Teatro da predicare in un autonomo edificio conico, con al centro pulpito in forma di colonna tortile*, 1490 ca. [Firpo 1962, p. 60].
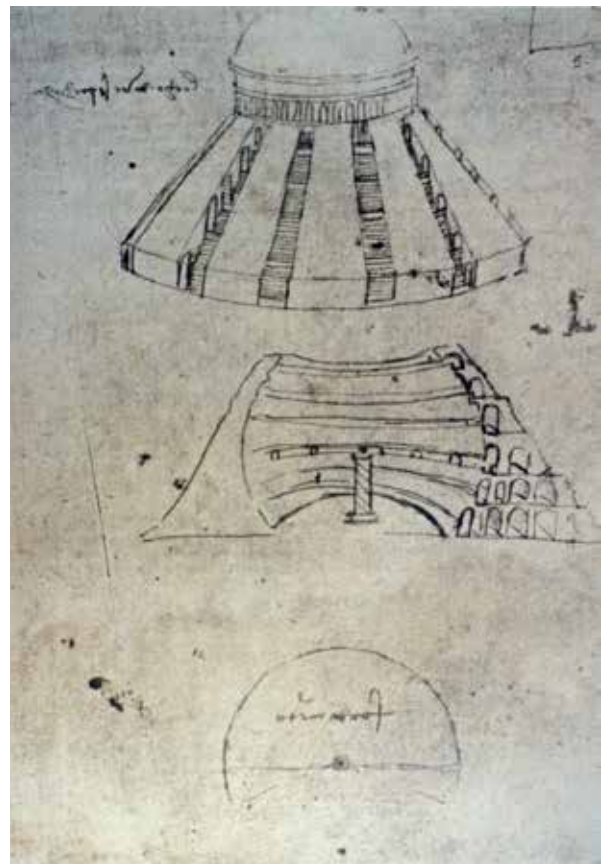
It is a grandiose building: you see the different orders of galleries, with a vertical hallway system given by bleachers that surround the building itself. The galleries overlook this twisted column, which would then be a pulpit. This form of extraordinary theater that Leonardo designed and described in his various codices is still a possible destination for the Lombard landscape of that period, that Lombard landscape that is not conceivable in Brunelleschi's square that the architects of Italic center training have in mind and therefore does not fit the fabric, the context of the Italian city center Italic, But that must instead lead on this humid plain, which is that of Milan.

SALON DEL 1846

Credo in coscienza che la migliore critica sia quella che riesce dilettosa e poetica; non una critica fredda e algebrica, che, col pretesto di tutto spiegare, non sente né odio né amore, e si spoglia deliberatamente di ogni traccia di temperamento; ma, — riflessa dall'occhio di un artista, — quella che ci farà vedere un quadro attraverso lo specchio di uno spirito intelligente e sensibile, se è vero che un bel quadro è la natura riflessa. Così la migliore recensione critica di un quadro potrà essere un sonetto o un'elegia.

Ma in un tal genere di critica è destinato alle raccolte di poesia e ai suoi lettori. Quanto a quella propriamente detta, spero che i filosofi comprenderanno ciò che sto per dire: perché sia giusta, cioè perché abbia la sua ragion d'essere, la critica deve essere parziale, appassionata, politica, vale a dire condotta da un punto di vista esclusivo, ma tale da aprire il più ampio degli orizzonti.

Esaltare la linea a detrimento del colore, o il colore a spese della linea, è fuor di dubbio un punto di vista; ma non è una visuale né ampia né corretta, e rivela una grande ignoranza di ogni destino particolare.

Si ignora in quale dose la natura abbia mescolato in ogni ingegno il gusto della linea e il gusto del colore, e per quali misteriosi procedimenti essa natura operi tale fusione il cui esito è un quadro.

Pertanto un punto di vista più ampio vuole essere l'individualismo rettamente interpretato: esigere dall'artista l'ingenuità e l'espressione sincera del suo temperamento, soccorsa da tutti i mezzi che gli vengono dal suo mestiere *. Chi non ha temperamento non è degno di fare dei quadri, e allora, — poiché si è stanchi di imitatori, e soprattutto di eclettici, — deve entrare come manovale al servizio di un pittore di temperamento: come dimostrerò in uno degli ultimi capitoli.

Fornito ormai di un criterio certo, preso dalla natura, il critico deve compiere il proprio dovere con passione, giacché egli non rinuncia ad essere uomo, e la passione avvicina i temperamenti affini, trasporta la ragione a nuove altezze.

Stendhal ha detto una volta: «La pittura non è che morale costruita!» — Ove s'intenda questo termine in un senso più o meno liberale, può affermarsi la stessa cosa per tutte le arti. E poiché esse sono sempre il bello espresso dal sentimento, dalla passione e dall'immaginazione del singolo, vale a dire dalla varietà nell'unità,

* A proposito dell'individualismo rettamente interpretato, si veda il Salon del 1845 l'articolo su William Haussoullier. Nonostante tutti i rimproveri che mi sono stati fatti al riguardo, non rinuncio al mio convincimento; ma bisogna capire l'articolo.

Guido Canella, Lecture notes
On drawing, in an interlocking game, Milan 1997.
Guido Canella Archive, Milan.

Guido Canella, Lecture notes
*On drawing, in an interlocking
game*, Milan 1997.
Guido Canella Archive, Milan.

Fig. 31s
Le Corbusier (1887-1965), *Disegno dal treno alla stazione di Pisa; Piazza dei Miracoli e ricordo del Concorso per il Palazzo dei Soviet*, 1934.
[Boesiger 1952, p. 132].

Fig. 31d
Le Corbusier (1887-1965), *Modello del Progetto per il Concorso per il Palazzo dei Soviet, Mosca*, 1931.
[Boesiger 1952, p. 133].

What you see I would call drawing without erasures, drawing without repentance.

It is the way of noting the idea that we have seen particularly in Leonardo and now we see in Corbusier and it is present in all the drawings of notes that Corbusier delivers to his contemporaries: it is a way of drawing that already has in embryo the result of what will be architecture.

However, to conclude (these are the last two images that I show you), I want to refer to a retrospective drawing that Corbusier traces one day in 1934, in the station of Pisa, looking at the so-called Piazza dei Miracoli: there is the tower of Pisa, the Duomo, etc. (Fig. 31s).

Look at the Piazza dei Miracoli, write down on his notebook the sketch you see, baptistery, cathedral, tower ... and then above he redraws from memory, the project that he submitted to the competition for the Palace of Soviets in Moscow in 1931. But he adds at the bottom of pencil, unity in detail... Corbusier opens a parenthesis and says: "Unity and human scale all in the whole". It is the synthesis of how this complex of Pisa appears to him and it is also the synthesis that he compares with the project of the Palazzo dei Soviet.

This project of the Palace of Soviets (Fig. 31d) is an extraordinary work in the career of the Franco-Swiss master: he manages to sensitize himself with this project that if I were Boris Yeltsin I would have realized today, because I find it one of the most beautiful projects that have ever been done by modern architecture, it is a project that manages to synthesize the experience of constructivist architecture, that in the '20s in the Soviet Union was produced with great results, together with the plastic sense, the sense of synthesis that is typical of Corbusier's personality.

Although the project is the set of different parts that apparently appear to us as articulated, I do not know if you can see the capacity for synthesis that has this system conceived with two main bodies and with this correspond to different structures to tie rods, shelves, load-bearing arches, developed according to an attention that takes into account the efforts, etc. In this game of this wizard of architecture.

I would say that this return of drawing to recover something that, in fact, compared with a monumental piece of the city, perhaps better than anyone else, represents this phase of the drawing that I have defined without repentance and without erasures, as the ability to express synthetically and summarily the development and tradition in architecture.

* The text published here takes up almost verbatim, with minimal corrections, the transcription, not revised by the author, of the lesson, with the same title, held by Guido Canella on October 30, 1997 at the course of Theories and techniques of architectural design, Faculty of Civil Architecture of Milan Bovisa.

The layout follows the criterion of projection with double projector, which Guido Canella often used to critically compare the different images. The latter are taken from the original slides of the lesson preserved at the Guido Canella Archive, Milan.

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Guido Canella, born in Bucharest in 1931 and died in Milan in 2009, was one of the most important and original protagonists of post-war Italian architecture.
A pupil of Ernesto Nathan Rogers and Giuseppe Samonà with whom, in Venice and Milan, in the early sixties he began an almost fifty-year university activity, Canella has always combined the practice of designer, author of recognized masterpieces of recent decades, theoretical reflection, cultural organization, university research and teaching, writing books and essays of profound culture, taking care of editorial series, promoting and directing magazines such as «Hinterland» and «Zodiac». Professor Emeritus at the Politecnico di Milano and president of the Accademia Nazionale di San Luca in the two-year period 2007-2008, his work as a teacher and architect testifies to a rigorous and intransigent attitude, with the publication of studies and writings that were central to the Italian architectural debate of the post-war period, and with the realization of works whose obstinate will to form becomes a vehicle for the moral and civil implications of architectural research.

Lamberto Amistadi
**In what sense architecture is complex:
the role of drawing in architectural design**

Abstract
This essay traces the fundamental relationship between architecture as a discipline and a work of architecture. Architecture and works of architecture are constantly swapping places within a circle, an experience which, over time, has built up and gradually standardized their rapport: works start from the nomenclature of which the discipline is constituted, whose validity is in turn certified by the works built.
The midpoint term which conveys the flow along the (circular) process of architectural design is drawing, in its twofold value of representation and figuration, with that semiotic and notational value with which Leon Battista Alberti exhorted his students to learn to paint as one learns to write.

Keywords
Architectural Composition — Representation — Drawing

The diagram of the central sulcus (or Rolandic Fissure) shows us that among all the functions controlled by the human brain, those of speech and the movement of the hands alone occupy two-thirds of the cerebral cortex. Language and manipulation that changes the state of things, in other words, language and technique, are the most important faculties that humankind has acquired and refined over the course of its evolutionary history. For Roland Barthes (1982), writing (the morpheme) precedes the use of the word (the phoneme). Ernst Gombrich (1978) told us about the magical origin of language, about how for primitive men, in prehistoric times, the drawing of a bison on the walls of a cave was not a representation of the bison, but instead represented the 'receivable' of the following day's hunt. Originally, the depiction of a thing, the symbolic representation and the thing itself were coincident. They coincided until the moment when the naming process assigned a certain name to that particular thing and then, in the evolution of the abstraction process, the objects were grouped into classes according to a certain selection filter.

1. Writing – Architecture
As a discipline, architecture has its own nomenclature. Being history-based, this nomenclature is fixed and stable. So fixed that if one had to grasp the nature of a thing from the metaphorical and instrumental use made of it, it would be impossible to err: the nomenclature has always been used to represent conditions of stability, and at the same time to represent and build these conditions. The example of mnemotechnics is well known as the art of simultaneously remembering as many objects (things or words) as possible and their relationship; Ramon Llull (Rossi 1960) indicated in a work

Fig. 1
Diagram of the central sulcus (Rolandic Fissure).

of architecture (as a sequence of neatly distributed rooms) or in a city part (as an ordered sequence of public places correlated by streets and arcades) the «structura fixa» within whose recognizable places the objects to be remembered are arranged. Retracing these places with the mind, their image associated with that of the objects located within them, will immediately result in them being recollected.

Recalling Aldo Rossi's (1990) definition of architecture as a «fixed scene» in which the events of collective and individual life stand forth, we can already arrange a first order of conclusion: it is possible to run along a double axis or two axes, one in time and one in space.

The axis of time is the one which Cassirer spoke of in 1942 at a conference entitled «Language and Art II». There he explained how, with respect to the process of naming that proceeds by abstraction from the thing to the concept of the thing and evolves to make the semiotic universe in which we live more and more complex, with the risk of moving away from an understanding of the original or producing concepts with no concrete referent, the only people able to regain possession or let us regain possession of an authentic relationship with things are the artists. They behave either like children or like primeval peoples, that is, they are able to travel backwards through the evolutionary process, running backwards along the axis of time of history or along the axis of individual time – for Queneau (1967) – of both general and particular history.

The axis of space is semiotic, and is the one which covers the extension to which the metaphors of architecture as a «structura fixa» for Llull and as a «fixed scene» for Rossi refer. Ramon Llull was one of the precursors of modern formal logic; to him the city or the areas of the city were of interest as a well-ordered relationship between the elements of the parts that constitute it. Aldo Rossi was interested in the city as a set of works of architecture built within the city and that in turn built it: he was interested in monuments as «memorable representations» and therefore as «formed objects».

Whether used to represent abstract relationships between parts or to mount the formed objects in the city, we can enjoy the possibility of moving freely along the axis that extends from the deeper structure to the surface, composing images defined once and for all, or rearranging their syntactic links at a profound level.

Naturally, we cannot be interested in the chronology of the historical evolution or the developments of these two processes, but we can allow ourselves to be simultaneously spontaneous like young children, instinctive like primeval peoples, as sophisticated and distant as a dandy, complex, simple, evolutionary like the Germans, or superficial like the Greeks, «out of profundity!» (Nietzsche 2002).

2. The (super)technique of drawing

We are not interested in insisting on the linguistic condition of architecture, that is, on the fact that architecture is a language, which has its own words and syntax just like a written language, but on the equal and opposite thesis of the architectural nature of language or on its technical nature, and on architecture as the original matrix of this technical nature.

If it is true that, originally, concrete acts preceded abstractions, then the work of the hand that draws with a bison the concept of a bison, if for Wittgenstein (1999) «architecture is a gesture», then it is worth considering the research of an English scholar, Edmund Hussey (1977), who referred the origin of the word "structure" to the Greek word "*harmozein*", which offers different meanings: fit together, convention, agreement. This word was used for the first time by Homer in the Iliad to indicate the concrete fitting together of the parts in wooden constructions, that is, using carpentry, whose tectonics, for Semper (1992) is art. Or Greimas and Courtes (1986), who observed that discursive know-how is not so very different from the know-how of a shoemaker.

The analogy between architecture and writing, of which architecture seems to be not only a metaphor but also an archetypal reference, is based on the convention which establishes the correspondence between words and things, discipline by discipline. This analogy makes it possible to compose the relationship between words, placing it simultaneously, instantly, magically between the things to which the words refer; Nelson Goodman (1947) spoke of «constructive nominalism».

Unlike other disciplines, however, architecture does so with a greater awareness. This awareness derives from the fact that the process of history underlying this relationship is continually reminded of it by the fact that, by its very nature, it is forced to retrace it afresh each time, to repeat it. In fact, it makes a complete circle around itself, having to return to the phenomenological universe concrete objects, formalized starting from its theoretical apparatus: the parts of architecture that had been transferred into nameable signs having to be reinstated in the form of works of architecture.

This mobile circle, which perpetuates the repetition of the architectural event/work by the work of architecture, each time different and each time fresh, on the one hand strengthens faith in the verisimilitude of the analogy and on the other enhances the tools that this awareness makes available, that is, its productive potential. The enhancement concerns the ability to adumbrate the architectural project, or rather, the ability of the architect to adumbrate the work of architecture in the architectural design process.

An increase in this skill set is based on a correspondence and has a corollary: the correspondence is the one we have already underlined between the thing, the name of the thing, and the representation of the thing, that is, between the thing and the representation of the thing, the thing and the symbol, at various levels, from the deepest to the most superficial; the corollary is that the position of the relationships between things/symbol, that is, architectural design, can be reduced to a process of composition,

to the arrangement of such things/symbols on the undifferentiated field of the drawing sheet.

3. Complexity: an example

As we know, a symbol is a particular representation of a thing. It is a type of representation that refers to its icastic potential (Semerani 2000). The symbol is, in other words, a representation of meaning.

When Denis Cosgrove (1990) spoke of a «symbolic landscape» the first thing he told us was that the landscape is a formed object, but then he also said something about the nature of such a formation: that it is a self-representation, through which a society represents to itself and to others the relationships which give it structure. The reflexive nature of the term indicates the activation of a self-recognition device: the relationships that structure a society which the landscape as a symbol represents and signifies are its common and shared values.

Antonio Monestiroli[1] was correct when he said that it is essential to agree on the goal. The goal should be such as to demonstrate to sceptics the topicality of a piece of architecture, its usefulness. In what way? By exemplifying its specific potential to syncretically represent within a formal construction the values common to a given «linguistic community» (as Gadamer stated, 1985), playing on the extremely subtle limit between evidence of recognizability and planning or prophecy (Picasso's answer when asked why his portrait of Gertrude Stein did not look anything like her applies here: «It doesn't matter, it will look like her»).

The fact is that such a representation must be constructed and this construction must be understood at all levels, logical, semiotic and technical.

Let us take an example. In a valley of the Trentino region the population's feeling of belonging to the same cultural community needs to be represented: this feeling is firstly historical, nourished by the collective memory, as a product of the individual memories, both oral and written, of the members of that population. The history that unites them is largely that of an effort to emancipate themselves from the material miseries which the poverty of the soil foisted upon its inhabitants; fatigue, misery, but also creativity and the courage of the protagonists of numerous individual events. At a certain point, this local history was impacted by the events of the Great War, which interwove their universal destiny with the particular one of the shepherds and peasants/soldiers, their women, mothers, wives and girlfriends, the elderly and the young children of the mountains. The literary transcriptions of popular feelings, the real and fictional stories, and the anecdotes became muddled with the minor and major events of the war, which afforded a global face to the grotesque representations that popular legends give of the unpredictability of humankind's destiny.

Like the scars of an individual experience, history marked this territory with traces of the events it produced. This particular territory is scattered with objects of a military nomenclature (the «nomina sunt res» always applies, Semerani 2003): fort, casemate, observation post, bunker, artillery post, trench, tunnel. The task of architecture is to establish original relationships between existing objects: its difficulty and complexity lies in the type of originality, which precipitates within the syncretic relationship between the fact experienced and the reading model. The first reason for complexity concerns the choice of theme or themes. The assumptions of Aldo Rossi (1967) – «We are in favour of 'a-priori' architecture» – or of De Chirico – «The virgin mind is blind» – apply. The method is, once

Fig. 2
L. Semerani, The fortified landscape: places and figures. Project for the valorisation of the historical-monumental heritage of the Valle del Chiese high lands, 2004.

again and always, «Goethean», that known as «objective fantasy» (Goethe 1807), and belongs to a faculty of the mind, the associative one.

Is there a place in the collective imagination of a set of literary and artistic representations of a given fact, that is, images described and depicted, which contains formal units composed of said sets of named objects? Not directly. However, we can think of the fortress as a war machine and we can then ask – what kind of machine and what kind of war? Of course a machine is a machine and a war is a war, but oddly enough there is literature which associates the machine with war, and especially with the Great War. There are machines with a «spectacular and wonderful effect» that describe war as serving loneliness and death. Or rather, there is an artistic literature which associates the machine with war precisely as a producer of loneliness and death, and of alienation. Such machines are wonders of science and structurally represent the power relations of which they are an expression. The «torture machine» (Szeemann 1989) of Kafka's *In the Penal Colony* has, like other «celibate machines», an upper floor, a place of power and military authority and a lower floor, where the victim, a soldier of the Austro-Hungarian Empire convicted of insubordination, is lying on his stomach while the perfect mechanism of a pantograph transcribes a sentence from the hand of the designer/executioner to the skin of the soldier/victim using a harrow-like device. In «Locus Solus» by Raymond Roussel, the military authority makes use of the prodigious weather calculations of the scientist Canterel.

It is easy to translate the prodigious weather calculations into the mathematics of ballistic true-range multilateration on which the distances and embrasures of the stronghold of Forte Corno were measured. It is more difficult to question the character that this reactivation of signs and meaning should produce. Because if it is true that war machines produced loneliness

Fig. 3
L. Semerani, The fortified landscape. Study design for the setting up of the Fort Corno "Poetic reaction machine", 2004.

and death, it is also true that they are still machines with a «wonderful and spectacular effect», to such an extent that the reproduction of the mechanism has always fascinated children's games. And it is true that the lightness of certain daily occupations can be poetically transcribed: the place from which the messages of the carrier pigeons depart becomes the scene of a poetic-sentimental idyll if hope fills the transcription of the carrier pigeon/dove of peace.

The signs of military nomenclature make up a swathe of (fortified) landscape in which they are confused with and flanked by environmental pre-existences bearing other common nouns (waterfall, stream, cliff, rock) as well as proper nouns (Revegler, Marach, Cavalla, Pur), which refer to further «absences» of reference, to other landscape «clichés» or narrative stereotypes: Hirschfeld (Schepers 1980) classified the landscape according to the nature of the place («*Angenehme, muntere, heitere Gegend und Garten, Sanft melancholische Gegend und Garten, Romantische Gegend und Garten, Feirliche Gegend und Garten*»); Edmund Burke (1757) counted among the elements that characterize the sublimity of a place «the Sounds and the Roar of waterfalls» and among the images of Vastness, the high rocks, the vertical precipices, the rough and broken surfaces. William Kent (1987) gave shape to these literary suggestions by drawing or building them: on the top of the rock delimiting the waterfall stands the temple of the god who personifies it. The caves that populate romantic landscapes are those of a sleeping nymph, rather than the dwelling of the god of the
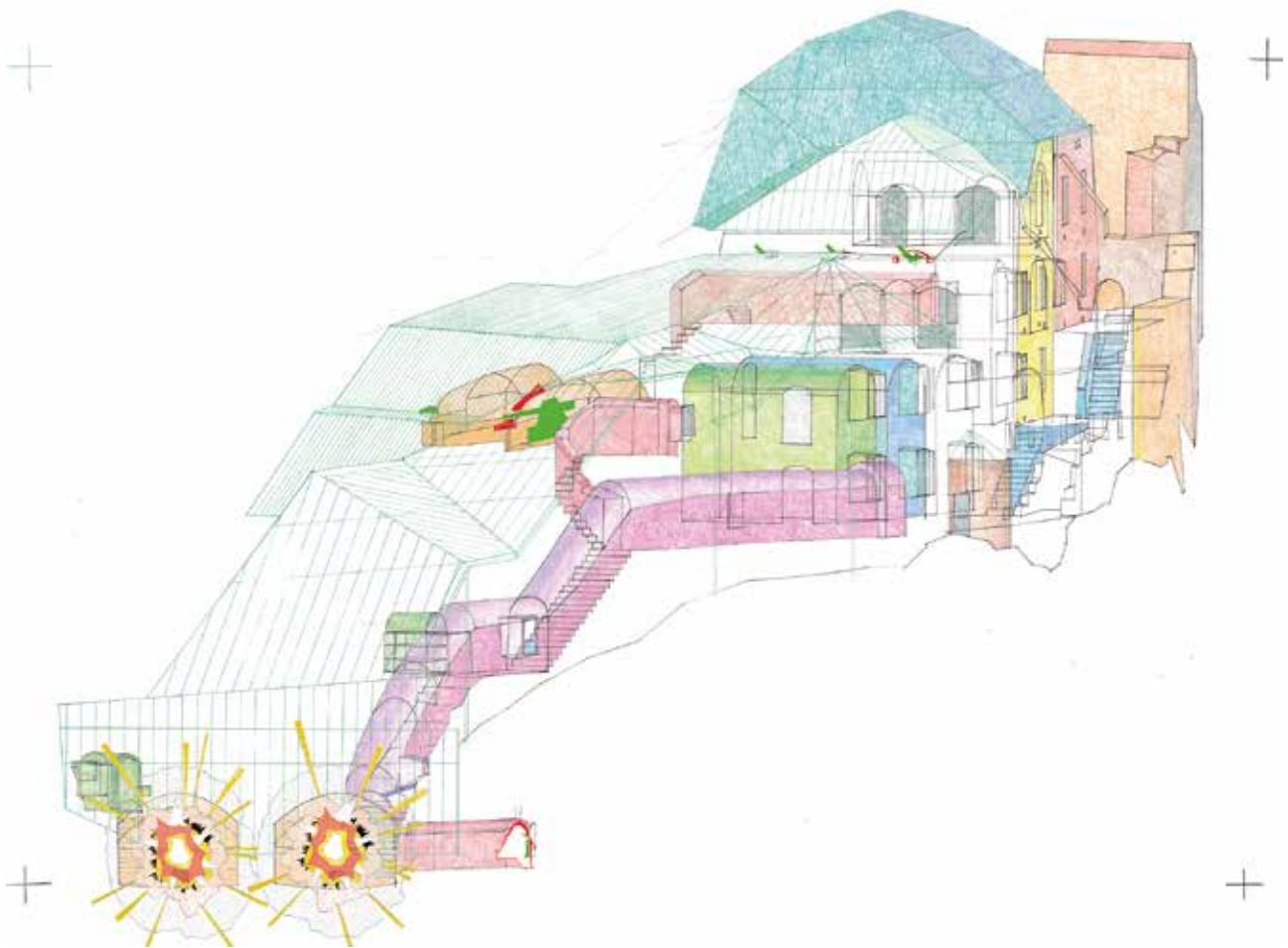
Fig. 4
L. Amistadi, Fort Corno. Simultaneous viewing, 2009.

river that crosses them; if the short imperfect vault of the military tunnel dug on the northern limit of the park becomes a grotesque representation of the end of an initiatory path, the circle then closes: the labours, the adventures, the sufferings of the past exalt in the light of awareness and in the story of the goals that the resoluteness of a common effort and the will to live have been able to draw from the unpredictable and tragic.

However, we do not think, as Marcella Aprile (1993) did, that the landscape of narration is a landscape composed of, or in, fragments, but rather that it indicates, as always, the idea of a succession of independently defined parts. The structure of a narrative will determine the mutual location of the parts or their «interesting distance».

Henry Focillon (1990) spoke of the power of concentration of the hand. Which is also a drawing technique: before sliding your hand over the sheet you must visualize with the eye of the mind the completed image of whatever you need to represent. And this is why I believe that transmissibility is physiognomy: the succession that ranges from the choice of the theme to the determination of the figures that will represent it, to their representation in the correct reciprocal position concerns a narration of the expression, punctuated by wrinkling of the forehead, false starts, the relevance and resoluteness of the gesture, all given rhythm by the suspensions and silences from which the assertions appear by negation. I have always been fascinated by the way in which some artists/intellectuals/architects compose on a blank sheet a list of determinations, in the form of a word or a symbolic figure, and whether it is the design of a conference, rather than a museum installation or a work of architecture, a house, a palace, a city, compact or «wide open spaces», in extension or subsequent.

For me, this is not a graphic fascination, but the fragile and instantaneous appearance of a utopia, its still possible staging. Utopia is already that «Albertian» one of a principle of order or economy, in the sense of Tessenow, but is even better expressed with a touch of melancholy by Ludwig Wittgenstein (1999, p. 27): *«*Civilization is like a great organization, which indicates to whoever belongs to it the place where he/she can work in the spirit of the whole, and its strength can rightly be measured according to the result obtained by it in the sense of the whole. But in an age, like ours, of non-civilization, the forces are in pieces and the strength of the individual is consumed by opposing forces and frictional resistances, and cannot find expression in the length of the road travelled, but perhaps only in the heat generated by overcoming these resistances. Energy, however, remains energy, and even if the spectacle that this era offers is not that of the becoming of a great work of civilization, in which the best collaborate towards the same grand objective, but the unedifying spectacle of a multitude where the best pursue only private ends, we must never forget that it is not the show which matters most.

And although it is very clear to me that the disappearance of a civilization does not mean the disappearance of human value, but only of certain ways of expressing it, the fact remains that I consider the current of European culture without sympathy, and I cannot understand its ends, if any exist*».*

Notes

[1] Seminar lecture by Antonio Monestiroli as part of the PhD course in Architectural Composition of the Department of Architectural Design of the IUAV on the occasion of the presentation of his book entitled: *La metopa e il triglifo: nove lezioni di Architettura*. Laterza, Rome 2002.

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Lucia Miodini
The architectural drawing. Project and writings

Abstract
The essay examines the debate on architectural design in the early eighties. The aim of this study is to reconstruct the history of the working meetings *Il disegno dell'architettura*, organized by the Centro Studi e Archivio della Comunicazione of the University of Parma on 23-24 October 1980. A conference, which coincides with the opening to the public of the collections of the Project Department, today the Project Section, in which the greatest designers and historians of architecture of our country participate. The speeches get to the heart of the debate on the reform of national cultural institutions. A contribution to the study of architectural design, a material space for theoretical reflection and research, emancipated from the univocal relationship with constructive and professional practice.

Parole Chiave
Architectural drawing — CSAC — Project

For a history of the Project Archive.
A new theoretical and epistemological model
In 1979 on the ground floor of the Ala dei Contrafforti, in the monumental complex of the Palazzo della Pilotta, where the Institute of Art History was located[1], the heritage of the constituting Project Department finds its first location, the first in Italy, which then counted just under five hundred thousand drawings belonging to funds of designers, architects, graphic designers. A structure that between the mid-seventies and early eighties grows extraordinarily rapidly to touch eighty thousand original drawings, with about forty archives already present in the collections and a perspective at least as wide of acquisitions in the following years, up to the current consistency of about one and a half million pieces.
The Project Department, called Section since 1987, not only arouses great interest at national level, but within this period appears to be the driving structure of the activities of the CSAC (Quintavalle 1979), integrating the collections of art, photography and media.
The common denominator is the phenomenological category of communication, which also explains the integrity of the collected material, compared to the selective codification carried out by the Museum, and which, beyond the different hermeneutic key, anticipates the inclusive receptivity of postmodernism. For the attention to the processes of image production, to the tools and techniques on which this process is based, for the anthropological perspective attentive to cultural processes and to the dissemination and transformation of communication products, it fully anticipates the interdisciplinarity of Cultural and Visual Studies.
The opening to the public of the Project Department coincides with the

Figg. 1 a-b-c
Bruno Munari at Scuderie.
Photo by A. Amoretti.
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exhibition of Bruno Munari, inaugurated in the Salone delle Scuderie in Pilotta on June 28, 1979.[2]

It is Quintavalle himself (1979) who explains why the Executive Committee of the Centro Studi e Archivio della Comunicazione[3] has considered it appropriate to identify this monographic review as the first and most suitable to analyze the entire design process, from the first ideas to the sketches, from the initial versions to the final work. A choice in perfect harmony with the shift of plan determined by the standardized and mechanized reproduction of the work of art, a conceptual passage from which emerge with irrepressible force the theoretical assumptions of the debate developed between the late sixties and early seventies, which leads to the formulation of the idea of an archive of visual communication (Calzolari, Campari, Quintavalle 1969).

According to this interpretative key, all the preparatory elements that contribute to the realization of the artistic product are fundamental and equal. The executive drawing will then have the same documentary value as the work and the preparatory sketch will be a testimony of the choices and motivations that underlie the definitive version. Before any other consideration, however, design studies reveal the political, cultural and material vicissitudes that have marked the creation of a design object, a building, a dress.

Fig. 2
G. Ponti, Hotel Du Cap, Bunga-lows project for Eden Roc, Anti-bel 1939.
@ CSAC, Sezione Progetto.

Fig. 3
Figini e Pollini, Fascia servizi sociali Olivetti, Ivrea 1957.
@ CSAC, Sezione Progetto.
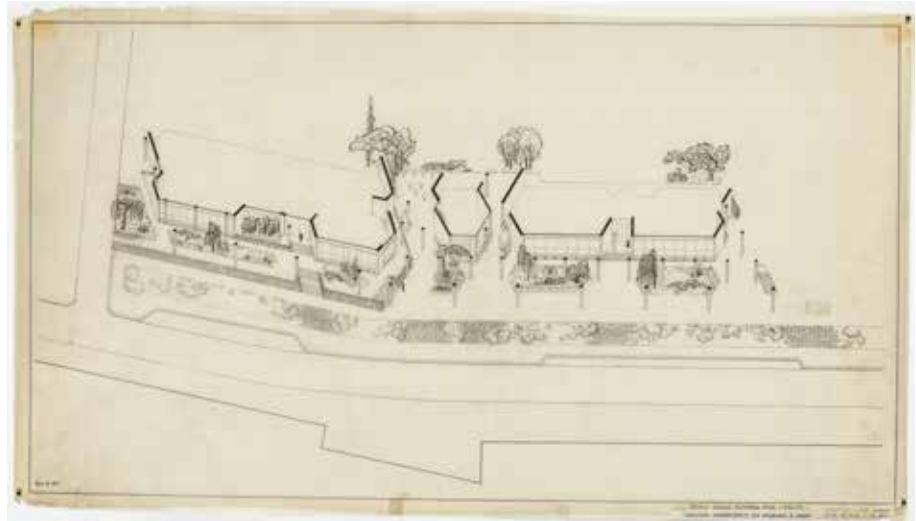
The figure of Bruno Munari, ideologically straddling the culture of idealism and the models elaborated by the Bauhaus, seemed exemplary, Quintavalle specifies, «both of a working process and of a debated analysis of the problems of the design of objects of the generation prior to the middle generation» (Quintavalle 1979).
An exhibition that allows the opening to the public of that *Archive of the Project*,

issued by the Centro Studi e Archivio della Comunicazione of the University of Parma, which stands out as one of the most significant enterprises of Italian figurative culture in recent times (...). A pilot monographic exhibition for a series of initiatives already planned, and at the same time exemplary of the research directly or tangentially linked to design, a sector in which Italy (lately it is often repeated) boasts its glory in the world (Caroli 1979, p.3).

The choice fell on Bruno Munari first of all for reasons of age. Munari, with his seventy-two years,

is the most aged enfant terrible in the sector, and has behind him an uninterrupted youth of more than forty years of work (...). Secondly, because few stories can boast the richness of his, touching on planning in its broadest sense, from the ashtray to graphics, to lighting, without neglecting the "travel sculptures" (if they had been made more in the past years, instead of occupying many squares with monuments to the roughness of authors and clients) and the extraordinary experimentation with the children of Brera (Caroli 1979).

And as Munari himself used to say: «Give me four stones and a tissue paper and I will make you the world of wonders».
We can add that the interpretation of Munari's work, in perfect correspondence with the critical methodology of research that characterizes a Cwithin studies on visual communication, does not privilege in any way the analysis of design products, with respect to graphics or illustration, examining in an organic way the different activities of the designer.
Finally, let us consider the operational choices that qualify the acquisition policy. Quintavalle considers it necessary to preserve the design material, not partially, per exempla, but in its entirety, without implementing any a priori selection, and the Munari Fund had to appear exemplary in this sense.

Fig. 4
P. Portaluppi, Centrale idroelettrica di Crevola 1923.
@ CSAC, Sezione Progetto.

Communication versus Artification

The renewed interest in architectural design, which intensified between the end of the seventies and the beginning of the following decade, is due in part to the importance that drawing assumes in the search for a new disciplinary dimension to the practice of architecture (Sixtus 1980). Many critics applaud the arrival of design on the serious shores of art, criticism and art history, on the walls of museums and galleries. We are increasingly talking about paper architectures. Aldo Rossi, Costantino Dardi, Franco Purini or foreigners Robert Venturi, Michael Graves, Hans Hollein Thomas Gordon Smith, give their projects dignity of works in themselves, real paintings and precious paintings to be framed and hung in their homes (Minervino 1980).

Private galleries and cultural institutions are dedicating more and more space to architectural design. In New York, Leo Castelli, a well-known art dealer, inaugurated in 1977, *Architecture I,* where he exhibited the drawings of Raimund Hohann Abraham, Emilio Ambasz, Richard Meier, Walter Pichler, Aldo Rossi, James Stirling and Venturi and Rauch. Two years later, on October 18, 1980, *Architettura II: case in vendita* opened to the public, an exhibition of design drawings created by Emilio Ambasz, Peter Eisenman, Vittorio Gregotti, Arata Isozaki, Charles Moore, Cesar Pelli, Cedric Price and Oswald Mathias Ungers. A collection of case studies for state-of-the-art family homes, coming from the pen of internationally renowned architects. Potential clients do not buy drawings to hang in the living room but to turn the designers' original vision into reality (Archer 1980).

Antonia Jannone, a Milanese gallerist active since 1977, focuses on an artistic expression that until then had not found space: architecture, and realizes the first solo exhibitions of Léon Krier, Ernesto Bruno Lapadula, Giovanni Muzio, Aldo Rossi, Alberto Sartoris, Ettore Sottsass, Stefan Wewerka, combining the watercolors of Massimo Scolari and Arduino Cantafora with the sets of the painter and architect Giovanni Paolo Panini or the views of Hubert Robert. In 1979 the XVI Triennale, with the aim of expanding the exhibition activity and thematic areas, from audiovisual space to fashion, dedicated space to architectural design.

In those years, therefore, architectural design seems to leave the strictly design function to become an autonomous art form. This is why the acquisition of architectural archives, in their organic completeness, becomes,

Fig. 5
C. Aymonino, Gallaratese.
@ CSAC, Sezione Progetto.

Fig. 6
M. Nizzoli Palazzo per uffici.
@ CSAC, Sezione Progetto.

first of all, an ethical act, aimed at counteracting the dispersion of design sets. Faced with an increasingly aggressive market that coincides with the so-called season of paper architecture, in conjunction with a crisis in the construction sector that dramatically expands the production of architectural drawings, promoting, often for exhibition purposes, the design of manifesto-works.

Private collecting, privileging, in fact, only the drawings considered "artistic", and the "beautiful" perspectives, would have operated a very serious destruction on the fabric of the design heritage. This is one of the reasons that probably led some of the greatest Italian architects of the twentieth century to donate to the CSAC a set of collections of so much interest and of the highest quality[4].

To the question that we hear more and more often: fashion is art, design, is it art? Quintavalle replies that it would make the same sense as asking today if cinema is art, or architecture.

Instead, it makes sense to ask why the question of the artistic status of architectural design is raised insistently in the eighties, when the critical debate is marked by a renewed interest in Made in Italy. As if to highlight that the notion of art and the field of social relations that underlies it are absolutely arbitrary and conventional and, therefore, changeable from culture to culture and from society to society.

When the CSAC archive was set up, in the second half of the sixties, as Quintavalle recalls[5], for at least four generations new areas of art had been discovered: design project, architecture, fashion; while caricature was considered art for at least a century and the manifesto from the late nineteenth century.

For anyone who wants to make history, where then are the limits of art? And it is perhaps not anachronistic to continue to ask the problem.

The contrast that existed in the post-war period and again in the following decade between official culture and the system of objects, analyzed by Jean Baudrillard (1968), no longer has reason to exist in the sixties, when the boundaries of art are less definable, and many critics show interest in the problem of mass production.

These are the questions to which the establishment of the Parma archive, and the opening to the public of the Project Department, intend to answer. CSAC is the place where the memory of all the different writings of the Contemporary is preserved, in which frontiers and systemic conceptual boundaries of the definitions of memory and heritage do not find space, where the objects and works preserved escape the process of "artification". Ithas imposed itself on the global cultural and scientific scene in recent times, which nevertheless has a complex genealogy and illustrious antecedents, placed both in artistic practice and in the theoretical reflection pertaining to contemporary art criticism and history, semiotics or aesthetics, from Nelson Goodman (1977) to Meyer Shapiro and Nathalie Heinich (2012), to name a few. Artification, I take up a recent contribution by Francesco Faeta (2018), refers, in its own way, to the anthropological rule, which reminds us how objects and practices defined as artistic are in accordance with a social sharing, more or less extensive, which then determines their different acting capacity.

The project archive. A new theoretical and epistemological model
Faced with the growing interest in art design and the risk of dispersion of architectural archives, the issues of conservation and access to documents
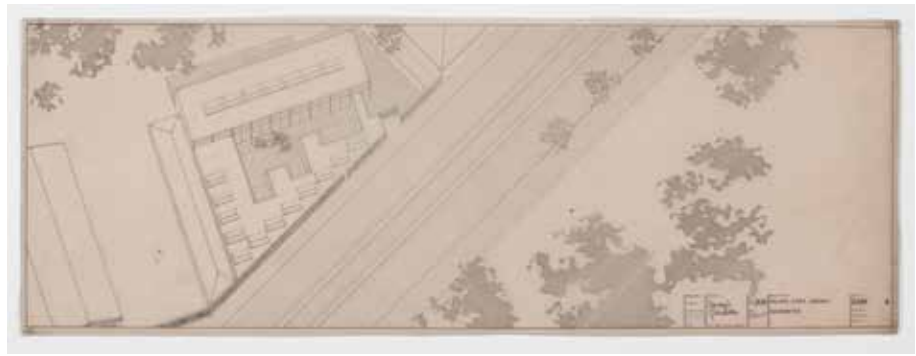
Fig. 7
I. Gardella, Pac.
@ CSAC, Sezione Progetto.

are increasingly relevant in the field of studies and research on contemporary architecture.

In the construction of the Study Centre, in its interpretation and in related studies, an openness and a general rethinking of traditional historiographical, iconographic, aesthetic and epistemological categories emerge. An opening that finds more than a coincidence with an interdisciplinary approach, aimed at returning a completely renewed object of study that relates research focused on visual communication.

It is evident, in the principles of method, the experimental approach and generalized theoretical revision with respect to the most consolidated statutes of critical knowledge in the field of art. An epistemological orientation that moves in the direction of a broader and more inclusive recognition of the meaning of art.

The Archive is, in fact, the place of the equal collection of different cultural products (from sculpture to film poster, from architecture to fashion, from design to photography, from illustration to graphics), not preferring labels that indicate them as aesthetically different.

Similarly, the criterion adopted in the archival system tends not to divide collections, series or sets of documents that have been deliberately assembled by an individual or an institution (Quintavalle 1983, p.11).

Collecting architectural drawing, in addition to being a decisive operation to reconstruct the history of design in the twentieth century, becomes a key fact to understand the present and an indispensable tool for any real awareness of the reality of our culture. Attentive to the transformations and changes of the contemporary world, the Centre soon took on the characteristics of a public, open and accessible collection.

Given these epistemological premises, we understand the choice of Giulio Carlo Argan, president of the CSAC since 1978[6], and of the scientific committee, to organize a conference, which would focus on a precise theme, that of the relationship between design, design and architecture.

The working meetings Il disegno dell'architettura, in which the greatest designers and architectural historians of our country participate, opened on October 23, 1980 in the Aula Magna of the University with the report Design povero by Giulio Carlo Argan. The crisis of the welfare society, this is his assumption, should also make us rethink the way of designing objects. Poor design is an alternative, yet always design, discourse to design read as elite, and is determined by the dialectic of the social in our culture. «We need to think of a design – concludes Argan – that projects information instead of planning a utopian future of existence». The scholar, who hopes for a world based on ethics, is a key figure not only in the context of the conference, but in the history of the Project Section itself.

It is no coincidence that the Institute of Art History, founded on the defi-

Fig. 8
M. Nizzoli, Copertina de L'archi-
tettura, Cronache e Storia. Volu-
me 14, dicembre 1956.
@ CSAC, Sezione Progetto.

nition of a new methodological model, has oriented itself in the direction of the historical art theory promoted at national level by Giulio Carlo Argan. The exchange of ideas between the two scholars that dates back to the mid-sixties becomes more intense in the second half of the seventies. Common is the idea of adopting a methodological system opposed to Crocian idealism and the assumption of a critical historical model that, in those years, coincided with adherence to a political and civil commitment.

It is only appropriate here to mention the intense exchange between Quintavalle and Giulio Carlo Argan (documentation remains in the historical archive of the Center) and the role of the latter in the design and definition of the structure. In a letter dated December 1978, Quintavalle informs Argan of the situation of the constituting Project Archive, which at the time had about twenty thousand drawings. A reality that, highlights Quintavalle, is «in essence the demonstration that the ideas of *Project and Destiny* (but also of *studies and notes*, albeit in different terms), the line of your investigation are functions of practice seems to me a great result».[7]

It seems, therefore, that Progetto e destino (1965), where Argan highlights not only the intentionality of the design act, but also how this concept is essential from that of responsibility, is a reference to the birth of the Project Archive, then Project Department, finally Project Section, already well outlined just over the middle of the Seventies. The methodological foundations that have historically characterized CSAC's collection activities: the transversal interest in new forms of communication and the attention to the project, to the historical and social process that underlies creative activity, are inextricably linked to the conviction that the reform of university teaching should be cultural even before academic.

The very idea of developing an archive rather than a museum fits into a much broader debate on the reform of national cultural institutions. (Quintavalle 1977). Several times, on the other hand, Argan himself had suggested the opportunity of a correlation between university institutes and the administration responsible for the protection of cultural heritage. And, the need for the connection between the two areas, is a perspective coherently coinciding with the history of the CSAC.

Added to this is a reflection on the changes that, in recent decades, have affected the concept of memory and the institutions that deal with it. I believe that retracing the history of the Project Archive, and, in perspective, interpreting its construction and communication, coincides with the narration of a heritage of a different nature from those offered by tradition. It is not only a question of what has been achieved, but of the transformations of the "meanings" that, in the age of the knowledge economy, are attributed to cultural heritage and to material and immaterial memory, a primary resource for people's quality of life.

One of the places dedicated to the institutionalization of memory is the museum and one of its functions is to establish "hierarchies" of memory, that is, to legitimize – as institutions responsible for guaranteeing – systemic conceptual boundaries and delimitations of the definitions of memory and heritage. Places dedicated to the selection and visibility of what, in the definition of Jacques Le Goff (1978), are defined as monuments. Objects and concepts that become "collective memory" when a society, or part of it, elects them as representative.

Since its origin, the CSAC has developed an innovative model for collecting the visual memory of the twentieth century. The aesthetics of the masterpiece is contrasted with a different model, that of the system of cul-

ture, in a critical perspective that recognizes among the epistemological foundations the attention to the historians of the Middle Ages, and to the historians tout court of the French school of the Annales, the nuovelle histoire in those years in full affirmation with the studies of Lucien Febvre, developed by Fernand Braudel and Jacques Le Goff.

From these premises develops a new reflection on history or rather on historiography, considered as a multiplicity of stories, provided with their own specific temporality and articulation. And it will become clearer later how this synchronic approach has important outcomes in the investigation and enhancement of cultural heritage.

Designed starting from the destabilization of an idea of a traditional museum, that is, a selective collection based on aesthetic evaluations or typological groupings, the Parma Archive was born, therefore, from an analysis of the museum problem and from the question, nodal in the mid-sixties, of an alternative choice between archive and museum. An open cultural approach in full harmony with the new epistemics of Marxian roots, anthropological and linguistic.

The structuralism of Fernand De Saussure and the anthropological model of Claude Lévi-Strauss, the studies based on the systematic analysis of space, signs and every form of communication, are a model for the construction of new tools for reading and interpreting contemporaneity.

The archive is interpreted as a heterogeneous system consisting not only of individual pieces, but also of the set of protocols and practices, measures and institutions, knowledge and knowledge that have the specific task of governing, ordering and determining opinions and the order of discourses as an effective and strategic sedimentation on the political and cultural level (Serena 2013).

The design of architecture. Work meetings

On 23 and 24 October 1980 the conference Il disegno dell'architettura was held in Parma at the University, and the proceedings were published in 1983, marking the presentation to the public of the CSAC collections as part of the project. A great exhibition, that of the Bruno Munari donation, opens in the Salone delle Scuderie in Pilotta, while in the wing of the Buttresses there are about fifty classifiers already full of drawings by many designers, Enzo Mari, Achille and Pier Giacomo Castiglioni, Roberto Sambonet, Mario Bellini, Alessandro Mendini and others.

As can be seen from this list, it is clear that at the beginning, the Center «focused above all on design, and on Milanese design, not too far from the American triumphs of that design and the weight that our project had assumed in the collections of the MOMA in New York» (Quintavalle 2010, p.41).

The conference is attended by scholars and designers, from Giulio Carlo Argan, who introduces the works to Manfredo Tafuri, from Gillo Dorfles to Vittorio Gregotti, from Corrado Maltese to Giovanni Klaus Koenig, from Bruno Zevi to Costantino Dardi, to Pier Paolo Saporiti; there are a group of planners and designers, many of whom are already present in the CSAC funds, from Giuseppe Samonà to Giancarlo Iliprandi, to Gino Pollini. The list of participants in the conference is much wider, in addition to the major historians of architecture, also the designers who in the following years would donate their archives to the Center: Andrea Branzi, Ignazio Gardella, Mario Nervi, Mario Olivieri, Leonardo Ricci, Ettore Sottsass, Giancorrado Ulrich, and many others.

Fig. 9
Copertina de "Il disegno dell'architettura : incontri di lavoro, Parma 23-24 ottobre 1980"edited by Gloria Bianchino. Universita di Parma, Centro studi archivio della comunicazione.

In the five years preceding the opening of the project archive, «I had moved – writes Quintavalle (2010, p.40) – with some of my collaborators, to try to collect the design starting from an idea, which was essential to put together the various design phases». An extremely coherent response to the debate on the conservation of the architecture and design project ignited in those years. How to preserve, why to preserve, what to preserve; choose some drawings considered of higher quality, opt for a selection among the projects without extrapolating drawings, or even not accepting, due to difficulties of conservation, entire archives: these were some of the theses that were discussed (Quintavalle 2010, p.40). In the end, the model suggested by Quintavalle prevails: to preserve complete documentation, without selection interventions or in any case of transformation of the characters of the original project.

A methodological choice that stems from a reflection on the comparison of interpretative models of architectural design, from Bruno Zevi «with his myth of Wright and the organic relationship with the natural», to Giulio Carlo Argan «with his adherence to post-Bauhaus design»; to Gillo Dorfles «with his attention to the most revolutionary avant-garde» (Quintavalle 2010, p.40).

Without forgetting the critical reflections of scholars of the project, such as Fulvio Irace and Maurizio Fagiolo, and of art such as Filiberto Menna and Maurizio Calvesi.

A particularly lively debate in the mid-seventies, in which Quintavalle distinguishes two lines, the one that comes out of a reflection on the themes already placed within the Bauhaus and a research that tends to overturn those problems by focusing on a different model, linked to the research of other areas, from street theater to the themes elaborated by the theory of perception.[8]

A debate that sees Bruno Zevi and Paolo Portoghesi, protagonists of the history of our architectural culture, on different lines and on divergent positions. The latter in 1980 is called to direct the Architecture Biennale, The presence of the past, passed into history as the Biennale of Post-Modern, accompanied by many controversies (Mucci 1980; Savorra 2017)

How does the conference fit into this debate? First, it focuses on a problem: the dispersion of the architectural and design project, and the consequent need to collect it, to preserve it and guarantee its study at university level. Ordito e trama della tela is the conceptual assumption that art is always a project and therefore a path of organization and choice of reality, that the whole of each archive is indispensable to understand the design, that historians are indispensable to identify the archives and to orient the owners towards a non-profit public collection (Quintavalle 2010; p.40).

Architectural design, a material space for theoretical reflection and research, emancipated from the univocal relationship with constructive and professional practice, cannot be understood outside this theoretical and cultural framework. And only the archives that preserve it allow us to reconstruct the design process, and not exclusively in view of the work carried out, but rather to understand the relationship of the designer with everyday life.

But what sense does it make to organize a conference on architectural design, asks Quintavalle, «in the perspective of a historical collection of design design that should, in theory, be outside the debate even very lively to which we have come in recent years witnessing?».[9]

Fig. 10
G. Zavanella, Arredamento Appartamento Spadacini Milan 1932-34.
@ CSAC, Sezione Progetto.

The answer clearly suggests the political and cultural significance of the conference. An open and lively structure, such as the CSAC, cannot escape, notes Quintavalle, discussions and must know how to model its work on the basis, «indeed on the basis of even the most diverse trends».[10] The interventions may suggest solutions and indicate areas of aggregation; Especially since the debate takes place in the presence of the highest regional administrative authorities, to encourage a dialectical confrontation with those who actually work on the management of the territory.

The scientific committee[11] thinks that the convention should have operational conclusions, address the problems related to the conservation and cataloguing of architectural design, set up international collaborations; outline operational conclusions, both on specific issues and on the general operational design of the CSAC. The Scientific and Executive Committee must, at the end of the work, indicate the lines of the next interventions «in the living reality of civil coexistence»[12]

The conference addresses, in essence, the communicative aspects of architectural design in view of the arrangement in the archive of the funds being acquired; It proposes a new way of studying architecture, design, graphics, especially considering that, in the contemporary world, the executive procedures are not perfectly consistent with those used in the past, corresponding, on the other hand, to the emergence of new design methodologies.

After the introductory report by Giulio Carlo Argan and, in the early afternoon, the visit to the Project Archive in the Buttresses Wing, the work resumes in the Mulas Hall in Pilotta, with the reports by Paolo Portoghesi, Project and drawing; Manfredo Tafuri, The archaeology of the present; Corrado Maltese, The end of the culture of objects and the limits of memorization.

Tafuri focuses his attention on the relationship between design, design and architecture, indicating the problem of the collection of CSAC as a kind of problem of knowledge understood as a discourse on memory and the

future. There is no architecture without drawings, which are the only historical testimonies of the relationship that binds intellectuals to the modes of production. The problem of the collection of materials cannot disregard, in his opinion, the problem of "knowledge", of archeology of knowledge, borrowing its title from a well-known work by Michel Foucault. The relationship between discursive and non-discursive formations, between knowledge and social behavior, emerges from the series of architectural drawings, considered archaeological traces that serve to "disseminate" the work.

Numerous explanations formulated during the twentieth century on issues related to the retrieval, selection and conservation of traces produced by countless human activities share a characteristic: their object of reflection is the archive. For Foucault (1966) the archive is an instrument of systematization of knowledge that has a normative character and cultural value, decisive for the elaboration and transformation of discourses (Foucault 1969). It is, for Jacques Derrida (1995) an instrument of production and preservation of signs that would reveal the gap between the empirical and the transcendent, the role of inscription and deferral of presence.

The critical analysis of Corrado Maltese is based on the semiological reading of the problems of the culture of objects and the crisis connected to the theme of memorization. Maltese focuses on the spaces and tools that house series, collections, populations of objects that have characterized the last decades, wondering what meaning we can or should attribute to the process of museification.

The following day the work continues with the interventions of Gillo Dorfles, *Autonomy of architectural drawings*, Giovanni Klaus Koenig, *Drawing and design*; Vittorio Gregotti, *Process and function of architectural design*, Cesare De Seta, *Hypothesis of choice of the paper museum*.

Giovanni Klaus Koenig raises the theme of the relationship between design and object, while De Seta addresses the issues of the choice of materials, a necessary discourse in the face of the enormous amount of texts that could theoretically be collected.

Dorfles supports the autonomy of architectural design, and investigates the "aesthetic" problem. «The mistake that is usually made in the analysis of architectural design is that of not knowing how to circumscribe the linguistic specificity of a given art» (Dorfles 1980, p.16). It is around this problem, "the need to attribute to each art its own specific language", that the heated discussions and numerous interventions of the congressmen rotated.

The problem of architectural design in the contemporary world, highlights Dorfles, is very different from the pre-technological past. Before the industrial revolution, before the rise of current drawing and design methods, often mechanized, there was a synchrony and an aesthetic equivalence between architecture, drawing, painting, sculpture. Michelangelo, Bibbiena and Palladio were painters, sculptors and architects at the same time. Today, continues Dorfles, a drawing, a sketch of architecture should only serve as a reminder, as a premise to the actual project. The architect and designer can use drawing as a creative starting point to establish a constructive idea. However, it also happens that there is an interest in drawing free from any actual design will and therefore comparable to any other impromptu sketch of a painter or a sculptor. When an architect aims to elevate a drawing, design or not, to artistic value, Dorfles points out, he can create an equivocal situation in the user. That is, it is necessary to distinguish,

Fig. 11
P. L. Nervi, Stadio di Firenze.
@ CSAC, Sezione Progetto.

warns Dorfles, between the actual urgency of fixing an architectural idea through a sketch – that is, without thinking of having created an important visual work – and the satisfaction of having executed an architectural project, already with the prior intention of elevating it to a pictorial work in its own right, which today, the scholar complains, happens more and more often.

Dorfles reiterates the importance of the CSAC, which indiscriminately welcomes the drawing and design material, adopting a methodological practice, the only one able to offer the scholar a complete picture of the activity of each individual artist archived.

Preserving the drawings allows, and would have allowed even in the past if sketches, drawings and models had been preserved, to know in depth the mechanisms of the creative process that leads from the initial idea to the realization (Minervino 1980, p.14).

Vittorio Gregotti also[13] highlights the importance of the collections of drawing that allow us to reconstruct that delicate coming and going of repentances, variations and second thoughts, very close to the patient work of weaving: all knots and plots to fix provisional and yet irreplaceable moments of design; To investigate the creative fact in its entirety, especially in architecture and design, where nothing better than the design commitment serves to highlight the relationship that binds "the inventor" to reality, that is, to that everyday life that to some extent is called to modify or with which he must still deal. If, of so many pages of architecture we ignore genesis and developments, and consequently the virtual suggestions for our time, for contemporary culture, the Parma Archive responds to the gaps, which collects the projects of architects and designers.

Gillo Dorfles and Vittorio Gregotti emphasize with greater conviction, among the scholars who took part, the importance of the policy followed by the CSAC in acquisitions.

Project and writings

When we talk about "architectural drawing" do we also mean drawing as a language, as an expressive form? Or just the architecture? If Bruno Zevi supports architecture without drawing, and Paolo Portoghesi, considers drawing as an artistic fact, Quintavalle makes his position clear: he does not believe in drawing as art in the slightest.

Thesis well expressed in his report, *Scriptures and sense of architecture*[14], which closes the conference. The scholar addresses more strictly semiotic problems and introduces the theme of drawing writings.

An interpretative key to understanding the cultural weight of the notion of "writing" and the related concept of "transcription" is the reflection on the culture of mass production, without forgetting the Benjaminian lesson exposed in the famous The work of art in the era of its technical reproducibility, often cited by Quintavalle himself, which has radically changed our perception of what is original / authentic. Mechanized reproduction emancipates the work of art, transformingit from an object of contemplation to a matter of empirical and scientific study. Modern perception can be better understood by distinguishing two notions, that of "authenticity" and that of "singularity": the mass proliferation of copies is established by sacrificing the idea of authenticity, which is supposed to be sustained by an original or founding object.

To understand the formation of an archive of visual communication, based on overcoming the old model that separated art from the world of pro-

duction, it is useful to think back to industrial production between the nineteenth and twentieth centuries, when the typologies of the collections incorporate the modern phenomenon of repetition, reproduction of images and multiplication of forms of exhibition, which make the principle of novelty a central issue, originating from the very process of industrial production.

According to this interpretation of the artistic product, all the preparatory elements that contribute to its execution become fundamental; the various design studies, texts, writings and every transcription tool that tell the political, historical and material vicissitudes that marked the creation of a design object, a building, a dress.

Given these premises, the concept of "writing" will be better understood. Quintavalle, accepting the structural interpretative model, supplemented by iconology studies, considers drawing a system.

The collections are built, in fact, from the beginning, as a system aimed at the historical reconstruction of cultural contexts and the critical reading of the scriptures.

Before proceeding, it is worth recalling, albeit briefly, the genesis of the concept of writing that recurs in the publications of Arturo Carlo Quintavalle and his school. Writing, as Roland Barthes states in *The Zero Degree of Writing* (1953), is a function, it is the relationship between poetic creation and society. In the genealogy of the concept of writing, which Quintavalle brings back from the textual to the communicative sphere, there are the structural linguistics of Fernand De Saussure and the analysis of the structure of discourse or of the internal organization of Roman Jakobson's text.

The director of the Centre takes an important step: he exports the methodology of structuralist analysis from the study of language to audiovisual languages. A meaning of writing that also considers the redefinition of the role of the spectator-reader in the narratology of Algidras Juliene Greimas, Claude Bremond and Gérard Genette. This is confirmed by the statement that the narrative description of the clothes is functional, like that of the environments, to the structures of the story.

The narrative structures are linked to the interest in the syntactic moment of the figurative work, be it a photograph, a fashion figurine or an architectural drawing. Grasping the cultural meaning of drawing through the analysis of formal elements is not those who do not see the connection with the iconological method from which the innovative hermeneutics of the genre system derives. The "genre" is, in fact, decoded within a system of image traditions capable of providing interpretative criteria.

The question of gender is linked to the debate on structuralism that characterizes the late sixties and early seventies in Italy. Referring to the studies of Viktor Sklovsky, gender, in Quintavalle's critical exegesis, is a system of conventions, of linguistic structures that is maintained beyond and above (but in precise dialectic) with individual creation. And the writings of the drawing fit well into this theoretical framework. Following Northrop Frye (1957) the emphasis is on the spectator, on the consumer, interpreting the function played by the genre as a mediator between author and audience. It is very clear, however, that if the attention of the authors just mentioned is directed to the literary system, to textual and non-iconic communication, the interpretation of genre as a narrative tool, fundamental in the concept of "writing", refers to the narratological theory of Algirdas Julien Greimas, mentioned above, but even more to the interdisciplinary

setting of the iconological method.

If for the Lithuanian linguist and semiologist narration, or rather narrativity, is at the bottom of every act of meaning, be it a story proper, a philosophical work, an advertising image, a design object, an architectural artifact, a dish, a ballet, a dress, a fashion design, as well as the lived experience of our daily life, for Claude Bremond (1966) who elaborates the "logic of possible narratives", each story is a logical set of processes.

However, specifying that the different representative norms (genders) are examined as evolutions of a closer and implicitly ideological relationship between "rule" and invention (or "creativity"), they are not fixed and imperishable, but depend, from points of view activated within the cultural debate of a given historical moment, the result of a discursive activity, in which different actors take part (artists – designers, graphic designers or architects – producers and clients, public, cultural mediators) and which is renewed whenever a corpus of visual writings is revised and reinterpreted.

Towards new epistemological perspectives: archival activism

A tight epistemological reflection, which has invested the very foundations of knowledge, has been matched by a loss of influence of the great narratives. And from this general theoretical rethinking have descended new criteria for the use of memory deposits, the discovery of new dimensions of archiving, a redefinition of the classifier orders of reality and disciplinary partitions, methods and techniques, which proceeded, however, hand in hand with a reduction in the overall social legitimacy and authoritativeness of the archive and its cognitive practices.

It is immediately clear how necessary are communication innovation initiatives that allow the overcoming of critical issues, in the awareness that accessibility (I am thinking above all of cognitive and cultural accessibility) is an essential requirement to enhance the heritage of the Project Section.

We always hear that today the archive has profoundly changed, as well as being dislocated, virtual, accessible at a distance and immaterial, it seems to have become polysemous and polymorphous.

Let us ask ourselves instead what kind of research it is possible today to carry out on archival material while keeping visible the originality and also the anomaly of the personal and collective "writings" preserved among the papers and how to re-actualize them. A critical perspective, still to be explored, is archival activism, introduced by Andrew Flinn (2011).

Since the seventies, when in Italy there was no awareness on the themes of communication, Arturo Carlo Quintavalle, founder of CSAC, broke the fences and through an "eclectic" attitude, without ever failing to the rigor of philological culture, taught to look, without blinkers, the contemporary aesthetic dimension. The architectural design is not, I would add, material and inertand to be subjected to careful examination, observedor from a certain distance with the traditional detachment required of any self-respecting scientific work: but rather the expression of a set of relationships inherent in the very procedures of archival exploration. Emotionality and affectivity, a fundamental condition in the formation of subjectivity, would then constitute the foundations of a new epistemology of historical research. The relational dimension can attribute, in fact, new meanings to the design materials of the archive, making use of new epistemological and heuristic approaches that come from the transnational and postcolonial perspective. A radically different idea of the historiographical perspective that had its

genesis, as is known, in Walter Benjamin's Theses on the Philosophy of History, originated from the revisiting of modern conceptions of temporality and its meaning. A profound work of revision of the "scriptures" of History, as well as of History itself, with respect to the contemporary social and political context, which has firmly placed some of the knots of cultural policy that in this country have never been resolved, stops attention on a series of problems that educational and cultural institutions in Italy have historically removed, also with respect to the languages of the image, to the media transformations that have delivered us to digital globalization.

Notes

[1] The ala dei contrafforti, partially sold to the Institute of Art History of the University of Parma in 1973, underwent a long restoration by the architect Guido Canali.

[2] The Bruno Munari Fund was recently acquired; a first donation dating back to 1977, followed by a second in 1978 and a third in 1979. In the same period the Enzo Mari Fund reached the CSAC, the donation of three works of art in 1977 was followed by the donation in 1978 of the archive sketches and drawings; the Roberto Sambonet Fund, whose first donation dates back to 1979. There are also the presences of the archives of the generation of Giuseppe Samonà, Ignazio Gardella, and, earlier, of Giò Ponti, and those of Carlo Ajmonino, Vittorio Gregotti, Leonardo Ricci; by designers Achille Castiglioni, Ettore Sottsass, Tobia Scarpa, Alberto Rosselli, Mario Bellini, Alessandro Mendini.

[3] The wording appears for the first time in the catalog dedicated to Emilio Isgrò, Quaderno 27, 1976.

[4] A. C. Quintavalle, *Il disegno dell'architettura*, typescript, Archivio storico CSAC, (1980).

[5] Ibidem.

[6] The position appears for the first time in number 39 of the Quaderni CSAC series, in the volume dedicated to Alfredo Chiappori of which Giulio Carlo Argan also edits the premise.

[7] Typewritten letter from Arturo Carlo Quintavalle addressed to Giulio Carlo Argan and dated December 1, 1978. CSAC. Archivio Storico.

[8] *Il disegno dell'architettura*, typescript, Archivio storico CSAC, 1980.

[9] Ibidem.

[10] Ibidem.

[11] In the catalog of the exhibition dedicated to Bruno Munari, published in 1979, the Scientific Committee of the Project Department is made up of Adriano Bragia, Guido Canali, Achille Castiglioni, Pier Luigi Cervellati, Silvia Danesi, Ignazio Gardella, Vittorio Gregotti, Enzo Mari, Thomas Maldonado, Bruno Munari, Paolo Portoghesi, Paolo Rosselli, Roberto Sambonet, Giuseppe Samonà, Ettore Sottsass, Manfredo Tafuri, Marco Zanuso, Bruno Zevi.

[12] *Il disegno dell'architettura*, typescript, Archivio storico CSAC, 1980.

[13] Ibidem.

[14] In the deeds the title of the report is: Project writings.

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Livio Sacchi
Drawing and Project

Abstract
As a creative reasoning, design is turning into something different from what we are used to, in a new logic that leads it, in the first place, to ensure environmental balance. Drawing has also changed, to the point that its demise, if not its death, has been explicitly mentioned. Rather, it seems to us that, from a pure architectural communication tool, drawing should be brought back to the role of a privileged instrument of design reflection, thus opening a season in which the project, also thanks to its digitization, the diffusion of BIM and the introduction of artificial intelligence, can be reconfigured as a simulation of construction work, if not as a form of punctual graphic deconstruction of architecture finally aimed at its construction.

Keywords
Drawing — Project — Architecture

Drawing and design constitute two, partly overlapping, sets.

Considerations on design
Designers know that the project is a creative reasoning, with its classical philosophical articulations in deductive or analytical on the one hand, inductive or synthetic on the other. Architecture in general and the project in particular are based on the reason and on the reasoning ability of the architect: a reasoning aimed at oneself and others. It is no coincidence that Stefan Zweig wrote about the "mystery" of artistic creation: «the greatest virtue of the human spirit consists in trying to make understandable to oneself what at first seems incomprehensible»[1]. However, the architectural project is turning into something very different from what we are used to. Contemporaneity obliges us to pose the question in a trans-scalar way, capable of working simultaneously at different scales, and above all with an approach that looks at that unitary whole – within which, in fact, our life takes place – deriving from the sum of the built environment and the non-built environment. Architecture is the creative product that, thanks to the project, emerges from the relationships between all of us, human beings as a whole, and the ecosystem in which we live. In short, a building – more than seen as an object, more or less successful, which is added to a territory or a city responding, more or less effectively, to a series of functions – is something that must guarantee environmental balance in the anthropocene, the era in which humanity began to affect the environment, in a sensitive and often negative way, but also one in which it feels – or at least should feel – a guest and not a master of the Earth: our common home. In very general philosophical terms, the project is valid as «the anticipation of pos-

sibilities: that is, any prediction, predisposition, plan, ordering, predetermination, etc., as well as the way of being or acting that belongs to those who resort to possibilities» (Abbagnano 1987, p. 701). The object of this anticipation is not necessarily something material, even if this is precisely what happens in architecture. In equally general terms, De Fusco (1984, p. 1) observes that «design in a broad sense is an activity that precedes (or should precede) every human action, both individual and above all collective». The foresight aspect inherent in the design activity is therefore as fundamental as it is firmly rooted in history. «In 1615 Vincenzo Scamozzi in his *Idea of Universal Architecture* summed up the architect's ability to foresee in the concept of *praecognitio*, which literally means preliminary cognition, or to recognize in advance. [...] Scamozzi also bases his concept of *praecognitio* on the passage taken from Aristotle's Metaphysics (“*ars est universalium cognitio, experientia vero singularium*”), where with this statement, according to the interpretation of Leon Battista Alberti, he gives precedence to art and the speculative aspect. Therefore, architecture essentially consists of a speculative intellectual activity of a decidedly teleological character» (Oechslin 2004, pp. 62-63). Still Scamozzi specifies the relationship between idea, design and execution with surprising clarity. The building is defined as «a scientific habit that resides in the mind of the architect» and the project and its drawings are the means by which the architect communicates his «invention». In short, with the project, we try to foresee and build what does not yet exist: the future. But talking about the future is always imprudent: it is essential to reflect «before taking any step, in an attempt to anticipate the future, that is, as the great philosopher Emmanuel Lévinas warned, 'the absolutely Other', in all its impenetrability and unknowability» (Bauman 2018, p. 6).

Considerations on drawing

Let's start with a testimony by Franco Purini:

It is almost impossible for today's students to imagine what a project's path was like when we used to draw by hand. The quality of the individual sign permeated every moment of the cognitive and creative work, giving it an originality and an identity directly proportional to that of the sign itself. [...] In my conception of architecture, drawing has always played a decisive role, configuring itself as the native place of the idea, a theoretical and imaginative space only within which the embryo of a composition can come to light. Drawing is the individual expression *par excellence*, the scope of an architectural writing that fully represents the author. (2012, p. 57)

It is still so? Will it still be like this? What is certain is that it is not possible to talk about design without talking about drawing, a field strictly similar to that of design, and equally important for our profession, which has always occupied a central position in the preparation, the professional practice and the research and communication activity of every architect. In addition to the creative aspects recalled by Purini, the main technical goal of drawing is to express, clearly and uniquely, by means of only two dimensions (those of the representation plane, it does not matter if physical or digital), the three-dimensionality of the architectural space. Not an easy goal, which involves a scientific process of "translation" from 3D to 2D in both directions. In fact, architectural drawing can be divided into two subsets: survey and project. The first *proceeds* from the existing, being characterized by a dynamic that moves from the reality of the building to the two dimensions of the sheet. The second *precedes* the construction of

architecture. It is marked by the intention to pre-figure for the purposes of production and is characterized by a dynamic that from the two-dimensionality of the paper (or of the screen) tends to the spatial organization of the work to be built. But, on closer inspection and beyond these distinctions, any definition of drawing implies a tension towards the project, from which not even the survey is exempt.

In 2014, David Ross Scheer's book *The Death of Drawing* was published, which takes stock of the subject. To whom can we attribute the responsibility for this? Naturally to the new, or second, digital revolution in general, and to the spread of BIM, Building Information Modeling, in particular. We do not know to what extent the hypothesis of the disappearance (or at least of the sunset) of drawing as an architectural design processing tool is realistic. It is easier to agree on the beginning of a new season, different from that of the even more recent past, and on the need to respond to changes with the re-foundation of our design habits. In short, we are at the end of a paradigm that has historically worked for at least five centuries and on the threshold of a new era: a second digital revolution, therefore, whose main challenge is to fill the gap, created by the first, between projects, more and more virtual, and unequivocally real construction, to recall the well-known dichotomy used by Maldonado.

What will become of drawing? Are we destined to loose it and loose the relationship between its own dexterity and that of construction processes? Will representation be replaced by simulation? All in all we hope not, aware of the fact that novelties are added to what precedes them without ever totally depriving them and that representation, in architecture, plays and will continue to play a central role. Gadamer writes about it:

Representation remains [...] linked in an essential sense to the original that is presented in it. But it's more than just a copy of that. That the representation is an image, and not the original itself, does not mean anything negative, it is not a diminution of being, but rather indicates an autonomous reality. The relationship of the image with the original is therefore fundamentally different from that which occurs in the case of the copy. It is no longer a one-way relationship. That the image has its own reality means, for the original, that it presents itself precisely in its representation. In the image, the original presents itself. […] Every representation of this type is an ontological event, and enters to constitute the ontological state of the represented. In representation, this undergoes a growth in being, an increase in being. The content of the image is defined ontologically as an emanation of the original. (1983, pp. 174-175)

Will the sunset of the season in which drawing was considered a mere communication tool for architecture bring it back to a more concrete role as an instrument of design reflection? If we are then convinced that we are at the dawn of a new era for the construction industry, the latter will truly be able to produce a built and infrastructured, digitized, shared, sustainable environment faster, at lower costs and with fewer emissions, accessible, inclusive, efficient and intelligent in view of the gigantic dimensions assumed by the global construction market? In many parts of the world this is already the case. Perhaps «there is no point in crying over what has happened. Individual architects can keep looking at their values if they choose so, but the discipline as a whole is already engaged in a radically different challenge. In architecture, the conditions determined by simulation, which appear sterile in the light of tradition, can offer new possibilities when viewed with different eyes. To continue to be architects, we have to change our ideas» (Ratti 2014, p. 71).

Conclusions

Let's start our conclusions by quoting David Chipperfield (2020):

We must surely now redefine ourselves through an alliance with susatinability concerns to maintain relevance, or even existence [...] The value of design is that it can represent desires and ambitions, not just fulfill a function or a neat solution, and its relevance depends on where it realises itself.

In the contemporary project, eco-sustainability is therefore a *sine qua non*. But it is also important to remember that the project must interpret the expectations of users and society and allow the realization of a well-made building: the architect's task does not end in the design act, but continues for the entire construction phase and beyond. The digital revolution has therefore changed the way we design: in addition to sustainable and participatory, adjectives such as virtual, parametric, open source, interactive, resilient and others constitute the signals of how an unprecedented vision of the world has merged into the process of designing. BIM itself assigns the entire organization of heterogeneous data to the three-dimensional model of the building, allowing the simulation of the construction site procedures necessary for construction. Will an architecture – or, more simply, a building – then become a "distributor" of services and, above all, a terminal for obtaining data in the near future? We are convinced that the profit production chain in the construction industry is expanding with new elements and new dynamics; the simplest to explore is the so called service architecture (i.e. specialized and digitized assistance for the development of projects) to arrive at the management and maintenance of the building as an object in continuous transformation, equipped with devices capable of offering different performances and of capturing data. The knowledge of the habits of residents, which already happens with cell phones and the social media, will have, in the near future, a greater value than that attributed to real estate as such. Now, beyond the profession / business dichotomy, how is our new role actualized? Will the architect be only the one who defines the project or will he also be able to directly manage these services? Will such a scenario be compatible with the current regulations governing the profession? Finally, what role will the architect of the near future play on such a complex and crowded chessboard? Marginal, we fear, if design remains pure formal play. Central, we hope, if design will be able to seriously respond to the challenges of the contemporary world.

We are convinced that the teachings of the past will continue to be indispensable, but these teachings alone are no longer sufficient: we must look ahead. We will be rewarded to the extent that we are able to renew our approach to architecture. In an interview with Eva Mayer in 1984, Jacques Derrida spoke of «the beginning of a non-representative architecture», outlining a «completely new relationship between surface, design, and space, architecture»[2]. Can we think of a season in which the project is reconfigured as a form of punctual digital graphic deconstruction of architecture, finally aimed at its construction? An important theme within this discourse is finally constituted by artificial intelligence. It would require spaces that we don't have here. In conclusion, we limit ourselves to recalling what Mario Carpo (2020) recently wrote:

It is clear that digital techniques make new tools available to today's architects and designers, who can and should find the best possible uses for them - because if they do not do it, others will. But to imagine that a new generation of computers will be able

to entirely replace the creative work of architects (as Negroponte and others thought at the end of the 1960s, and many are again thinking today) is neither useful nor intellectually interesting. Of course, today's artificial intelligence has amazing capacities. But even if one of these new "electronic brains" were capable of developing automatic projects (and that does not seem to be an imminent develpoment), I cannot imagine what kind of client would prefer one of those machines to one of us. If only because we continue to cost less – unfortunately.

Notes

[1] S. Zweig, *The mystery of artistic creation*, lecture held in Buenos Aires on 29 October 1940, in *El misterio de la creación artistica*, Sequitur, Madrid 2008, p. 15. Italian edition: *Il mistero della creazione artistica*, Pagine d'Arte, Aprica (CH) 2017 (in the Italian version, the quoted passage is missing).

[2] See V. Magnago Lampugnani (ed), *Der Abenteuer der Ideen. Architektur und Philosophie seit der industriellen Revolution*, Internationale bauaustellung, Berlin 1987; the text was then partially republished in "Domus", n ° 671, 1986 and in J. Derrida, *Adesso l'architettura*, F. Vitale (ed), Scheiwiller, Milan 2008, pp. 94-95.

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Chiara Vernizzi
**From the mind to the sheet, through the hand.
Topicality of freehand sketching in the architectural project.**

Abstract
In an era in which the digital transaction is increasingly affecting all areas of society, we are aware that this process has already been underway for some time in the context of defining, representing and managing the architectural project. It is necessary to keep the attention on the centrality – not only educational – of the role of freehand drawing, with particular reference to the sketch, in the phase of the initial creative process of the architectural project. The reading of some exemplary drawings produced by leading figures such as Pier Luigi Nervi and Renzo Piano, even if there are obvious differences in approach and architectural outcomes, makes clear the essential role of this moment in which the concept of the project is elaborated and refined in an intimate dialogue. This sees in freehand drawing the still primary and irreplaceable tool for defining the lines and characteristics of the project of the future architecture.

Keywords
Sketch — Drawing — Architectral Design

Introduction
The Oxford Dictionary defines the term *concept* as «an abstract idea», but also as «a project or an intention», or philosophically declines it as «an idea or a mental image that corresponds to some distinct entities or to their essential features…».
From this definition begins a reflection on the role that the term assumes in the design field, focusing attention on the project sketch as the primary outcome of the process of defining the idea. By way of example, we will analyse the outcomes of the approaches of two central figures in the panorama of the architectural project, despite their strong differences in the graphic and design results.
From the study of the drawings conserved at the Nervi Fund at the CSAC of the University of Parma and from the observation of some sketches by Renzo Piano exhibited at the Renzo Piano Foundation in Pegli (Genoa), the following considerations take place, recalling that Vasari wrote already in the second half of the sixteenth century:

we call "sketches" a first kind of drawings made to find the way of attitudes and the first composition of the work. We made them in the form of a stain, only outlined in a single draft of the whole.

The engaging rereading of the Italian translation of Paolo Belardi's short text entitled *Why Architects still draw*, also urged a re-reading of the founding role of the design sketch as a moment to draw the idea from oneself and its subsequent development, outlining a moment of intimate dialogue, preliminary to any further accurate definition of the architectural work.

It is also impossible not to recall Franco Purini's numerous reflections on drawing, which is portrayed as an ideal square that contains four main aspects: *seeing, thinking, communicating, remembering*. (Purini in Disegnare 2010, p. 14). In particular, he emphasizes that on the one hand drawing leads to thinking and on the other it is itself the result of thinking, that is, the result of that internal design to which Federico Zuccari refers: the outcome of the interaction between thought and hand (Docci in Disegnare 2010, p. 3).

Of particular interest, following the reflection on the sketch, is also the comparison between the preliminary sketches of a work and its final version, in search of the geometries present since the first conceptual drawings and their transformation into architecture. For this reason, some sketches are displayed in sequence at the Renzo Piano Foundation alongside the final (or executive) drawing and photographic images of the architectures actually built, allowing for a comparison between the concreteness of the realization and its creative roots.

On several occasions, Renzo Piano has said that he makes very complex buildings, but always draws by hand to learn about the object he works on. This statement already contains all the meaning of freehand drawing intended as an immediate extension of the mind, but also as an instrument of knowledge, of inner debate, of definition and refinement of the idea. Sketches are often crooked, sometimes inaccurate and disproportionate, always out of scale, with projective methods used in an intuitive and not rigorous way, but which, also in the spontaneous elaboration, always emerge for those who have studied artistic and architectural disciplines. In fact, we know that the project design makes use of codes and rules that make it a real language.

While in the initial phase of the design process, drawing is configured as a tool for communicating the designer's ideas and, as such, it can also take on very personalized forms, vice versa the executive drawing has a strictly communicative function and it must be organized through a coded language, with its own vocabulary and syntax.

The effectiveness of the sketches lies in their being drawn freehand, without aids such as rulers, by hand movements that are sometimes uncertain and often accompanied by textual annotations with which they are intertwined, outlining a diachronic and evolutionary inventive process (Dal Co in Conforti, Dal Co 2007, p. 23).

The sketches become work tools whose outcomes should be studied as real archival documents, as every interpretation of an architecture should start from the analysis of the multiple layers that are deposited there during the creative process. The various documents must be analyzed to find the sedimentation of the processes of conception and selection that make effective the functional and (sometimes) symbolic purpose they pursue (Dal Co, *ibid*.).

In fact, according to Manfredo Tafuri: «architectural drawings are to be interpreted precisely as archaeological traces, from which the text is decomposed» (Tafuri in C.S.A.C. 983, p. 24).

While Dorfles says that he considers it necessary to judge the Architectural Design as an artistic operation in its own right, free from what may be the characteristics of the building that may be built at a later time, on the basis of the primitive drawing (Dorlfes in C.S.A.C. 1983, pag. 34).
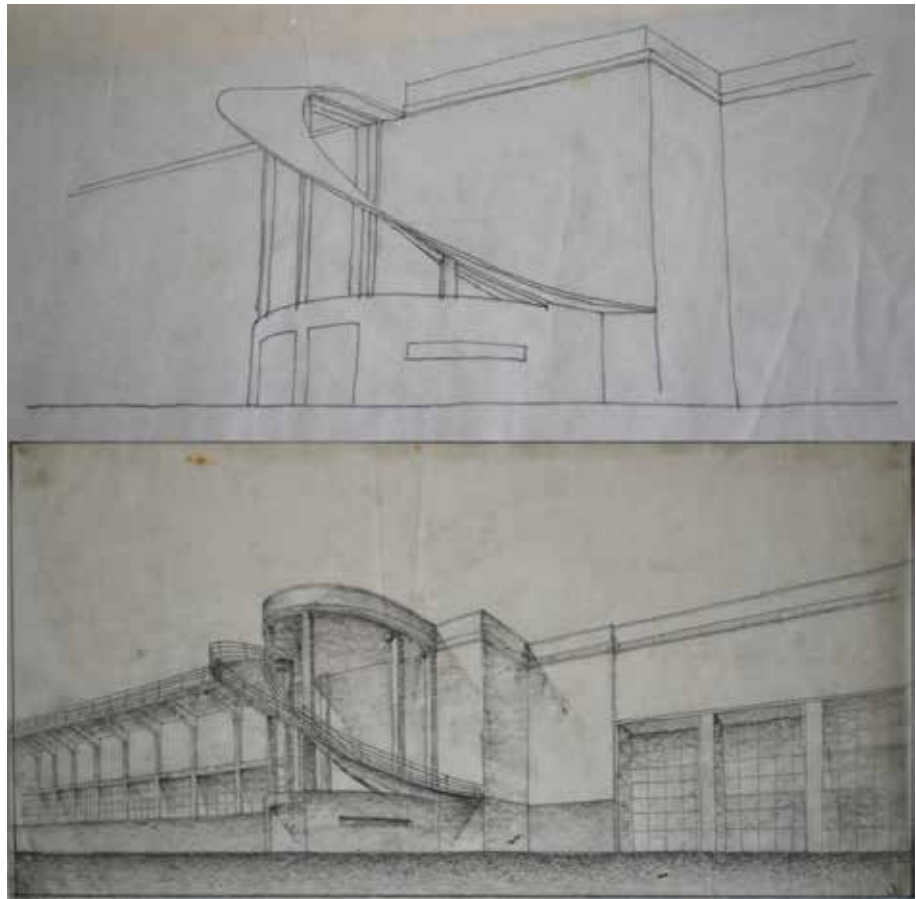
Fig. 1
Pier Luigi Nervi, *Stadio Comunale Berta di Firenze* (1929/32). Exterior of the grandstands at the spiral staircase. Perspective sketch and incidental perspective.
CSAC Università di Parma, - N. inv. PRA 31 – n. id. 12814 – coll. 268/6 e 268/8.

The authors and the cultural background

The approach to the project of the two authors, Pier Luigi Nervi and Renzo Piano, is therefore read through the analysis of what is the contribution and development of the primitive idea, in its evolution carried out through the direct, manual graphic tool, intended not only as a communicative medium, but also (and above all) as a moment of verification, maturation and knowledge of the project idea in an intimate and personal dialogue. Gradually the idea (the *concept*) is transformed into something that must be communicated through a coded language, giving life to graphic drawings drawn up according to the current regulations, through which the realization of the work is described. They are objective documents capable of uniquely communicating the intentions of the designer.

Several critics, architectural historians and designers have spoken out on the controversial question of the intrinsic value of architectural drawing and sketch, understood as a finished work in itself. For this reason, an overview of the main interpretations in this sense is necessary when you are about to read and interpret the graphic corpus of authors such as Pier Luigi Nervi and Renzo Piano. On the one hand to contextualize works in a never exhausted cultural debate, but also to contribute to the correct interpretation of the graphs with the necessary critical tools.

Luigi Grassi applies the Crocian distinction between *art* and *non-art* to architectural drawing and considers worthy of attention only the drawing by the artist's hand, while the executive drawings aren't. Bruno Zevi also set against the original drawings with the project bords and implements a distinction between a work of art and professional drawing. On the other hand, Renato De Fusco, applies the results of linguistic structuralism to the study of architecture and he considers architectural drawing as a lan-
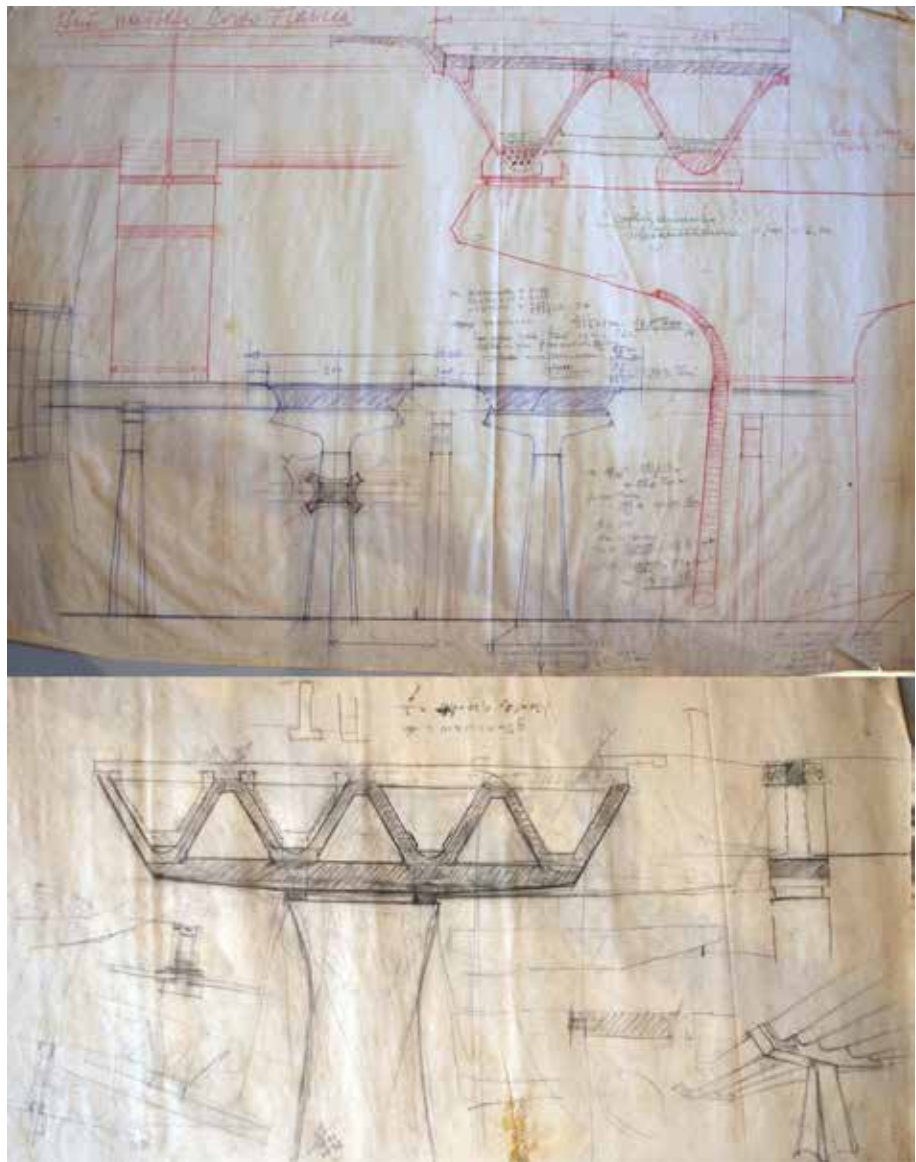
Fig. 2
Pier Luigi Nervi, Viadotto di Corso Francia a Roma (1958/60). Overall and detail sketches, perspective and orthogonal projections. CSAC Università di Parma, - N. inv. PRA 1252 – n. id. 15254 – coll. 31/6.

guage, without, however, considering the different writings of drawing. Vittorio Gregotti carefully evaluates the design intention and emphasizes the relationship between the preference for certain means of representation and the cultures of the project. Luigi Vagnetti proposes to document the transformation of the graphic language of architects and engineers and to understand the historical components of the graphic tool; for him there is no analogical relationship between graphic representation and realized architecture. Klaus Koenig and Tomàs Maldonado differently deal with the problem of the relationship between drawing and design iter. Instead, Vittorio Magnago Lampugnani relates the «form of presentation» to the «intellectual purpose of the author».

A key moment in the debate is the conference on architectural drawing organized by the *CSAC Centro Studi e Archivio della Comunicazione* of the University of Parma in October 1980. On this occasion, Arturo Carlo Quintavalle historically identified and contextualized the interpretative models that had given rise to the different readings of the project drawing: the design seen only as a function of the work carried out versus the drawing considered as an autonomous value.

The reading of the graphic works by Pier Luigi Nervi and Renzo Piano refers to this variegated cultural panorama. They have left us an extraor-

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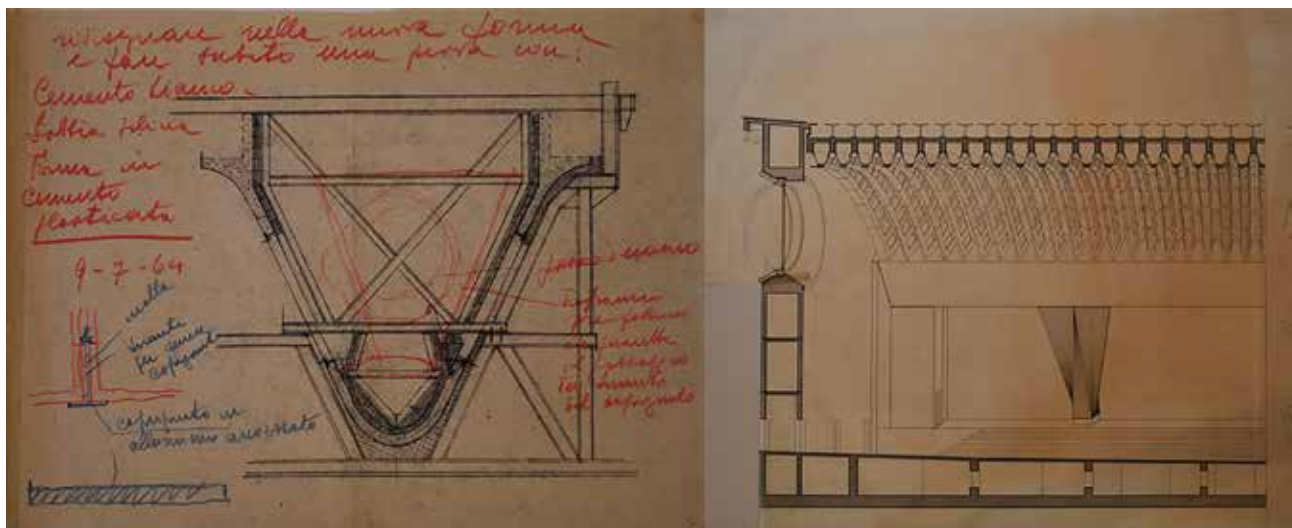
Fig. 3
Pier Luigi Nervi, *Aula per le Udienze Pontificie in Vaticano* (1966/71). Detail of the covering vault of the courtroom and executive.
CSAC Università di Parma, - N. inv. PRA 585 – n. id. 14142 – coll. 152/4.

dinary body of drawings that includes sketches, preliminary and final designs and a very large number of executive drawings and isometric and perspective views.

In light of these different interpretations expressed by historians and critics of architecture, the problem of "writings" and their history has been tackled by carefully considering the graphics chosen by the two authors, identifying variations both between contemporary projects and over the course of the long period examined. The examination of the "writings" proved to be particularly important for understanding the complex system of relationships between the designer and the culture of his time.

The analysis carried out on Pier Luigi Nervi's drawings was set up by dividing the documents relating to the projects examined by horizontally investigating the projects, focusing on the analysis of the graphic aspects expressed in Nervi's autographed drawings. In particular, the sketches were seen that can be traced back at the first creative moment and that dimension the structural parts or others, but also those that control the relationship between the context and the new architecture.

The sketches by Pier Luigi Nervi, referable to the copious documentation preserved in *Fondo Nervi* at CSAC in Parma, are mostly made up of minute line notations, almost always accompanied by notes and dimensions, and they oscillate between the pure structural intuition and the precise solution of construction problems (Figg. 1-2).

The sign, almost always drawn in pencil, is always precise and clear, and it denotes the author's strong personality as well as an excellent command of the instruments of representation. Attention is always aimed specifically at definite themes, investigated according to adequate projective codes and differentiated graphic signs always used in a conscious way. They're aimed at defining a personal language which, together with descriptive annotations or captions, fix the attention specifically to constructive, formal or perceptive aspects of the work (Fig. 3).

Renzo Piano's drawings, kept at the *Fondazione Piano* in Genova outline an inimitable style thanks to the peculiarity of their graphic aspect. The sign, no less than the writing, is always clear and fast, constant and sure. The graphic variation is functional when the themes vary. His drawings illustrate how much Piano is aimed at the search for coherence between form and structure, of the structural and formal conception, aiming to integrate composition and construction together, fully accepting, albeit with

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very different formal and structural outcomes, the lesson by Pier Luigi Nervi.

The use of different tools in the definition of the creative sketches mostly sees the pencil (Pier Luigi Nervi often also uses red or blue pencil to correct the first lines), but also black or coloured marker (often green for Renzo Piano), with different thickness. Occasional annotations enrich the graphic with hints; the studies, albeit schematic, consider from the earliest stages the orientation in relation to sun exposure.

Quick sketches are overwhelmed made of a few lines, sometimes more accurate and defined. In any case, they tell us about the architectural poetics and design language of the architect, expressed in harmony with the final codified graphic, that is the true stylistic code of the studio and its owner (Figg. 4-5). The notes and the corrections are often also on the first prints (or copies) of the project drawn up in definitive form, a sign of a constant work of refinement of the idea, along the lines of what the masters of the past (i.e. Pier Luigi Nervi) used to do. Then, they used to give the drawings to the studio collaborators, who developed the ideas by translating them into graphic boards drawn up according to the normalized and unified codes and representation scales.

Claudia Conforti identifies in Renzo Piano's sketches:

three scales attacked simultaneously by the design signs: the organic one of the artifacts, captured by the orthogonal sections and/or perspective; that of the technical detail, which expresses formal evidence of the space and its construction transferred into sections; and the wide-ranging geographical one, which controls the impact of the new building on the site. Only the latter is shown in the final planimetric representation, in which the project is at the centre of a network of relationships that the architect has carefully studied (Conforti 2007, pp. 7-8)

A trait that unites the sketches of the two authors, despite the very different graphic and architectural outcomes, is the coexistence of indications and annotations regarding solutions referring to multiscale readings, highlighting the relationship between constructive facts and perceptive results, to which both devote great attention from the first creative phases. In many sketches of both authors, indications on the assembly of the elements appear, an aspect towards which a great deal of attention is shown already in the early design phases, outlining a way of conceiving architecture that treats form and structure together, which thinks of one not as a function of the other, but as two entities and aspects that belong and interpenetrate, effectively coinciding in the architectural products designed.

In both of them, we know how much the search for non-standardized structural and constructive solutions is a stylistic feature of their architectural creations, while underlining once again the difference of the final architectures, of the materials used and also of the graphic results of the respective approaches to the conceptual sketch and to the building process of the project that is articulated through it.

Conclusions

It is well known that the advent of information technology, several decades ago, led architectural drawing to broaden its boundaries, progressively modifying the design process and amplifying the expressive tools of architectural composition, becoming at the same time a means of representation and a tool for development and control of the design process. The peculiarity is that in this process, information technologies have not

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Figg. 4-a-b
Renzo Piano, *Centro Culturale Jean-Marie Tjibaou, Nuova Caledonia* (1991-1998). Concept sketch and project section.
Fondazione Renzo Piano www.fondazionerenzopiano.org
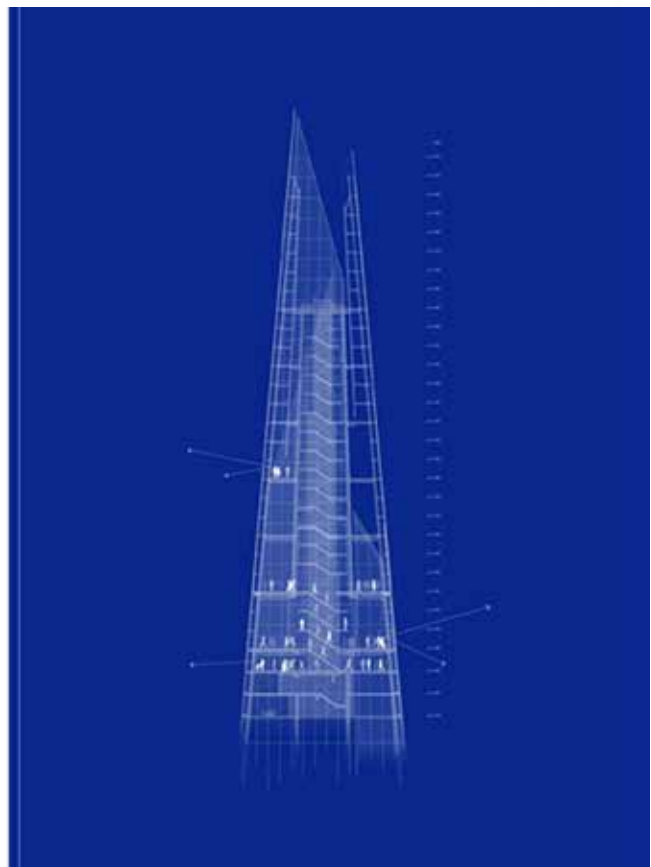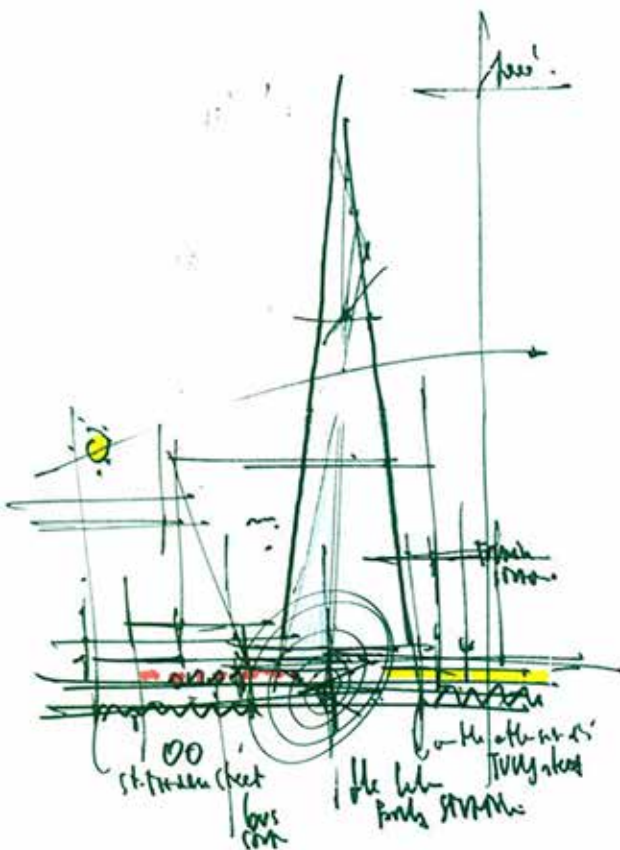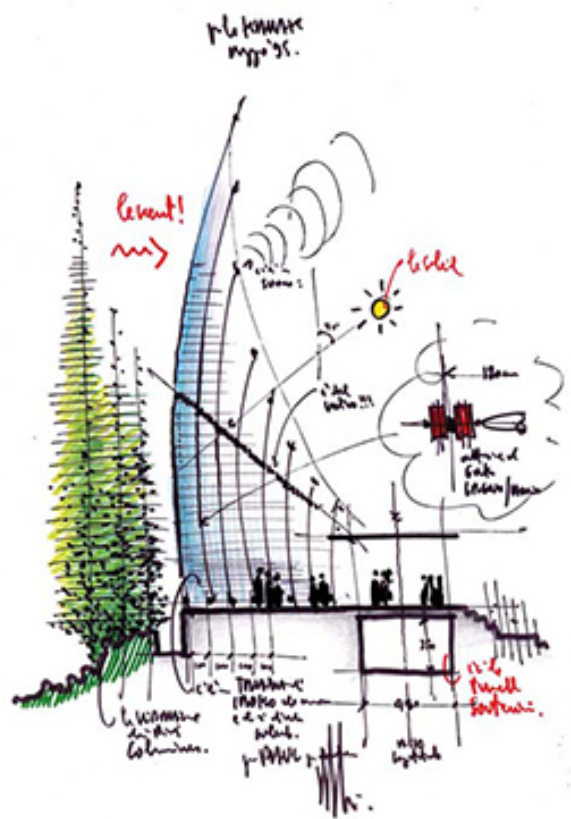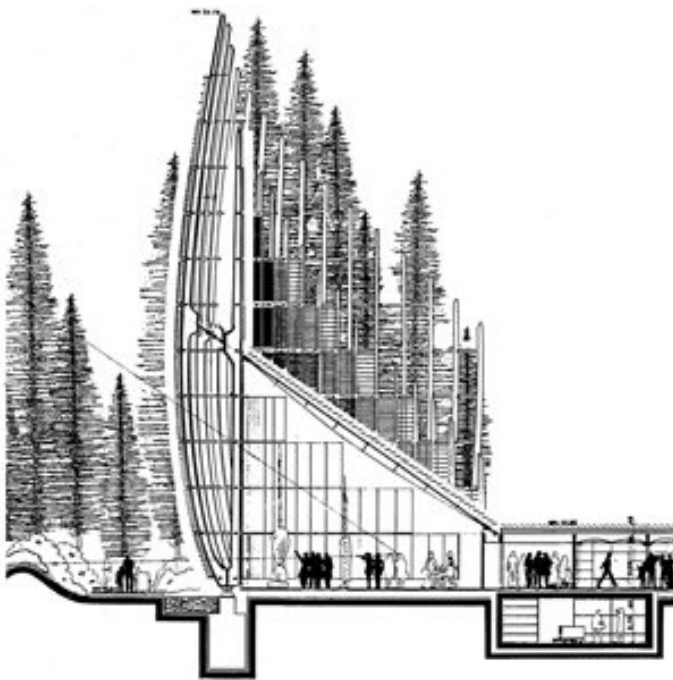
Figg. 5-a-b
Renzo Piano, the Shard, *London Bridge Tower, Londra* (2000-2008). Concept sketch and project section.
Fondazione Renzo Piano www.fondazionerenzopiano.org

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remained functional to the expressiveness of the idea, but they became a means of extending projects and, consequently, a means of creating a new architectural language.

The innovative trends in digital representation can be traced back to three distinct aspects, respectively relating to the verification and immediate use of the project model, that is the creation of a 3D environment in which the designer can immerse himself in a virtual experience; the communicability of the project itself and its adaptation to the means and expressive tools of the contemporary world, characterized by multimedia and multidimensionality; and above all at the overwhelming entry of the IT into the ideational and design process, suggesting, supporting and sometimes determining spaces and geometries of the future reality, without making the phase of freehand conceptual sketches obsolete.

The moment in which the idea of the form of the project germinates and comes to be defined, always allows the authors to express themselves in a totally subjective way and often freed from the rigidity of the codes and rules of representation of the project, sometimes giving life to real graphic languages or "Metagraphic", through which design creativity gives life to a complicated game of remakes and inventions, in that complex and patient game of textures that leads to the creative sketch.

The moment in which the idea of the form of the project germinates and comes to be defined, always allows the authors to express themselves in a totally subjective way and freed from the rigidity of the codes and rules of representation of the project. Sometimes this creates real graphic or "metagraphic") languages, through which the creativity gives life to a complicated game of remakes and inventions, in a complex and patient game of textures that leads to the sketch.

Concepts well expressed by Mario Botta, that well emphasizes the cultural, meditative and formative role that still today the freehand drawing must have in the preliminary ideational phases. In one of his recent writings, he says:

With the passage of time the pencil has been transformed in an extension of the hand itself, and he became used to having it between their fingers, as happens with a smoker's cigarette. The pencil is not just a tool for drawing, but it helps to interpose the pauses, it prepares the thought: it can perhaps be said that a pencil is the tool that transports the idea to the drawing... it is a research, not a representation tool (Botta 2020, p. 7).

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Raffaella Neri
The precision of an idea

Abstract
This essay describes the relationship between drawing and design in the work of Antonio Monestiroli. Precision and essentiality are the hallmarks of his works of architecture, which also governed his ways of drawing, a design tool focused on technical representations, at an urban scale and that of the individual building. Plans, elevations, cross sections, volumetric plan views, collages and scale models were the prevailing ways in which his projects were explored and illustrated, even during the transition from analogue to digital drawing.

A long time ago now, there existed a British architecture magazine called *9H*, a name which today would mean nothing to a young architect. Its name was a reference to the hardness of a pencil lead, a fairly dry one, which it was possible to hone to a very sharp point to draw a thin, merciless line, almost an incision in the paper, which left no room for flaws, imprecisions or ambiguity in the stroke.

In the office, such a pencil was almost never used for drawing, in fact it was virtually impossible to find one, but *9H* was the metaphor for a precision which Antonio Monestiroli also aspired to in his drawings, as in his works of architecture. A precision which was always a characteristic of his work, and which, as is generally the case, his way of drawing faithfully reflected. Because drawing reflects the thinking behind a design, testifies to its genesis and development, parallels its advancement and variations: it gives shape to an idea, and tends to be more precise the more precise the idea itself is.

For Antonio Monestiroli, precision meant an aspiration to clarity and intelligibility, both indispensable requirements of his architecture. The sketch too obeyed this same rule: something which he practised and loved little, especially in its most impressionistic guise, and consequently he rarely exhibited, since it always comprised something vague and superfluous which detracted attention away from his goal. When it did exist, it was just a note, a note which generally included measurements and proportions because, once drawn, the idea took shape, and the measurements and proportion constituted its vital essence. Occasionally, a sketch was made on the basis of a more precise drawing, a plan, an indication which outlined the condition at the edge of the new work of architecture, establishing its relationships, centres, and hierarchies. Or it might schematically contrast
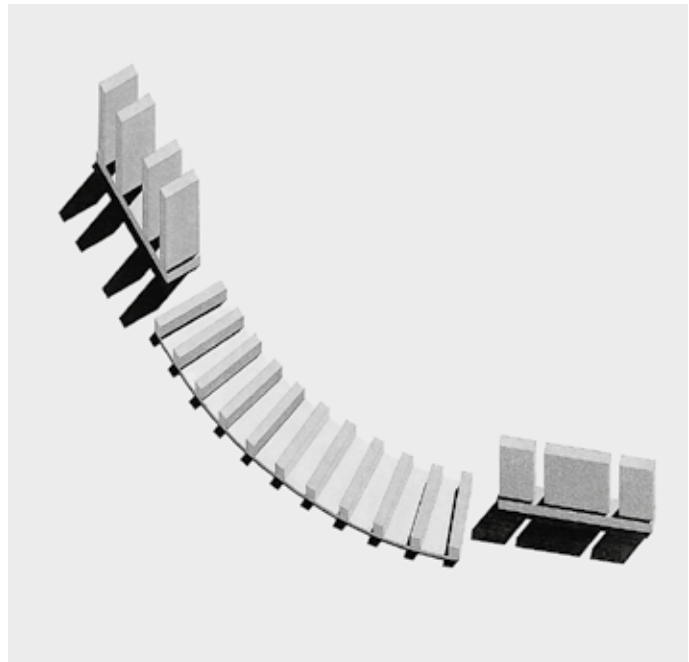
Figg. 1 a-b
Project for Porta Genova, Milan 1987. Axonometry views.

various hypotheses, possible ways of composing and aggregating several buildings, principles on the basis of which to bring form and meaning to locations and settlements.

In the era of drawings in Indian ink, the dry stroke of a pencil corresponded to a 0.1mm nib, the finest on the market, which broke easily but guaranteed lines and angles of great precision, the same ones subsequently assured, and indeed intensified, by drawings done on a computer. With this versatile tool there is a way of being more precise even in three-dimensional views: the computer makes it easier to control and represent the space between individual works of architecture, their proportions, sometimes also the light, and it is to this end that it has been used, with the same rigour and a little astuteness. Monestiroli eschewed any gratification for drawing as such: it is the rigour of the architecture and the search for generality in a design which are reflected in the essentiality and assertiveness of his drawing. Like his works of architecture, this must never be appealing or charming, seeking applause or aiming to please; it was not consolatory, as Vittorini remarked, nor must it be deceptive, but instead ethically lean and severe. It must be merciless and, to be useful, spotlight any problems and mistakes. Because the architectural drawing has a purely instrumental value, and a 'beautiful drawing' is one which best translates the thinking, effectively and clearly representing the idea of the particular work of architecture and the way in which this is to be translated into an actual construction.

Antonio Monestiroli's predilection was quite evidently geared to the technical drawing, site plan, ground plan, front and section: a scientific drawing, rigorous, plainly abstract, but appropriate to the project. With shadows, if possible, which better explained the depth of space even on a sheet of paper. Hence the caution for the use of perspective drawing and an aversion to 'renderings', to a drawing devoid of control or measurements, totally falsifiable, the opposite of the spatial cohesion and precision he pursued. Instead, the three-dimensional model to scale was an appropriate tool for measuring space, it too an objective, precise, summary, yet abstract representation, but closer to reality and the three-dimensionality of actual places and buildings. It was all a question of purpose: a three-dimensional
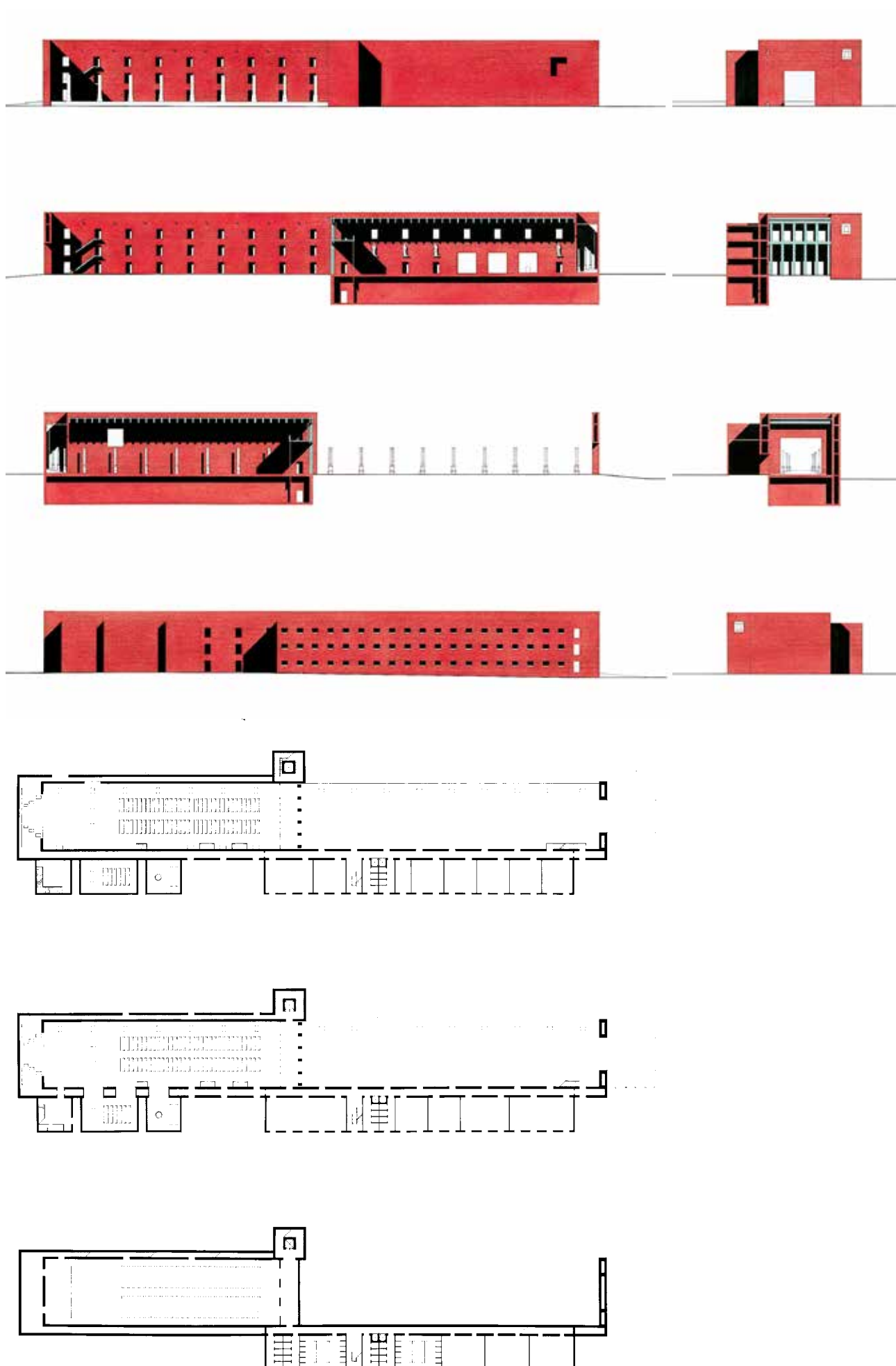
Figg. 2 a-b
In the previous page:
(Above), Chiesa al quartiere Gallaratese, Milan 1989. Prospects, sections, plans.

Figg. 3 a-b
Project for the Accademia bridge in Venice, 1985.
Model, axonometry view.
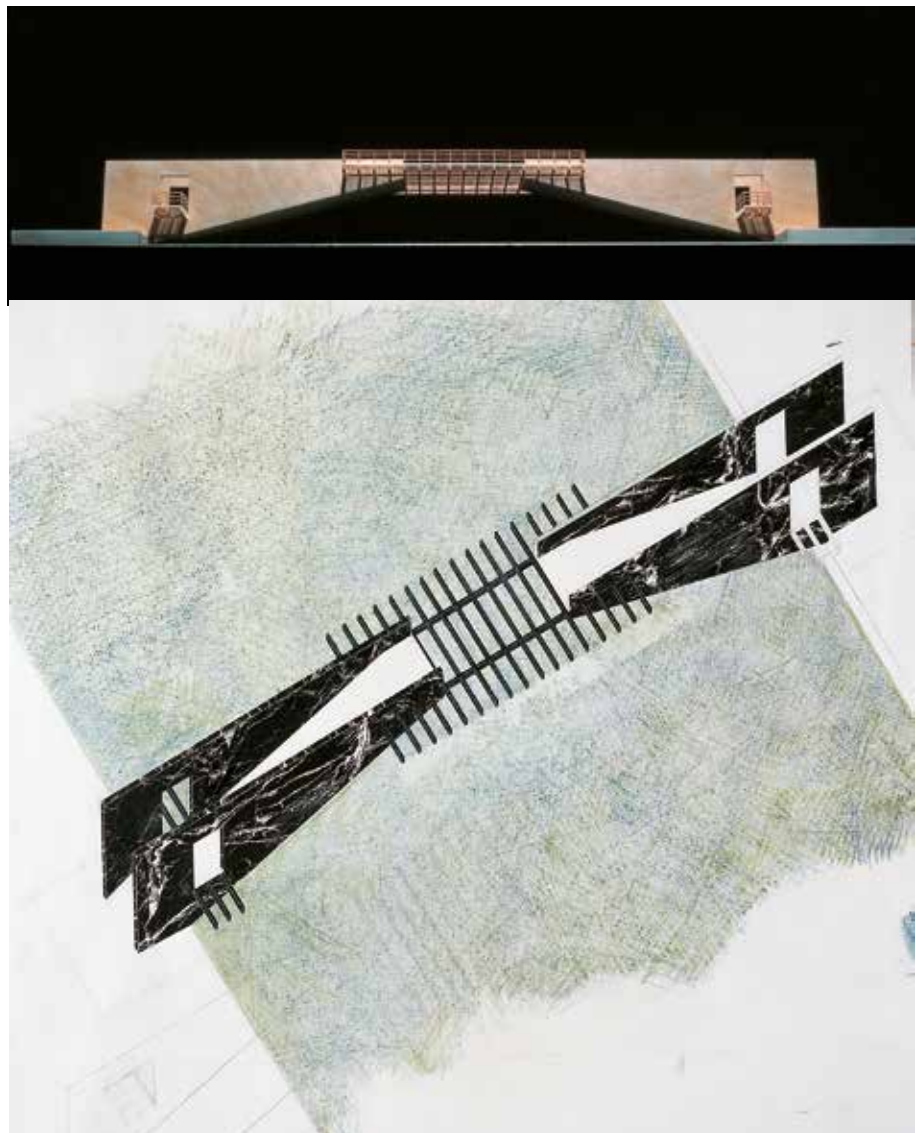
representation, and drawing in general, were tools to represent and measure an imagined space, to approach its actual construction. The control over the spatial qualities which compositions generate, and the definition of the relationships between volumes are at the heart of an architectural project, the part that is more difficult to imagine and predict. And also to teach: these are aspects refined with experience, and the difficulty increases as the scale grows, the measurement of space eluding the proximity of the body and the perception of the eye. It is no coincidence that the *representation* of space has always been an important issue to do with *thinking* about space. As the history of perspective teaches us.

The drawings of projects involving urban compositions are particularly elementary, almost schematic. They are, once again, the affirmation of a thought which systematically aims to establish first and foremost, a *principle*: this principle concerns places and spaces which the composition of volumes then generates, and which must then enjoy a coherent expression through the form of the works of architecture. In these drawings, the pieces of architecture can only be reduced to their elementary form, geometrically abstracted, a composition of rectangles, squares, circles, and lines, lacking their architectural definition, which will come later, consistent with and guided by them. Because these geometries already contain a typological
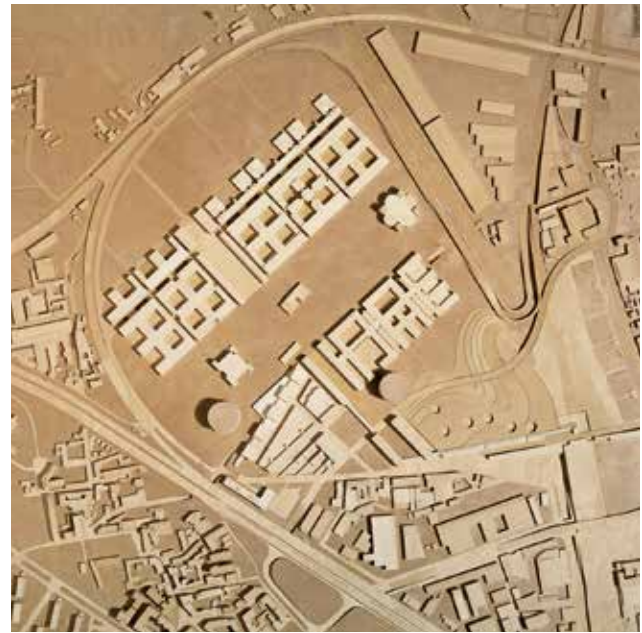
Figg. 4 a-b
Project for the new Politecnico alla Bovisa, Milan 1990. Collage, model.

and spatial relationship idea: not merely a question of distributing quantities and functions, nor playing with shapes. Each figure refers to a type, suggests a way of setting itself in space and already contains the relationships between the solids and voids; hierarchies, places, and measurement of the open spaces, that is, everything fundamental to the project, are defined at this moment, through these drawings.

They are minimal drawings, barely gratifying, of an almost uplifting simplicity, equal only to their importance. Drawings which students underestimate and tend to avoid at school because they do not capture value, but which Monestiroli was never afraid to show. Drawings which he knew to be generating and decisive, precisely because of their extreme essentiality, that same essentiality which the depth of a thought possesses, which assimilates formal reduction to intellectual reduction. This is his difficult lesson: one must not be afraid of the elementarity of a drawing, where all the smallest elements are loaded with meaning; because, if it is the expression of a thought, it is in reality a tough accomplishment. Instead, we must fear the gratuitousness of the form and its poverty of sense, which reflect only the banality of the ideas. Come what may, reduction and abstraction are proper to a drawing at any scale: it is a matter of finding the limit that suits each of them.

And one last point: *collage*. Like some great masters, Antonio Monestiroli often made use of it and even wrote about it in a short essay entitled «I Segni della Colla»[1] [«Signs of Glue»]. Initially comprised of photocopies, scissors, and glue, in reality, it sometimes replaced site plans and views in urban scale projects to better simulate an imaginary reality, without giving the game away. But, above all, it was used in the initial hypotheses for large-scale compositions as a design tool.

The use of collage corresponds to an idea of architecture based on analogue thinking: it maintains, on the one hand, continuity with history, the possibility of designing new works of architecture starting from existing ones, and on the other manifesting, through its evidently provisional nature, its being out of place, the necessity for a renewal, to adapt the works to definite times and places. Collage gives no indication on the form of the new works of architecture, but advances, even more than drawn volumetric plan views, the precision of a typological and spatial idea, already
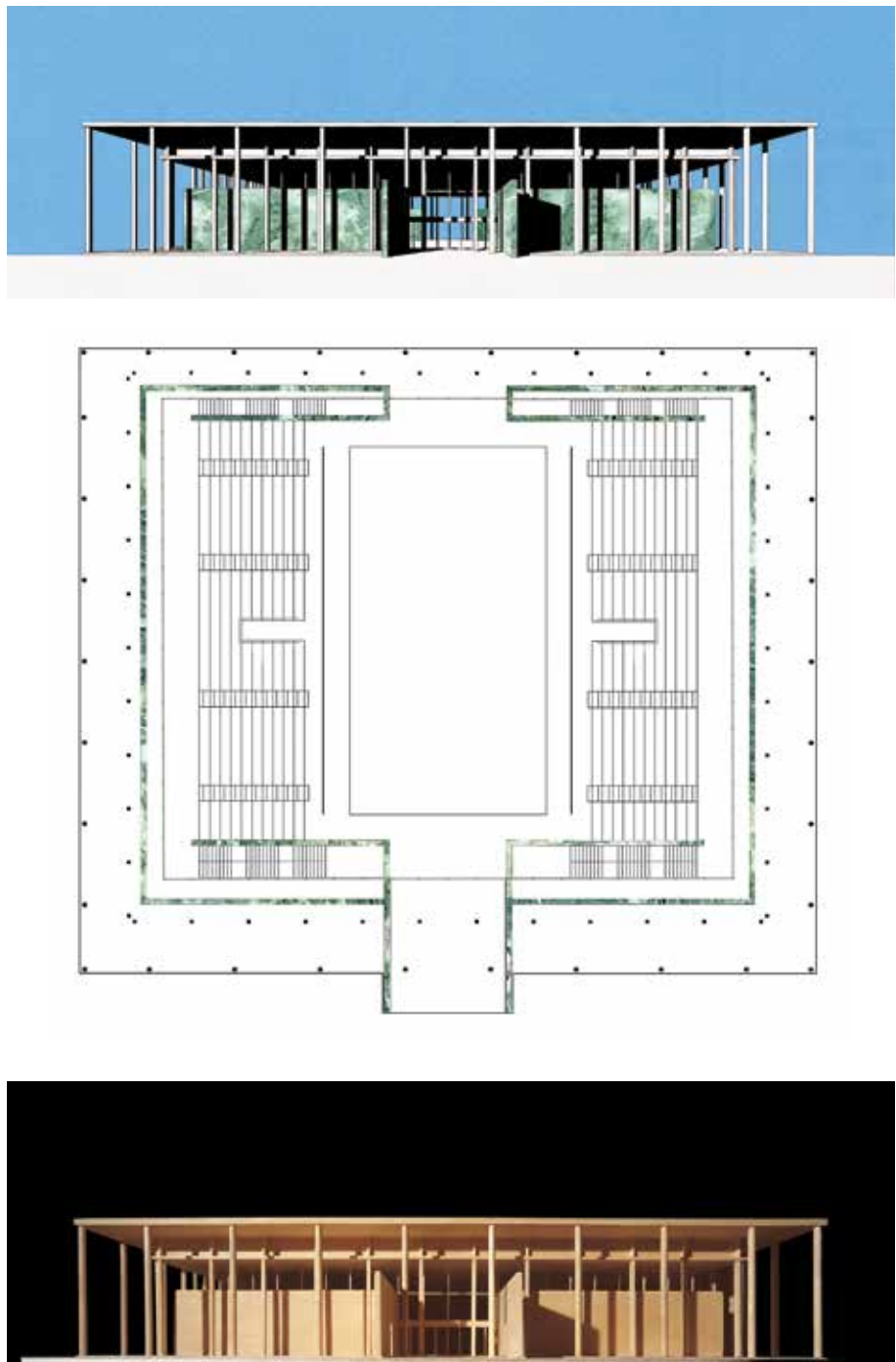
Figg. 5 a-b
Project for a sports hall, Limbiate 1998. Perspective view, plan, model.

concretized in a completed form in an earlier period. It therefore suggests relationships between the pieces of architecture and open spaces, measurements, proportions, ratios of voids and solids, opening, closing, directions, isolation, aggregation, all general indications contained by building types. Choosing a work of architecture to compose a collage means recognizing and re-proposing a general idea, presupposes a capacity of abstraction in the thought and reading of buildings and places on the basis of an intentionality of design, in anticipation of a new interpretation which brings constructional and formal concreteness to the renewed architecture. An operation proper to our modernity and, precisely because of this, strongly dependent on analogue thought.

Two more words on the use of colour. In Monestiroli's drawings, the colours are few and far between, and are recurring, as are the elements of the architecture, reduced to the minimum, to a generality. The red of bricks, the

ochre of stone, or perhaps a collage for the latter, the green of the elements of nature, and few others. They are colours which aim to be realistic, appropriate, but also, at the same time, abstract, almost free of their own expression. Once again, they are indicative of the generic nature of the materials: the "greenery" can only be green, conceivably changing intensity depending on whether it is a meadow or a forest, the water can only be blue (even if that of Venice tends to green). This blue is a uniform colour, little more than symbolic, a reference to the generic idea of water. It can be compared to the "fixed scene" of a theatre: the representation is not that particular water, variable, in that particular light, as in an Impressionist painting, but water in general. It is the opposite concept to a rendering, to contextualization, to a form of counterfeit verism of representation. This use of the colours tends to a generality which is difficult to misinterpret, which the particularity and variations of reality will then make rich and alive.

This, in general, I believe, was for Antonio Monestiroli the fundamental and stealthy role of drawing. Together with the works of architecture it must be, above all, stacked against formalism, in order to assert itself as a rigorous and strict interpreter of the *need for form*, of that formal precision which aspires to correspond precisely to the idea, and to manifest it in the clearest and most direct way possible.

Figg. 6 a-b
Planetario di Cosenza, 2001. Sketches.
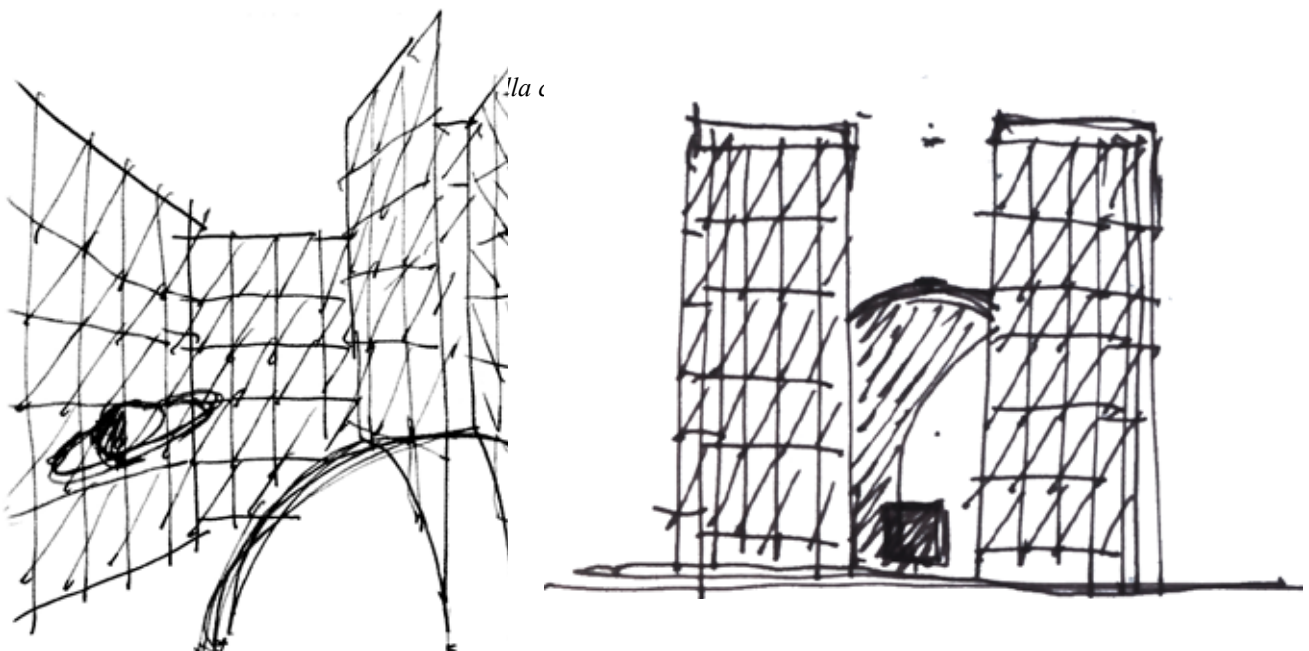
Notes
[1] *I segni della colla*, in *Attraverso la Storia*. Città Studi Edizioni, Milan 1996.

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Andrea Alberto Dutto
The Abacus and the Node.
Mario Ridolfi's Constructions in Drawing

Abstract
Mario Ridolfi uses drawing to explore constructive themes and also as a hallmark of his personal poetics. The point of convergence between technique and poetics is manifested, in particular, in the use of two tools: the abacus and the node. The abacus concerns the combinatorial variations between quantitative parameters affecting buildings and urban design. The node establishes analogical relationships between building elements of different sizes. The abacus and the node are multiscalar tools that merge architectural design and technical investigation.

Italian architectural handbooks published in the first half of the XX century introduced new drawing techniques that intervene in the mediation between construction knowledge and design poetics. However, these drawing techniques have long remained out of the critical spotlight. In 1981, Carlo Guenzi, editor of an important anthology volume devoted to Italian handbooks (1981, p. 14), pointed out that «the way handbooks represent things [...] articulate texts and make use of formats, would deserve specific studies and analysis». Forty years after that warning – and following research undertaken on this topic (Motta et al. 1995; Barucci 1984) – handbooks still appear as fertile and largely unexplored objects, especially for scholars of architectural figuration.

In this essay, I focus particularly on the architectural drawing that Mario Ridolfi (1904-1984) used in his two major handbooks, namely the *Manuale dell'Architetto CNR* (1946) and the *Ciclo delle Marmore* (released posthumously; Ridolfi et al. 1997).

For Ridolfi, the *Manuale dell'Architetto CNR* represented an opportunity to verify the theoretical claims of some of his essays published since the 1940s, supporting the normalization of building elements (Ridolfi 1940) and the revision of architectural drawing techniques (Ridolfi 1943). Indeed, Ridolfi conducted analytical of design practices as early as the 1930s that highlighted the mediating role of drawing between technical knowledge and search for an architectural aesthetics (Cellini and D'Amato 2005).

In this essay, I undertake several reflections on Ridolfi's handbook-oriented architectural drawing, in relation to three theoretical themes, namely: the mediation between architectural knowledge and practice; the investigation of traditional building techniques; and the classification of morpho-

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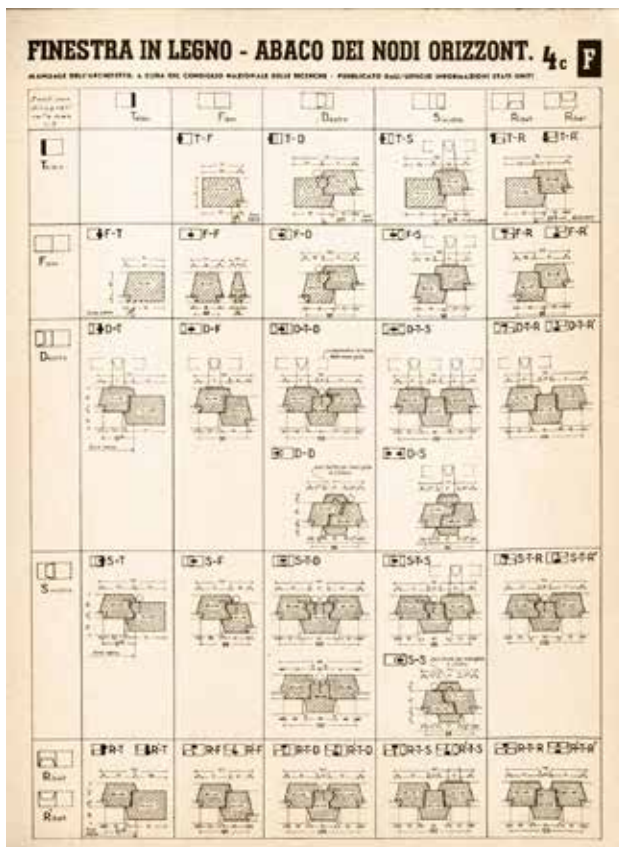
Fig. 1
Mario Ridolfi, «Finestra in legno – Abaco dei nodi orizzontali», tavola 4c F. Source: Manuale dell'Architetto CNR, Rome 1946.
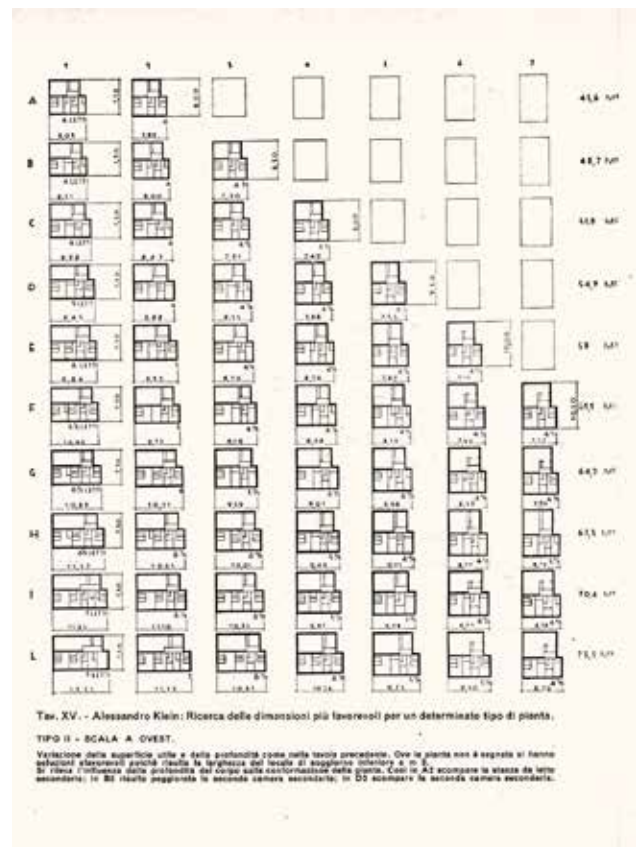
Fig. 2
Alexander Klein, «Ricerca delle dimensioni più favorevoli per un determinato tipo di pianta». Source: E.A. Griffini, Costruzione razionale della casa, Milan 1932.

logical variants of architectural and urban elements. This essay elaborates on the general epistemological hypothesis that Ridolfi's drawing establishes transfers of architectural knowledge between the making of handbooks and the performance of architectural design. More specifically, Ridolfi's handbooks show a mechanism of design thinking that operates behind the prosaic ready-made solution that connotate handbooks as publications for lazy designers. This essay develops this epistemological hypothesis by focusing on two typically handbook-oriented graphic tools employed by Ridolfi, namely: the abacus and the node.

The first section of the essay concerns the abacus featured in the parts of *Manuale dell'Architetto CNR* that are dedicated to windows and door frames. The second section of the essay focuses on the node in relation to *Ciclo delle Marmore* (Ridolfi et al. 1997) that is a handbook to which Ridolfi devoted the last decade of his life in order to document vernacular building techniques of the Umbrian Apennines and also to exemplify design proposals for single-family houses that freely interpret traditional building techniques. Both *Manuale dell'Architetto CNR* and *Ciclo delle Marmore* manifest an existential constraint with Ridolfi's biographical vicissitudes. As stated by Francesco Cellini (1997, p. 10):

as it had already happened between 1941 and 1943, when the professional and moral consequences of the war and the German occupation had suggested him the extraordinary systematization of the *Manuale*, during the last years of his life Ridolfi fills another void (sentimental, professional, civil) with the translation and sublimation into exempla of his professional experience.

From handbook to design. The abacus
The *Manuale dell'Architetto CNR* was released with the explicit aim of providing architectural designers active in post-conflict reconstruction,
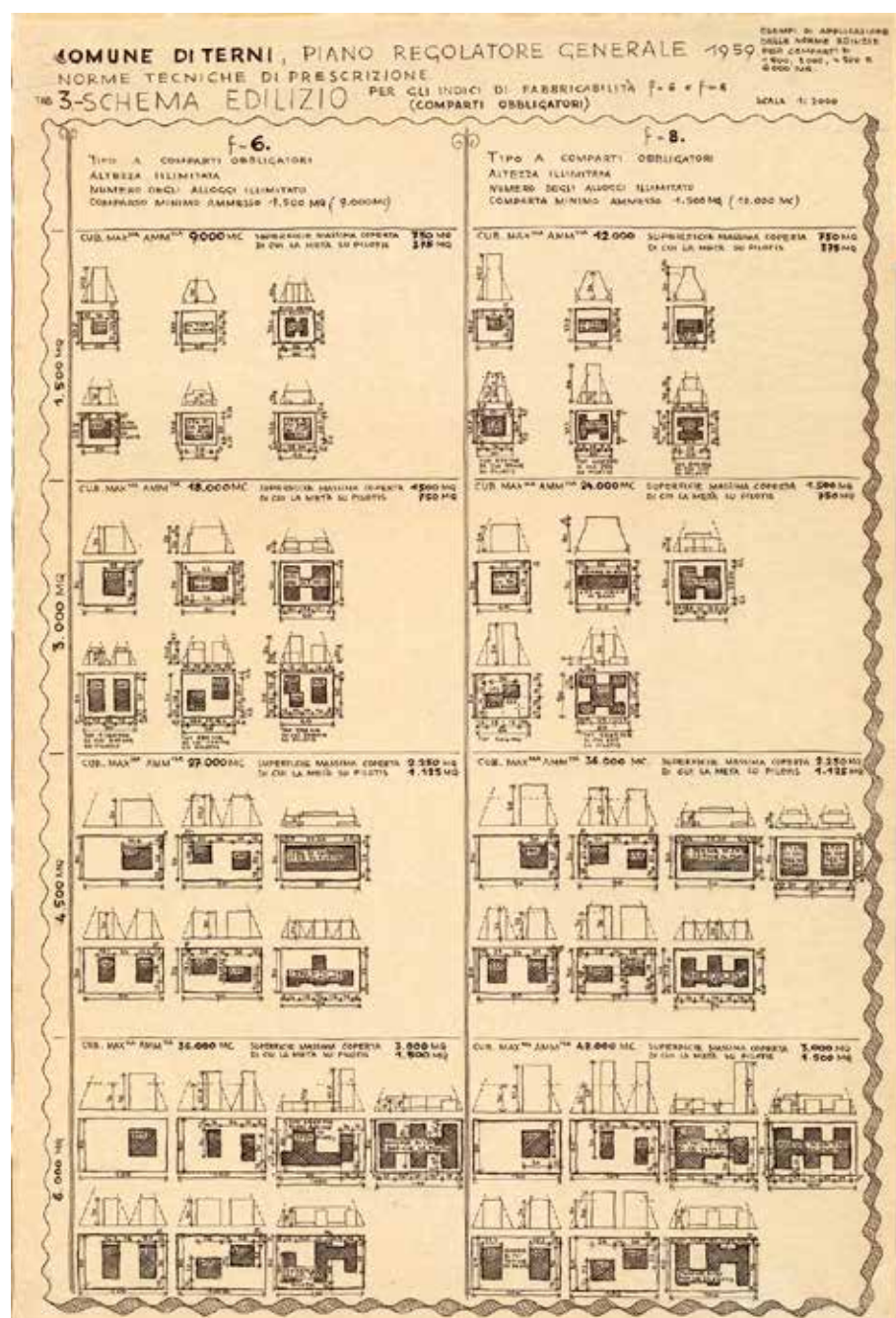
Fig. 3
Mario Ridolfi, Schemi edilizi per il Piano Regolatore Generale di Terni, 1959. Source: Rome, Accademia Nazionale di San Luca. Fondo Ridolfi-Frankl-Malagricci, www.fondoridolfi.org

with an agile tool for consulting technical data and proven building procedures. It illustrated design problems and ready-made solutions for architectural designers and engineers and acted as specific graphic reference for technical drawings. In particular, Ridolfi edited the Section F entitled "Finished Works of Construction" in which he broadly employed abacuses.

Through the abacus, Ridolfi represented the morphological variations of building elements in relation to quantitative parameters. For instance, in the Section F the abacus concerned different ways of designing wooden windows according to materials and assembly configurations (Ridolfi et al. 1946, Table F 4d) (Fig. 1). The abacus illustrated the compositional variations that relate parametric elements such as frames, fixed or movable sashes (scale 1:5). On one hand, the abacus functioned as a repertoire of windows and doors dimensioned and ready-for-use by architectural designers. On the other hand, the abacus resulted of a reflection on the combinatorial mechanisms of the building elements (transom, mullion, hinge),

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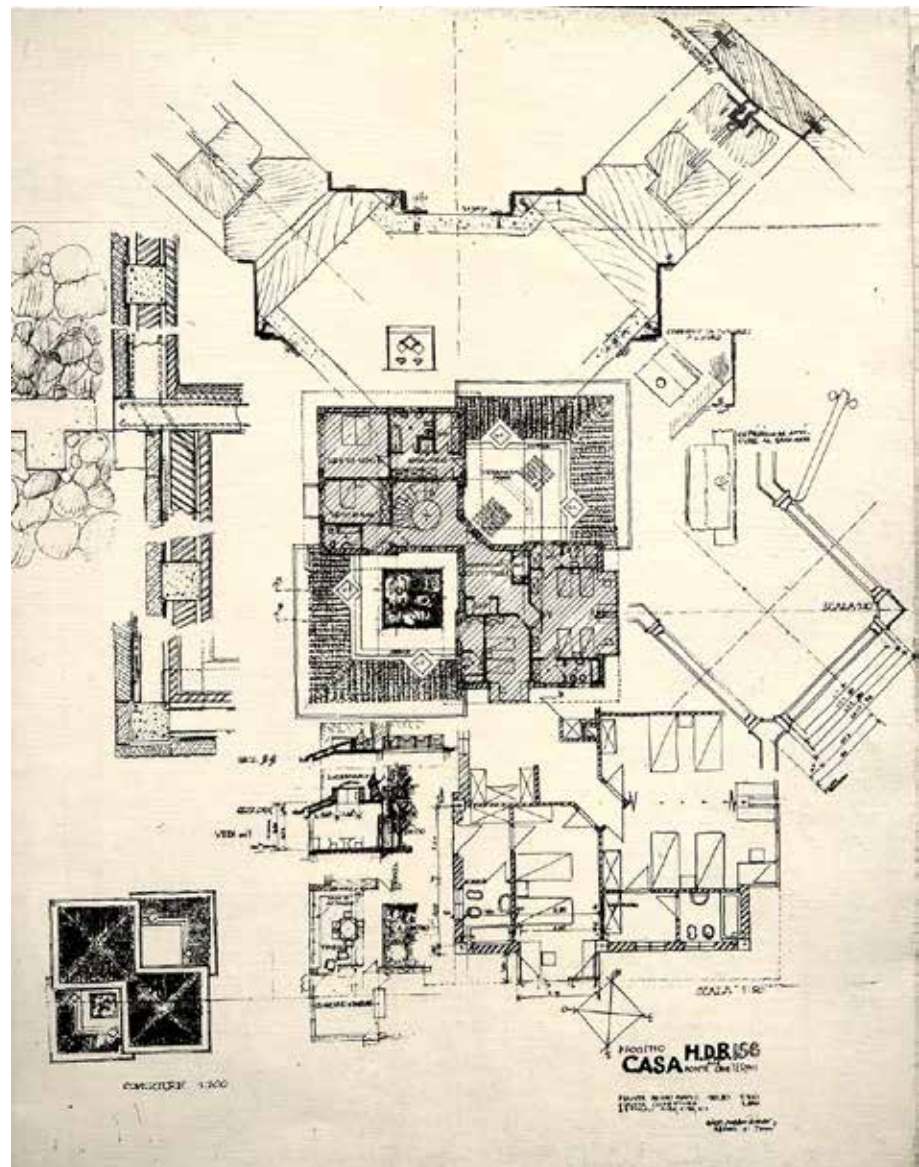
Fig. 4
Mario Ridolfi, Schizzi planimetrici e di dettaglio per Casa De Bonis I, CD 164/I/(2), 1971-74. Source: Rome, Accademia Nazionale di San Luca. Fondo Ridolfi-Frankl-Malagricci, www.fondoridolfi.org.; M. Ridolfi, F. Cellini, C. D'Amato, Manuale delle tecniche tradizionali del costruire. Il ciclo delle Marmore, Milan 1997.

through which Ridolfi attempted to communicate his own problem-solving approach to design issues that exceeded the sole domain of application of fixtures.

It should be noted that the abacus saw diverse applications in handbooks. It occurred in relation to different design issues and scales. For instance, Alexander Klein employed the abacus in his typological studies on the *existenz minimum*, later popularized in Italy by Enrico Agostino Griffini's handbook entitled *Costruzione razionale della casa* (1932). In his typological abacuses Klein showed how to design efficient floorplan variants of a flat. One of his most well-known abacuses displays the relationship between two quantitative variables, namely: the depth of the building (in abscissa) and the floor area (in ordinate) (Fig. 2). This abacus ends up with a number of blank cells (marked with placeholder rectangles) that indicate disadvantageous floorplan arrangements. Blank cells prove that the combinatorial logic of the abacus always exceeds the possible solutions to a design/constructive problem. Therefore, the abacus is not only a classificatory device but rather a combinatorial mechanism that produces figures that can also be irrational, therefore useless to solve specific functional requests.

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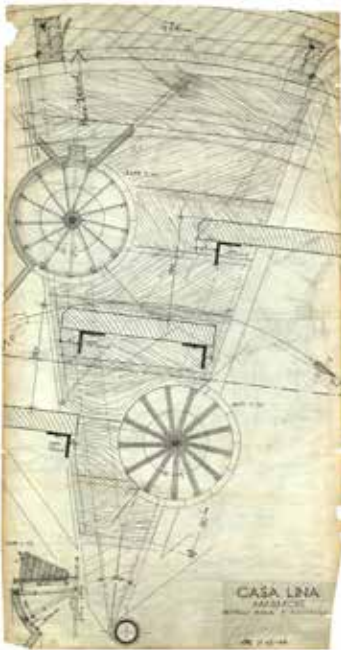
Fig. 5
Mario Ridolfi, Dettagli della scala a chiocciola di Casa Lina a Marmore, Terni, 1964-1967. Source: Rome, Accademia Nazionale di San Luca. Fondo Ridolfi-Frankl-Malagricci, www.fondoridolfi.org.

The abacus performs combinatorial mechanisms that affect also urban design. For instance, Ridolfi employed the abacus in the *Piano Regolatore Generale* of Terni (1950-1959) in order to merge the economic availability of local resources and the dynamics of development and fractionation of a medium-sized urban fabric (Cellini and D'Amato 2005, pp. 76-78). In view of this purpose, the abacus displayed the building ratio (in abscissa) and the parcel surface (in ordinate). The intersection of these two parameters led to solutions of morphologically variable typologies which were represented in the abacus cells (block, multiple blocks, open court and in-line buildings) (Fig. 3). As recalled by Cellini and D'Amato (2005, p. 74): «[the *Piano Regolatore Generale* of Terni] was more than just city planning and, still nowadays, it represents an exemplary normative tool aimed at establishing effective and clear regulations, graphic symbology, synthetic and limpid techniques of representation [...] that are rooted in the generative logic of the *Manuale dell'Architetto CNR*».

In a way, Ridolfi elaborated abacuses that were different from the typological abacuses because they were not aimed at establishing morphological analogies among items. Ridolfi's abacuses were rather sequences of instructions that, like algorithms, allowed the connection between quantitative parameters. Each cell of the abacus implied such an algorithmic procedure. Sometimes the algorithm arrived at an incorrect (or not possible) solution and the respective cell of the abacus was left blank.

In summary, Ridolfi's abacus show two features: one explicit and the other implicit. The explicit feature concerns the abacus as a collection of ready-made solutions according to certain building parameters or construction constraints. The implicit feature is instead the mechanism of rules that underlies the abacus' structure. Moreover, this implicit feature is useful to acknowledge affinities among combinatorial mechanisms that involve different problems of architectural and urban design, namely between abacuses that are explicitly dedicated to different problems.

From design to handbook. The node

Ridolfi employed drawing to undertake transfers of knowledge between construction and design, and this choice rendered his approach to architecture as «ambiguously situated between intellectual and material culture» (Cellini 1983, p. 14). Thirty years after the publication of the *Manuale dell'Architetto CNR*, Ridolfi still aimed at building up «a body of knowledge that is transmissible and separable from individual occasions» (Cellini and D'Amato 2005, p. 33). Therefore, between the 1970s and 1980s he conceived the *Ciclo delle Marmore*, namely: «a building diary in the form of a handbook» (Ridolfi et al. 1997, p. 26) that also referred to his projects of twelve houses in the Apennines of Umbria.

Unlike the drawings elaborated between the 1940s and the 1960s – featuring a strict classificatory system and normalization outcomes – the *Marmore*'s drawings portay a higher level of improvisation due to occasional additions and continuous elaborations (Ridolfi et al. 1997, p. 10). In the *Ciclo delle Marmore*, Ridolfi laid bare his own architectural thought by means of freehand signs that testified his knowledge of constructive details as well as his will to establish a dialectic relationship between geometrical and technical feature of architectural and urban design (Moschini and Rattazzi 1997).

Claudio D'Amato noted that *Ciclo delle Marmore* features: «tectonic nodes arising from the encounter of continuous and discontinuous con-

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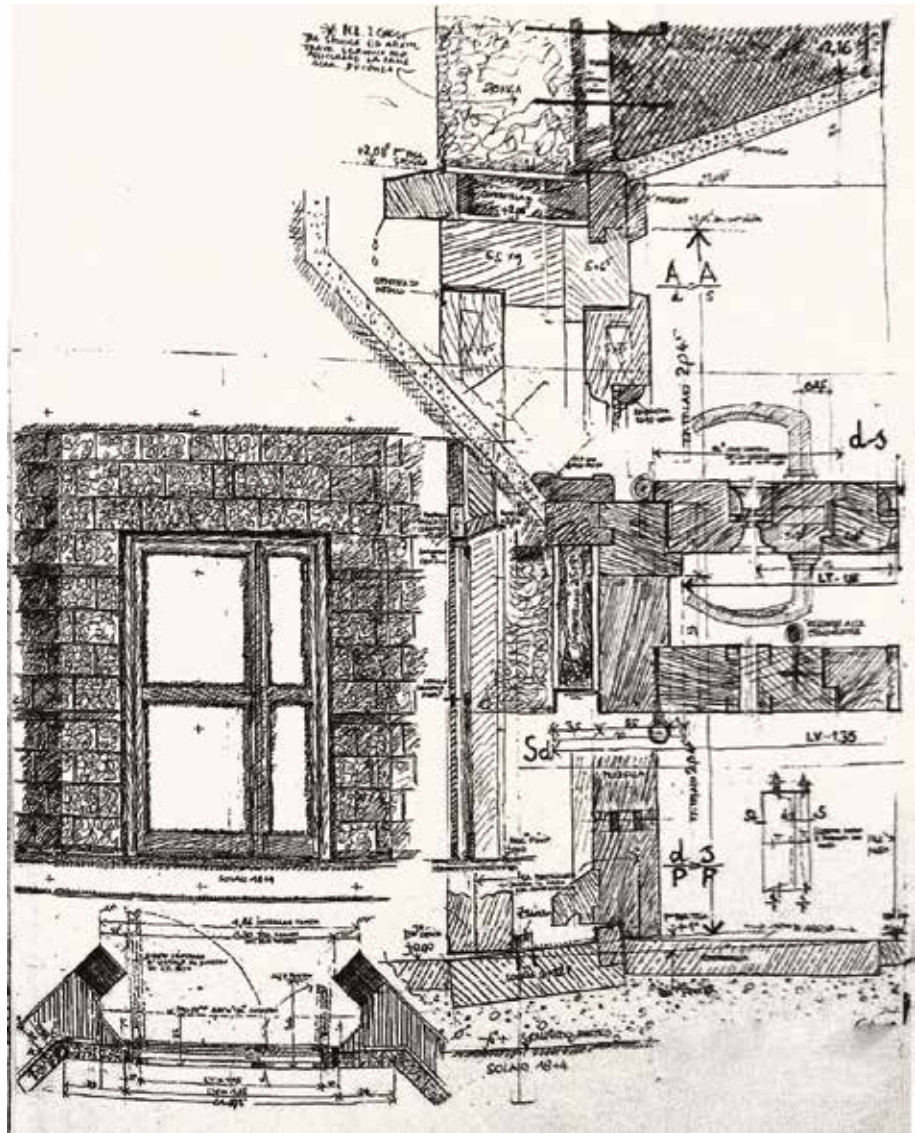
Fig. 6
Mario Ridolfi, Schizzi di dettaglio per Casa Luppattelli, CD 177/III/(14), 1978-84. Source: Rome, Accademia Nazionale di San Luca. Fondo Ridolfi-Frankl-Malagricci, www.fondoridolfi.org.; M. Ridolfi, F. Cellini, C. D'Amato, Manuale delle tecniche tradizionali del costruire. Il ciclo delle Marmore, Milan 1997.

structive elements, [...] between different materials and elements» (Ridolfi et al. 1997, p. 18). The node normally rises from the intensification of signs and the dilation of drawing wherever the technical problem requested an ad-hoc solution.

Ridolfi employed the node whenever he wanted to magnify a constructive problem that concerned multiple elements converging into one cluster. The node itself implied an isomorphic relationship between the procedure of building the details and the procedure of drawing it. This is the reason why several nodes portray a centrifugal shape that expands from the center toward the margins, according to a vortex that progressively involves new elements. The node is also emphasized by the broad use of central plan buildings that characterizes most of the Marmore's designs (Cellini 1983; Cellini and D'Amato 2005, pp. 122-131).

Sometimes the node concerned the manipulation of drawing conventions (the scale and the orientation of orthographic planes) in order to establish constraints among elements of different sizes (from the construction detail to the whole building floorplan). This multi-size relationship concerns variations of either the scale or the arrangement of projection planes.

Variations of scales are well exemplified in the plan of Casa De Bonis I (Fig. 4). Here, the node condenses three different representations of the house, namely: the plan of the second floor, the roof arrangement, and

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detailed drawings of windows doors (Ridolfi et al. p. 44-55). The drawing proceeds centrifugally, from large to small scale: the plan (scale 1:100) hinges on the distribution system (stairs and corridors) and gathers some zoomed views in scale 1:50 (the rooms), 1:10 (the hallway between the rooms) and 1:1 (the window and doorframe). Other examples of similar nodes are found in the drawings of Casa Cresta and Casa Lina. One boards of Casa Lina performs a reversed scalar relationship (i.e., from small to large) applied to the spiral staircase; the detail of the step (scale 1:1), drawn at the center of the boards, hinges multiple successive enlargements of the stair structure (scale 1:10) (Fig. 5).

Variations of projection planes occurs when the node combines figures that lay on horizontal, vertical and oblique planes. For example, the drawings for Casa Lupattelli arrange into a single composition the plan and the section that complement each other in the representation of the building levels and the details There is one element of the drawing that acts as the core of the node and at the same time also as a pivot; this pivot element is the window frame (Fig. 6).

Conclusion in problematic form

As we have seen, the abacus and the node constitute a form of graphic translation of Mario Ridolfi's design procedures. Both aim at anticipating and transmitting at once the development of design thinking by the means of drawing.

Nowadays Ridolfi's abacus and node represent ancestors of the algorithmic tools embedded in BIM software in order to empower the interaction between designers and technicians. Anticipating BIM by more than half a century, Ridolfi exemplified a way of designing that does not passively accept technical innovations but, on the contrary, aspires to translate these technical issues into expressive figures or rather into a poetics that assumes technical innovation in drawing as emblematic feature (Bonfanti 1981).

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Alessandro Brunelli
The poetic hand of Alessandro Anselmi

Abstract

The 1980 Venice Biennale marked the definitive break between GRAU (Gruppo Roman Urban Architects) and Alessandro Anselmi. Talented architect, but also professor and editor of several well-known magazines, Anselmi expresses his design thinking through the art of the hand. Anselmi's drawing, of considerable figurative value, tells about the poetics of the fragments around the void: planes and surfaces that follow the traces of the context and give life to articulated spaces. In the design sketches the language of Alessandro Anselmi emerges with all its expressive power revealing the close relationship between conceptual sign and poetics; a poetics supported by numerous theoretical reflections that insist on the irreplaceable act of the hand in the creative process of architecture.

Parole Chiave
Drawing — Theory — Project — Conception — Poetics

Fig. 1
A. Anselmi, drawing for the cover of Controspazio 1-2 (gennaio-aprile 1979).

In the fourth edition of the *Modern Architecture* Kenneth Frampton inserts the town hall of Rèze-les-Nantes by including Alessandro Anselmi among the masters of the second half of the 20th century (Frampton 1993, p. 390). Twelve years had passed since Frampton's own refusal to participate as invited curator in the first Architecture Biennale in 1980.

The English historian in fact renounced the Venetian exhibition, describing it as postmodern: «I see the Biennale as a pluralist-cum-postmodernist manifestation. I am not all sure that I subscribe to this position, and I think I will have to keep my distance from it» (Frampton 1980, in Portoghesi 1980, p. 9).

Also taking a distance from the Biennale itself is Alessandro Anselmi, who participated in the architecture exhibition as a member of GRAU: Gruppo Romano Architetti Urbanisti. As Anselmi himself states: «When we arrived in Venice [...]: we considered the so-called experience of history over, so we began to review the years of the birth of the Modern Movement» (Anselmi 2000, in D'Anna 2000, p. 48).

The Gruppo Romano formally never disbanded while Alessandro Anselmi, starting in 1980, began a solitary path celebrated by his first solo exhibitions at the Architettura Arte Moderna gallery in Rome (1980) and at the American Institute of Architects in New York (1986). The exhibitions reveal the talent of Anselmi's drawing, which describes a poetics in continuous evolution; a sign that will increasingly move away from the fixed geometries of the GRAU to immerse itself in an anti-classical and expressionist trajectory.

It is no coincidence that in 1982, Manfredo Tafuri described Alessandro Anselmi's work in progress with these words:

COURTESY EREDI ANSELMI
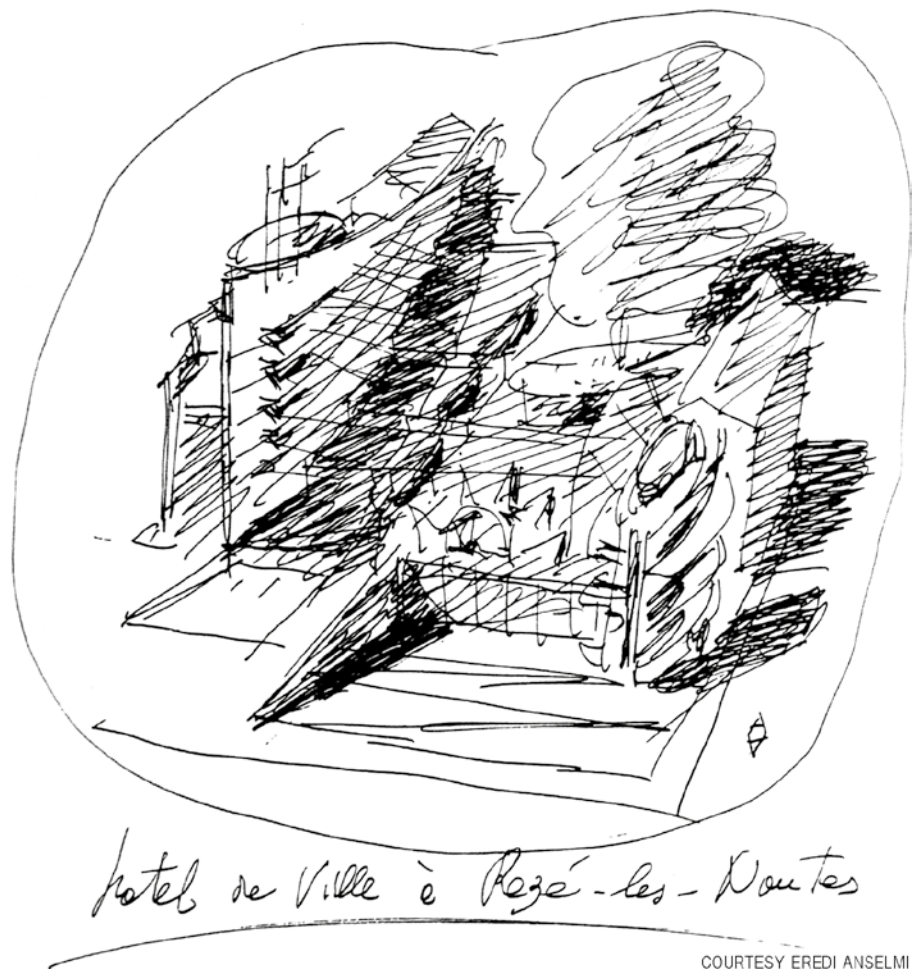
Fig. 2
A. Anselmi, drawing of Rezé Town hall, Nantes, 1987-89 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

The recourse to history and memory [...] loses its primitive emphatic traits, and is «secularly» confronted with a tight game of closed forms and distortions [...]. Despite the common origins and vague assonances, the distance between Anselmi's poetics and Grau's pastiches has become unbridgeable. (Tafuri 1982, p. 219)

If the Gruppo Romano continues to constitute the theoretical, and in part figurative, foundation of Anselmi's poetics, drawing is undoubtedly the true creative act at the basis of every GRAU and post-GRAU project. Through the art of the hand, Alessandro Anselmi refines his sensitivity in shaping the figurative qualities of spatial forms that gradually become increasingly authoritative architectures.

Anselmi's drawing, playing on different techniques and the light-shadow contrast of the Città Eterna, is an intense stroke that appears gestural in the invention phase, and more composed in the representation phase. But it is precisely in the sketch, in the first creative act, that Anselmi's poetics is revealed: a poetics in which the architectures arise from a profound reading of the context despite experimenting with heterogeneous figurations.

Alessandro Anselmi not only practices drawing as the conception, experimentation and representation of architectural form but, as a professor and editor of several magazines, reflects on its value through numerous writings. The lesson of Anselmi's drawing thus has a twofold value: on the first side the theoretical reflections that narrate the art of the hand as the only necessary act to educate taste and conceive the formal qualities of architecture; on the other side the practice of the architect Anselmi that reveals the close relationship between authorial sign, conception and poetics.

COURTESY EREDI ANSELMI
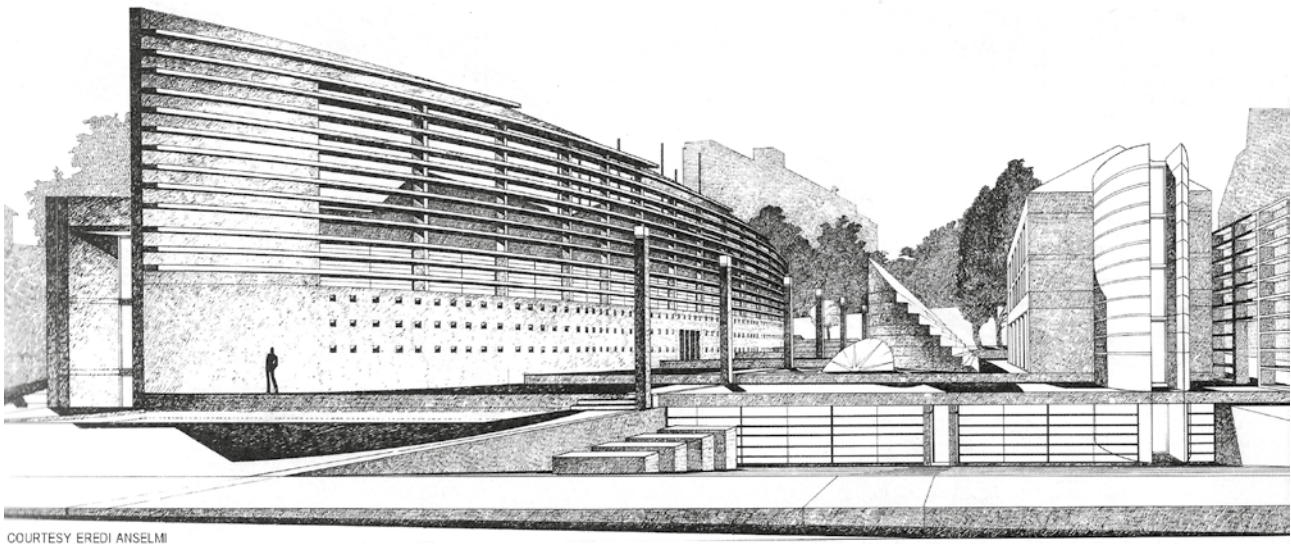
Fig. 3
A. Anselmi, competition perspective of Rezé Town hall, Nantes, 1987-89 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

Fig. 4
A. Anselmi, Rezé Town hall, Nantes, 1987-89, (photo by A. Brunelli).

Reflections on the practice of drawing: from the formation of taste to the architectural idea

At the *Vorlehre* of the Bauhaus, students acquired sensitivity to formal problems by refining their gaze and by practicing drawing and plastic modelling (Argan 1951, pp. 31-84). Alessandro Anselmi's education is based on the same principles: drawing is the necessary practice to form personal taste and to design architecture. The Roman master reflects on the value of the art of the hand through numerous texts that appear in didactic programs, books and magazines[1].

In the *Principi didattici e fondamenti della composizione architettonica*, Anselmi, in analogy to the *Vorlehre* of the Bauhaus, attributes to drawing, in addition to sight, the function of forming the taste of the student-architect who was to train himself through the exercises «of visual composition [...] realised [...] with graphic techniques» (Anselmi 1995, p. 23). In the *Principi*, the aesthetic primacy of architecture as part of the universe of the other figurative arts is also made explicit. For Anselmi, the exercise of drawing is a fundamental practice: it is the cognitive act that had always marked training in the *beaux-arts* school.

how will it ever be possible to imagine the construction path of the future architect, the birth and taking root in him of techniques for manipulating form without [...] adequate experimentation [...]? In the academic school, the problem was en-
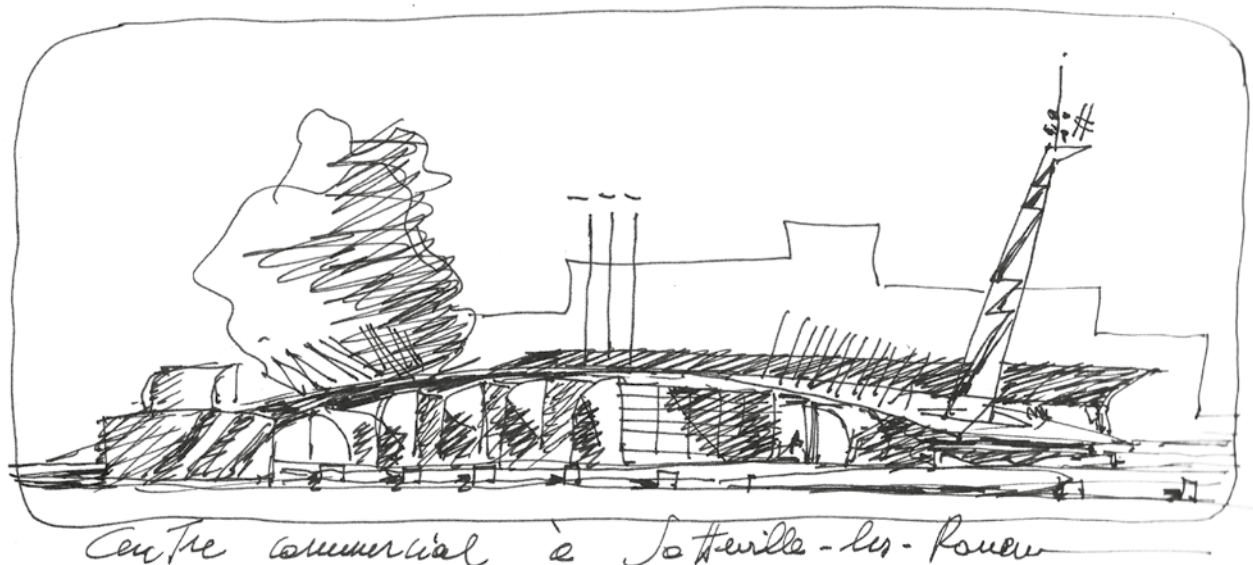
COURTESY EREDI ANSELMI

Fig. 5
A. Anselmi, drawing of Terminal and Shopping centre in Sotteville, Rouen, 1993-95 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

trusted to the teaching of drawing according to the principle that considered the graphic representation of nature to be the basis of all figurative research, therefore also of architecture. (Anselmi 1997c, p. 8)

In 1979, three years before his first appointment as a professor at the University of Reggio Calabria, Alessandro Anselmi anticipates the same themes that appeared in the didactic texts in a very refined article: the writer is not Anselmi professor but Anselmi editor of *Controspazio* (Anselmi 1979, pp. 80-83). In the essay, the Roman architect uses Vasari's words to describe how the activity of drawing is necessary to refine individual sensitivity and to give life to the idea and «manner».

Drawing is thought and language, it is: «the most penetrating tool of architectural investigation [...] and not only as «design», that is, as experimentation and verification of the architectural idea, but rather as an instrument of the idea itself, as the first poetic technique of orientation in that dark space» (Anselmi 1979, p. 82). For Alessandro Anselmi, drawing is far from any Enlightenment conception and belongs to the universe of contemporary art: it is noumenon and phenomenon, it is ideation-experimentation-representation, it is the irreplaceable poetic act of the hand in the creative process of architecture.

It is precisely the question of manual practice, dear to Anselmi's heart, that is the *conditio sine qua non* underlying the conception of spatial forms. Despite an initial openness to the world of the digital and the recognition of the efficiency of the electronic instrument in the definition of the project (Anselmi 2000), the Roman architect returns to reflect on the art of the hand as an insuperable instrument of design thinking in which «the traces, daughters of the gesture, – are – direct witnesses of the emotions and difficulties of figuration» (Anselmi 2004b, p. 29).

In the age of "disposable" culture, in which the role of the architect approaches that of the fashion designer forced to produce short-term images, the «inseparable unity between concept and form in architecture» (Anselmi 2004b, p. 29) cannot be supplanted by digital processing. The complexity of Anselmi's projects, conceived before the advent of computer graphics, testifies to how fundamental the art of drawing was in inventing articulated spaces that were faithful to the initial idea. The town hall in Rezé-les-Nantes
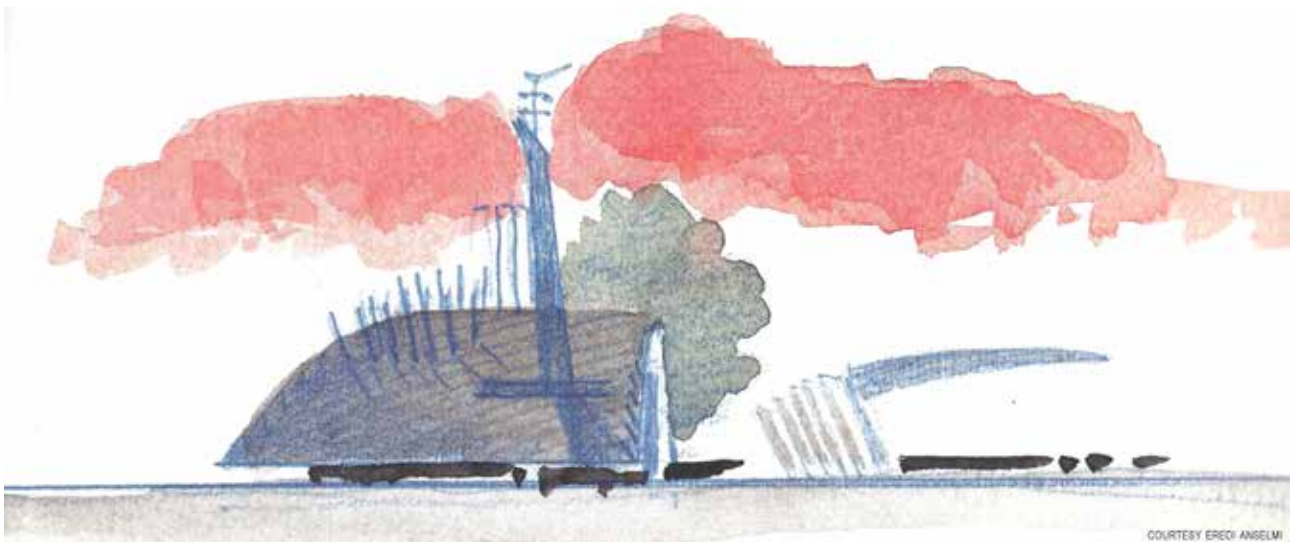
Fig. 6
A. Anselmi, drawing of Terminal and Shopping centre in Sotteville, Rouen, 1993-95 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

Fig. 7
A. Anselmi, Terminal and Shopping centre in Sotteville, Rouen, 1993-95, (photo by A. Brunelli).

(1985), the terminal in Sotteville-les-Rouen (1993) and the building in Fiumicino (1995), three architectures that are manifestos of Anselmi's poetics, reveal to us how the built space has never betrayed the conceptual sign.

The anselmian sign poiesis

From 1980 onwards, Alessandro Anselmi's design activity has produced numerous architectures marked by completely different figurative outcomes. More than in the elevations, compositional analogies can be read in the juxtaposition of planes and surfaces around a void: the true trait of Anselmi's poetics. The churches of Santa Maria delle Grazie in Santomenna (1981) and San Pio da Pietrelcina in Rome (2005), placed at the extremes of his professional career, are clear examples of this. Both sacred buildings, far from each other in the figuration of the elevations, are characterized by curved fragments that determine the internal spaces: in the first one, two vertical partitions curve the plan without ever touching each other, in the second one, the roof becomes a drape that generates a sequence of arches in the elevation.

If we consider, at this point, Alessandro Anselmi's language as a problem of secondary plasticity (Pagano 1930, p. 13), or of writing elevations, the Roman architect's work would seem to escape any code. But if we instead established
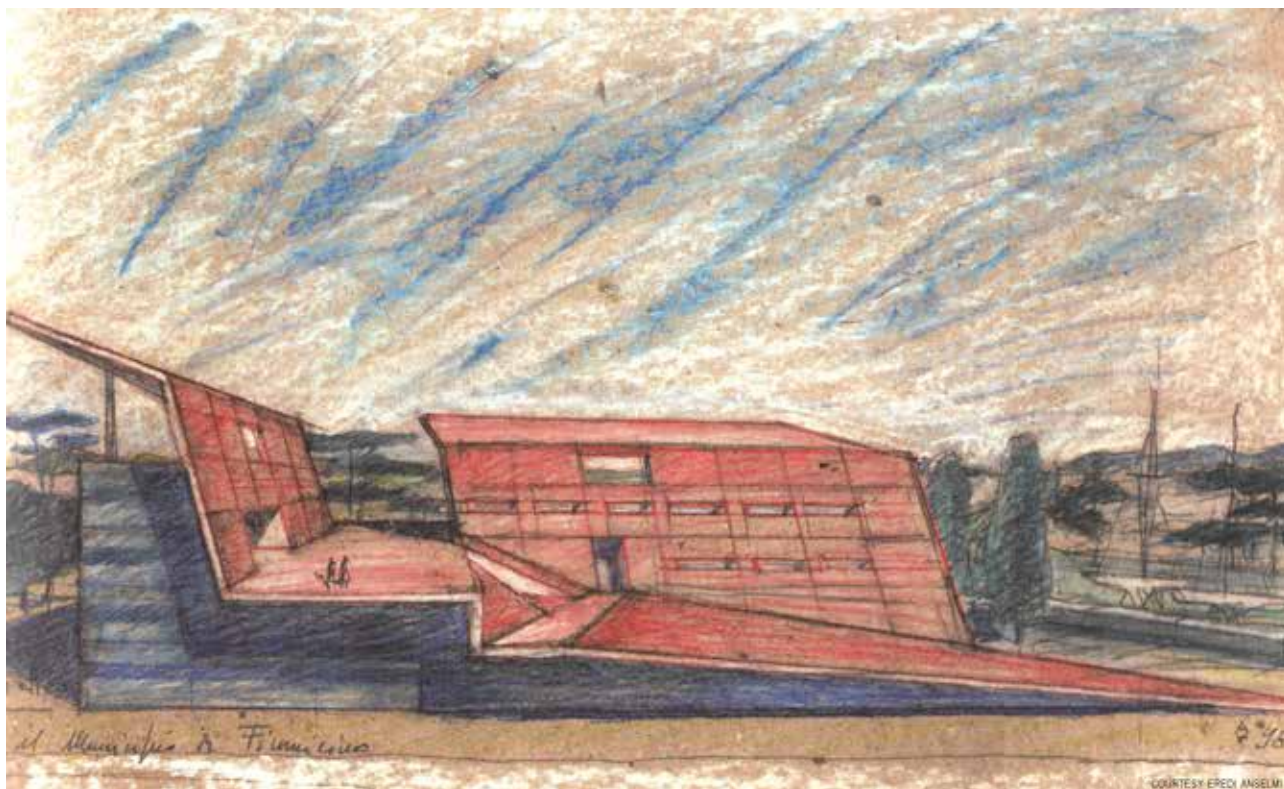
Fig. 8
A. Anselmi with M. Castelli, P. Pascalino e N. Russo, Anselmi's drawing of Fiumicino Town hall, Rome, 1996-2002 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

Fig. 9
A. Anselmi with M. Castelli, P. Pascalino e N. Russo, Anselmi's perspective of Fiumicino Town hall, Rome, 1996-2002 (from Alessandro Anselmi: piano superficie, progetto, Milan 2004).

Fig. 10
A. Anselmi with M. Castelli, P. Pascalino e N. Russo, photo (A. Brunelli) of Fiumicino Town hall, Rome, 1996-2002.
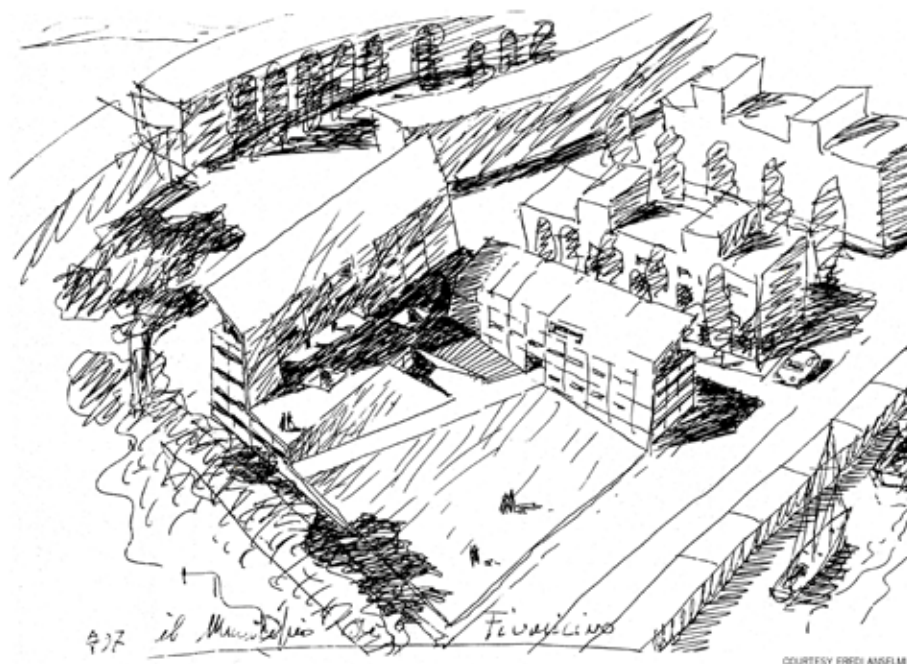
a correspondence between primary plasticity (Pagano 1930, p. 13) and void, or surfaces (planes) and space, we would realise that there is a recurring code. This code emerges even more when we look at the conceptual drawings of the projects: the graphic synthesis of Alessandro Anselmi's poetics.

The sketches also reflect the expressionist character of the Roman architect who, despite experimenting with heterogeneous graphic techniques (pastels, pencils, charcoal, biro), maintains the same gestural expressiveness in his impetuous stroke; a stroke that stops to define an architecture capable of relocating itself (Anselmi 1994, p. 6) and giving order to the dust of contemporary conurbations. In fact, Anselmi's conceptual sign originates from the confrontation with places: the traces of "exploded contexts" [2] guide future architectural signs in the same way as the veining of Carrara blocks were capable of suggesting Michelangelo's sculptures.

The design sketch comes to life from the representation of the context, which for Anselmi is not a cartographic drawing, but the «aesthetic *presentation*» (Anselmi 1994, p. 7) of the place readable through the lens of the figurative arts «in the same way as one sees a work by Vedova or Fautrier» (Anselmi 1994, p. 7).

The "need for the archetype" has turned into a need for "place analysis". In my recent projects, the apparent eternity of the icon is increasingly confused with the "trace" that con-forms a site [...]. But the "trace" is, first, a "ground drawing" full of its deformations and infinite complexity; however, this "ground drawing" appears, once again, as a geometric abstraction that, by transforming the concrete concreteness of the property enclosure (the "historical truth") into a plane or surface, makes the "trace" available to assume iconic values. (Anselmi 2004a, p. 39)

Anselmi's architectures, never exact and crystalline, always appear as geometries deformed by the signs of the context (Anselmi 1994, p. 7) and by the desire to create «landscape ensembles» (Anselmi 1979, p. 82); whether in an external space or an internal one. A poetics incapable of designing single architectures but only ensembles of fragments (planes or surfaces) or «small buildings assembled and embedded [...] in archaeological enclosures» (Anselmi 1997a, p. 62).

Anselmi's sketches, of undoubted figurative value, become increasingly expressionist, like his architecture, as one moves further and further away from the GRAU experience; an experience in which Anselmi's talented stroke is still recognizable.

Rereading the conceptual drawings of the three architectures mentioned, the public buildings for Rezé-les-Nantes (1985), Sotteville-les-Rouen (1993) and Fiumicino (1995), it is possible to identify the traits of Anselmi's poetics. The three buildings reveal three different figurative investigations that range from the "neo-art-déco" of Rezé (Frampton 1993, p. 390), to the zoomorphism[3] of the terminal in Rouen, to the "informal" architecture of Fiumicino. The final image of the French town hall still appears linked to an abundance of "decorative" signs reminiscent of the GRAU period, but only in Rouen and Fiumicino the figurations become even more abstract. Beyond the final images of the three architectures, the line sketches tell about the same design strategy: the poetics of fragments around a void. In Rezé, the elliptical tower and the "mask" (Anselmi 2004a) of *brise-soleil* tend the space towards the *unitè d'habitation*; in Rouen, the roofing delimits the main space in which the volumes of the commercial areas are placed; finally, in Fiumicino, the surface rises from the ground, generating two

distinct bodies and a public void. Anselmi's sketches also show «the desire [...] for context and the impatience to interact» (Tafuri 1982, p. 219), which is reflected in the imagining of the architecture first externally and then internally:

My architectures are not objects – with an inside and an outside – but are like a bridge, between an outside and an inside. The void makes it possible to design the relationships between the elements that make up this void and to reason about the physical quality of this void. (Anselmi 2004, in Guccione 2004, p. 22)

Anselmi imagines his architecture from the outside to the inside through human or bird's-eye views that recall the Roman paintings of the masters Poussin, Cambellotti and Sartorio (Anselmi 2000, p. 67). From landscape views to perspective sections in which exterior and interior interpenetrate, Anselmi investigates architecture in relation to landscape. But the mythical referent of Anselmi's landscape is undoubtedly Rome: the city par excellence of Venturi's stratification and contradiction, which influenced his poetics and graphic line.
Alessandro Anselmi's sketches are the product of a corrupted sign, a sign that connotes spaces through a dense contrast of light and shadow; that *chiaroscuro* that enhances the baroque moulding of the Eternal City.

But if Anselmi's poiesis is that creative act in which the gesture of the hand gives life to architectural thought, from the reading of places to the language of fragments around the void, what is the creative energy behind this process? For Alessandro Anselmi, an unquestionable talent of the hand, there is only one vital energy at the basis of every creative process: solitude.

Solitude [...] is indispensable to the creative act, [...] the mother of all spatial awareness and every image. Solitude is a necessary condition for the difficult retrieval of information, for cultural nutrition, for the dialectical work that slowly or suddenly conforms images, makes them possible, transforms them into communicable code, into project. (Anselmi 2003, p. 9)

Loneliness, a trait that has distinguished the Roman architect's creative moment, is also the term that best describes Alessandro Anselmi's career: from his solitary path with respect to the GRAU, to his personal celebration beyond the Alps, to his isolation in the Italian panorama that has ousted him from the creation of many works. Perhaps the inertia of the capital, perhaps the distance from the power ganglia, Alessandro Anselmi leaves us few architectures to visit but many to understand on paper through the signs of his poetic hand.

Notes

[1] Anselmi's activity as a writer, and not as a theorist as he claims, is certainly less well known than that of Anselmi the architect, but it is nevertheless of considerable interest for the acuity of its form and content: «This interest in theoretical speculation is true, however I have never had the pretension of a true organic organisation of these reflections of mine». (Anselmi 2000, in D'Anna 2000, p. 48).
[2] «In other words, it is necessary to get used to [...] considering the "form of the place" (now distinguishable even in the "non-form" of the informal tendency) as a dialectical referent of the "architectural form" ». (Anselmi 2004, in Guccione 2004, p. 21).
[3] «The fascination of Calder's static sculptures or, also, the great sculpture of Chicago, as well as the atmospheres of some of Arp's and Miró's paintings [...]; an imagery [...] of signs with forms of natural origin» (Anselmi 1997b, p. 165).

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Laura Pujia
**Drawing as architectural design knowledge.
Tools and compositional processes in Francesco
Cellini's work**

Abstract
Among the various interpretations that architectural drawings can take on, this essay focuses on one particular type, understood as an intimate manifestation of a specific compositional process. Post-war Italian culture has been testimony to that usage, which has made it possible to identify the construction of a unique inception of design among many famous architects. This paper, through a paratextual re-reading of notes, texts, drawings and designs, focuses on the Italian architect and professor Francesco Cellini, who used drawing to develop a way of planning and thinking about architecture, coming up with innovative techniques and tools to adapt to the needs of the time, and fostering consistency between idea and practice one of the most unique qualities of his signature style.

Mind and hand

The hand means action: it grasps, it creates, at times it would seem even to think. In repose, the hand is not a soulless tool lying on the table or hanging beside the body. Habit, instinct and the will to action all are stored in it, and no long practice is needed to learn what gesture it is about to make. (Focillon 1948, pp. 65-66)

Drawing, although it is currently assimilated in the definition of 'representation', is not a tool on the margins of the act of designing. Instead, it can be equated 'with intuition and knowledge, even if it happens unexpectedly' (Cellini 2016, p. 223, translation by author). For the aforementioned reasons, among the different forms that architectural drawing can take on in order to express and communicate (to clients, engineers, specialists, the press, etc.), this paper looks at a particular type of graphic marking, understood as a more intimate manifestation of a specific compositional process: the drawing that appears when designing and which has its very creator as its reference. It should also be noted, however, that this apparent category is never so neat and clear-cut. It too has its blurred lines, as every drawing cannot exclude technical and artistic aspects, let alone its addressees (clients, companies, colleagues, etc.) or the professional occasion for which it was created (bids, competitions, jobs, exercises, etc.).
The relationship between mind and hand, between thought and action, becomes the interpretive crux of the symbiotic dualism that can subsist between design and drawing. «Through his hands man established contact with the austerity of thought» (Focillon 1948, p. 65). «They are the instrument of creation, but even before that they are the organ of knowledge» (*ibidem*, p. 70).

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The mental model, which thinks, transcribes one's thoughts with one's hands in an action necessarily linked to the body (Pallasmaa 2014). The translation of one's ideas through the progressive control of one's physicality, which in turn is updated and improved with the passing of time, makes it possible to build a structured way of understanding and carrying out a design.

The experimentation that took place as part of the 'Architettura Disegnata' (Drawn Architecture) movement starting in the early 1970s illustrates an important historical time period for the 'schools' of Milan and, in particular in this context, Rome – despite the inattention of critics, which has ascribed a certain degree of evasion of architecture (Tancredi 2002). The immense production of drawings is testimony to cultural and technical research that spans from design exercises in which «the image *coincides* perfectly with its architectural content» (Purini 2002, p. 17, tba) to the creation of «*drawings of invented places* or *theoretical landscapes*» (*ibidem*, tba) and, in most cases, it has expressed its most authentic meaning as an «*endemic* form of architecture» (*ibidem*, p. 18, tba).

Trying to respond to the simple question of «what kind of drawing is truly needed to design?», the aim of this reflection is to sketch out the meaning of the work of Francesco Cellini, starting from a study of his drawings that shines a light on the unique qualities and characters of his architectural projects.

Drawing and Design

A series of simple A4 sheets of paper can be examined in support of the theory that places the usefulness of drawing as a tool of knowledge and investigation in architecture in the fore. Here, Francesco Cellini jotted, freehand, his line of reasoning in a narrative that's conversational and direct, structured by the alternation of text with very few deleted or erased words, and architectural sketches connected to each other through direct graphic marks (e.g., thick arrows preceded by the word così, meaning 'like this' in Italian), highlighting clarity devoid of second thoughts. The precision and communicative capacity enclosed in just the sequence of eight (plus one) sheets sent via fax[1] is still surprising, as it gathers his architectural design for the Rowing Centre on Lake Corbara (1993-1996), a design that remained arguably unchanged up to its completion. After a succinct introduction (and a request for 'Help!') aimed at his Umbrian colleagues, Cellini expressed, in a detailed and concise manner, the 'settlement principles' and the compositional choices that, starting from the topographical nature of the site, would condition the architectural project. The first page ('pag. 1') describes its position, nestled into the steepest section of the site, dictated by practical motives whose main goal is to keep the building's visual impact on the landscape to a bare minimum. This hypothesis is thus aimed at arranging the building on two floors, set perpendicular to the shore of the lake. That would on the one hand make it possible to welcome the boats, and on the other the building would almost disappear into the ground: indeed, the Rowing Centre has just one facade, set up like a 'section' opening towards the landscape, which ends with a large window and a protruding balcony supported by two tie-rods that create a lookout point over the lake ('pag. 3'). The construction system, illustrated on the subsequent page, is conceived in tandem with the overall idea of space, and is represented in its elementary breakdown into parts, constituting a sort of 'x-ray' of the architectural organism ('pag. 2'). The proposed concept is to build by excavating the slope, following, at the sides, the incline and using a mixed technique composed of a box frame in concrete, for the removal
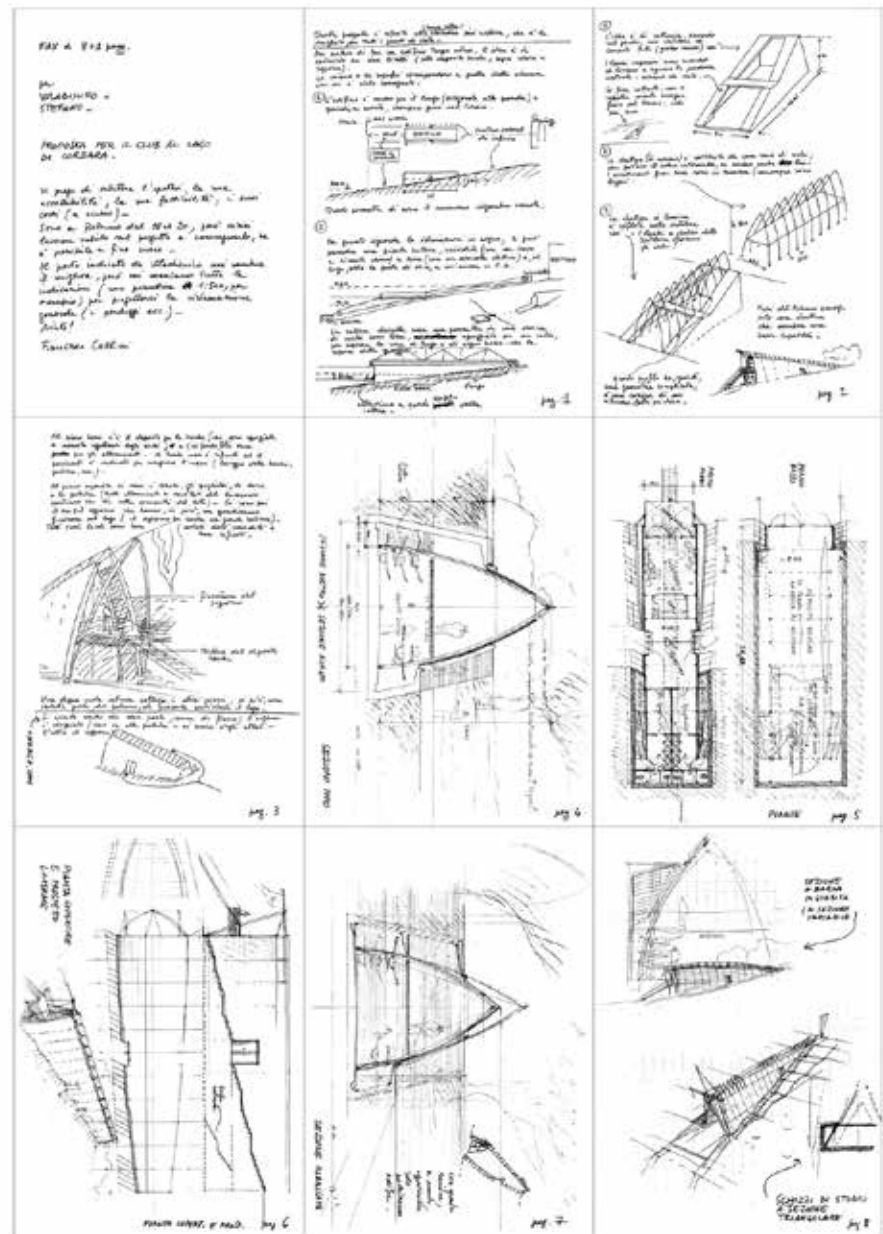
Fig. 1
Design for the Rowing Centre on Lake Corbara, 1993-1996 Concept, drawings by F. Cellini sent via fax.

and containment of the earth, and by a steel structure comprised of a dense sequence of pointed arches for the above-ground part, evoking the shape of an 'upside-down boat'.

Correspondence between the structural and compositional principles is a recurring characteristic in all of Cellini's projects, so much so that it can be recognised here as one of the stylistic signatures that distinguish his way of conceiving of a design. The latter is a 'code' acquired from his education in Rome, shaped upon his instinctive capacity to understand certain practical, foundational aspects of construction technology[2].

Other drawings follow, verifying the conformity of details and views of the whole, which confirm his stylistic tendency for «precise, dialectic architecture [...] made [...] of balance» (Cellini 2016, p. 15, tba). Recurring among the sheets are: an 'main section' which is broken down into two because it passes through the checkpoints of the design (dietro - back, and avanti - front), which gives us the inner measurements on a human scale, with the actions and uses contained within, the relationship with the context in the margins, and even a few technical-structural comments and a question about the type of cladding ('pag. 4'); the floor plans of the various levels and of the roofing, lateral elevations according to the section of the land,

Fig. 2
Cross section for the call for entries for the Italian Pavilion at Giardini della Biennale in Venice (1988-1992). The drawing, done by hand, is meant to study and check the structure, plant engineering and spaces.

Fig. 3
Perspective drawing of a bay, for the call for entries for the Italian Pavilion at Giardini della Biennale in Venice (1988-1992). The drawing was done by hand on a dark background, highlighting the key role of natural light.

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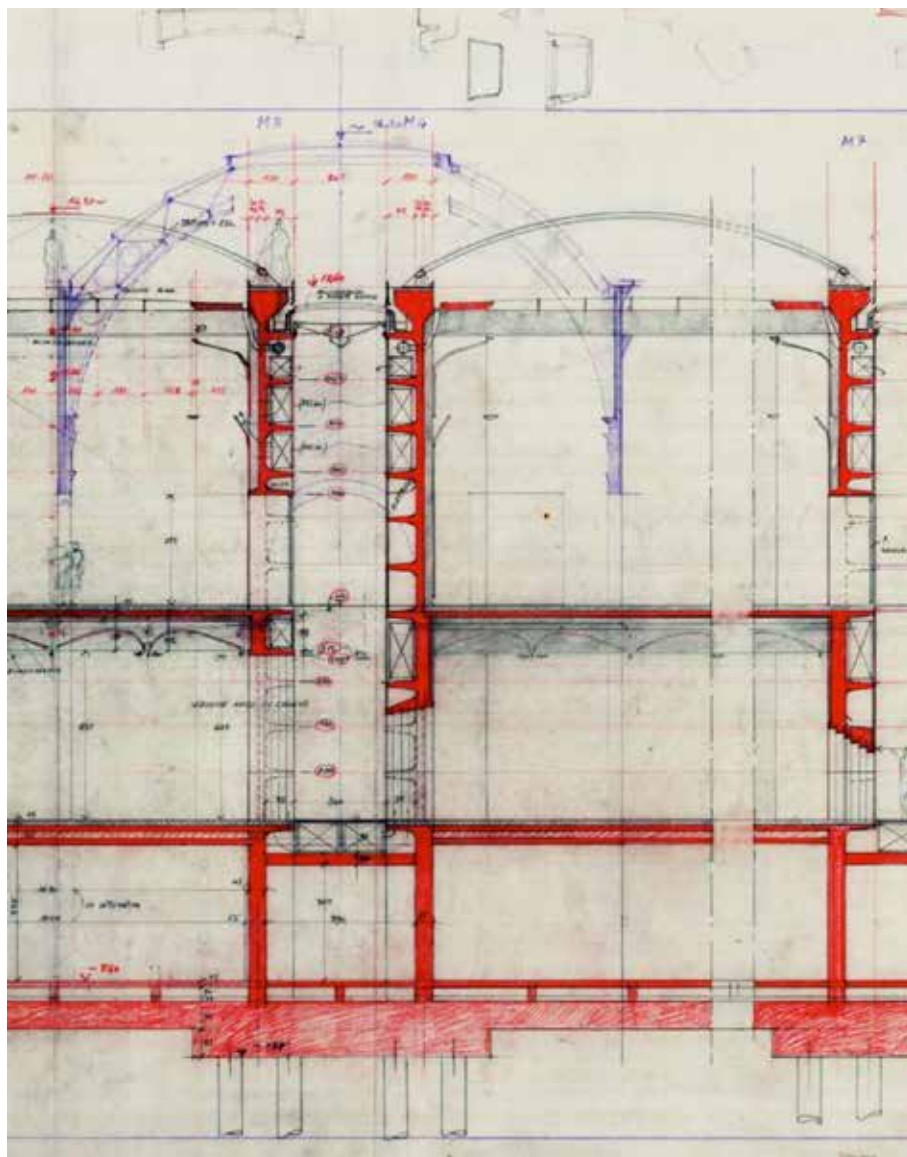
and a few axonometric views that highlight the power entrusted to architecture as a topographical narrative ('pag. 5', 'pag. 6', 'pag. 7'). Closing out the set are sketches studying different (later-discarded) solutions with small variations to the compositional decking, which remains simple yet also rigorous and true to the idea of the design ('pag. 8').

Section drawing is one of the architectural research tools that Cellini employs almost obsessively as a moment of dedicated processing: it returns in different shapes in his work, at times quite general and quick, or slow and measured at others, with notes and precise accuracy. The sections represent his way of studying the interior spaces in relation to the complexity of the whole (compositional, structural and use-based) and are considered, in turn, «places where the building, as if cut with a knife, reveals its inner truth» (*ibidem*, p. 16, tba). There are countless drawings produced for that purpose from the 1980s to the early 2000s, many of them conceived of with the sole scope of checking the design, made by Cellini for Cellini: for example, sections to study the imposing construction and engineering system that gives structure to the spatial articulation of his design for the Italian Pavilion at Giardini della Biennale in Venice. Often the process of understanding the design, in its entirety, begins from a section, which then generates a three-dimensional perspective able to capture the essence and the sense of the building to be inhabited. It is as such that he specifies some convictions and principles in favour of «architecture [that] should first and foremost be understood, to be able to be emotionally accomplished; not that it is made exclusively to provoke admiration or awe. It should speak to the brain and, for that reason, to the senses, but not only to them. A building therefore should be designed in such a way so that those who use it or see it know how to reconstruct it intellectually in their internal formative logic, and not to be perceived as an appearance, perhaps only from some special vantage point» (*ibidem*, p. 15, tba). That gives rise to a way of drawing that is an expression of the «rational cognitive process that leads to a result that is as logically consequential to the preconditions as it is, a priori, in-deducible to them» (*ibidem*, p. 223, tba). That subsists even when the drawing is stylised, capturing an atmosphere within it and taking on pictorial-descriptive value: in addition to turning to the use of simple forms and an expert mastery of the physical forces that govern tectonics, when designing interiors, sunlight plays an essential compositional role, deriving from a reinterpretation of work by Bernini and Piranesi[3]. Cellini's studies led him to implement a «way of drawing (by hand and then on the computer) which uses a strategy with its roots in the 1800s: very little black and lots of white, on a relatively dark, neutral background» (*ibidem*, p. 21, tba).

Drawing is dear to Cellini, and he himself, as an architect and teacher, has returned to the topic on multiple occasions. One of his first practical experiences, working at the School of Architecture at the University of Palermo as a lecturer in first-year Architectural Composition starting from the 1988-1989 academic year, allowed him to draft *Il Manualetto*[4] (1991). The book pragmatically and simply establishes the intrinsic rules of graphic representation after having subjected the technical and construction ones to review; notes are thus present on structures (vertical and horizontal), crowing elements and pedestals, stairs, doors, windows, and measurements. Once again, the design aspect cannot be free from strictly technical notions and his designs represent a clear architectural character and a way of working that is consistent across idea and practice.

In this regard, his custom of understanding drawing as a palimpsest that

Fig. 4
Technical section, on multiple points, for the Rowing Centre of Lake Corbara (1993-1996), inspired by the drawings of M. Ridolfi. The drawing was carried out in phases, by hand, using a ruler and set square.
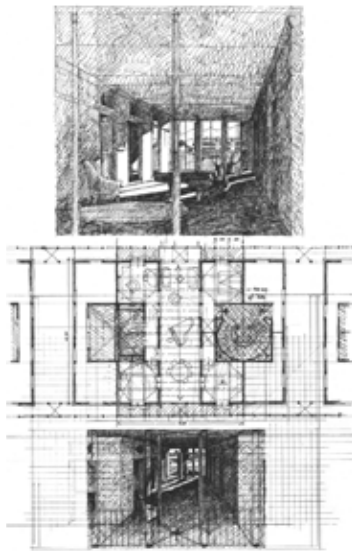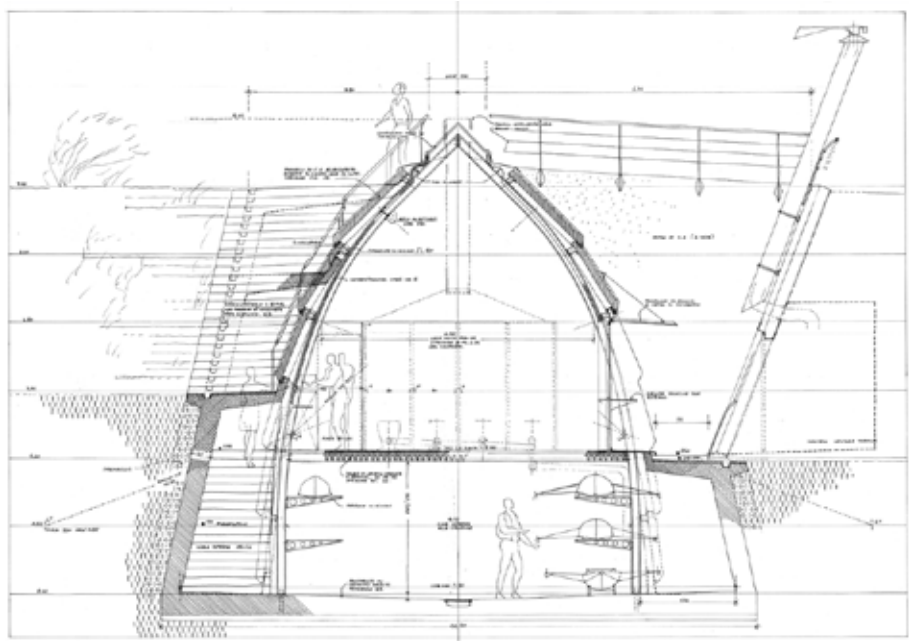
Fig. 5
Drawings for the exhibition on homes of the future (Futurama) done by hand with a biro, with N. Cosentino, 1983. Marked by intense chiaroscuro, the rooms of the house are arranged around a central space. These are study drawings for residential types executed as a duo, with a biro, where the individual contribution of the creators is unrecognizable. The drawing becomes obsessive and characterized by sharp contrast between light and shadow.

encapsulates a multitude of representations and meanings in a single drawing, with the goal of encompassing the spatial and humanistic potential of architecture, capturing multiple views and types of information at once, is exemplary. A unique kind of technical drawing of the main section of the Rowing Centre can be seen, drafted by hand with a ruler and set square on a schematic base of modules of 120 cm. It's a way of drawing, carried out by Cellini under different circumstances and for many years, that concentrates his attention on the logical process of knowing and constructing the design itself, and thus «on numerical precision and on geometrical consistency» (*ibidem*, p. 224, tba) and not on the quality of the lines. It's a type of drawing that was in part inspired by those of Mario Ridolfi (Roma 1904 – Terni 1984), who Cellini knew well (Cellini and D'Amato Guerrieri 1997, 2005; Pujia 2019) thanks to the research and study experience that began during the work done for the long-standing journal *Controspazio* (D'Amato Guerrieri 2018) where he explores the oeuvre of the maestro from whom he inherited, for example, the use of layered geometry as a particular style of architectural writing. The carrying over of certain time-tested graphic conventions was thus reinvented and bent to spatial and architectural purposes until becoming a specific type of 'writing'. That is in part determined by a few practical requirements, such as «the speed of execution, the suitability to the very small size of [his] studio, the adaptability to [his] myopia, etc. [that had] a conceptual advantage over the strenuous drafting of the profession at the time: the distance between design and transcription was reduced» (Cellini 2016, p. 224, tba).

The composition in question also contains another distinctive marker of the Cellini's language of design: the «controlled and repetitive» use of a specific measure «with a propensity for the numerical series of 60, 120, and 180» (*ibidem*, p. 16, tba) which clearly illustrates his passion for geometry and obsession with units and their multiples. The drawing, in addition to dimensioning, holds a depth of information that almost makes the building appear in its three-dimensionality; it possesses structural, technical, systemic (plant engineering) and compositional information that, unlike the quick drawings examined previously, emerge in a sort of detailed palimpsest from which a rather mechanical and repetitive manner of execution

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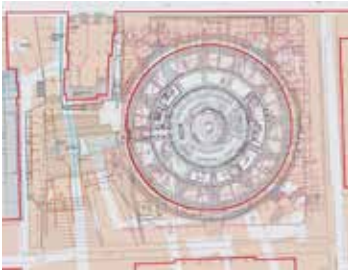
Fig. 6
Study drawing which reconstructs the layers of the city for the redevelopment and adaptive reuse of the Mausoleum of Augustus and Piazza Augusto Imperatore in Rome (under construction).

can be deduced, overshadowing the fact-finding act of the design.

These drawings stand out as necessary for their creator; they embody a chance to verify that which was prefigured. The logical process that's behind the design is gradually copied over on paper, literally putting things 'in writing'. Looking at the sketches, an attachment to the context emerges, which, with its strength, guides the design approach, conditioning the adopted settlement principle that also flows into the checking of the detailed solutions. By way of example, the breakdown in phases of the building process is represented rigorously in a few three-dimensional, schematic and simplified drawings, that, in an analytical way and accompanied by measurements and technical descriptions, forecast the communication of the phases of construction (Pujia 2019).

The significance of Cellini's drawings

The distinctive character of Cellini's drawings can be found in the dual symbiosis between technique and communicative expression, both ascribable to the use of a free hand, in turn accompanied by expert spatial command which combines structural aspects and compositional wholes. The roots of his research can be traced back to a few meaningful experiences, such as the intense, influential collaboration with Nicoletta Cosentino, where drawing emerges as the expression of an idea, meaning a veritable intellectual manifesto[5]. Over the years, the rather artisanal aspect of his work and of his way of drawing made it possible for him to perfect a drawing method that was in line with his physical and intellectual needs, without however shirking the demands of time for which he gradually invented the tools[6].

Although this article can only partially capture the multiplicity of characters in Cellini's style, the continuous 'writing' of architectural thought, the apprehension towards the role of contexts, inquiries into the resistant matter of buildings, and a reflection on the quality of the space continue to shine through. Because, at their core, as Focillon once stated, hand and mind, and thus design and drawing, are part of the same phenomenon. Moreover:

So it happens that the hand that moves, holding its favourite pencil (carefully selected among the thousands available), is not only the absolute master of the sheet of paper that is being filed with almost automatic characteristics; at the same time, as all artists know (though they don't say it), it also knows and thinks. (Cellini 2016, p. 229, tba).

Notes
[1] «A tool that [at the time] pre-empted, by a few years, the role that the web now plays in professional collaboration» (Cellini 2016, p. 101, tba).
[2] Cellini talks about the teaching of the maestro Saul Greco (Catanzaro 1910 – Esfahan 1971) who, with his lessons on structural drawing, conveyed the use of strain with a practical end: understanding the space.
[3] Cellini would later introduce a technique he got from his painter grandfather, Giuseppe, who used toned paper to highlight the light.
[4] Initially written as a booklet for the course, it was then gradually fine-tuned for publication and is still today often used in many design labs.
[5] For further reading on studies at the time, see F. Cellini, 1963-1973 which contains the years of university education and architecture studies, and the work and research done with N. Cosentino and other Roman colleagues (Cellini 2016, pp. 233-235).
[6] Cellini never rejected the use of computers; he often generated 3D models which were worked on and integrated to then be retouched and finalized by the architect.

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FAM

L. Pujia, Drawing as architectural design knowledge.
Tools and compositional processes in Francesco Cellini's work

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Samanta Bartocci
Drawings and projects, Jo Noero and architectural practice in South Africa

Abstract

Works constructed, designed, drawn by hand and redesigned after they have been built, have given life to a pathway, but above all, a succession of diversities, precisely because architecture is not a specialist domain but a meeting-point between different forms of human creativity. Noeroarchitects' (South Africa) professional work and the visions of a progressive repertory of architectural drawings by Jo Noero indicate the role of drawing as an instrument for portraying not just facts but also desires. Drawing is for Noero common writing, it is the sense of knowing by doing, which protects him from the abstractness of the diagrams and stylistic figures of his profession as an architect; drawing has nurtured the complexity of his vision and the corresponding relations between architecture and the strength of the purpose for which it is built.

In the background

«How can an idea survive interpretation and become a powerful statement in a completely different context?» (Noero 2012)

Knowledge strategy requires a place of provocation, and with drawing this process starts up synchronicity.

Architectural drawing expresses a linguistic act, research, the knowledge of a complex set of ideas; the design process drives these actions which take place simultaneously; the idea and drawing encourage each other with queries that develop and in turn unlock new ideas. The mechanism of comparison, checking and communication between the ideas and their chance of being turned into architectural spaces first finds its place in the drawing, in that most personal, deep essence which attracts the attention of the person who has to create the architecture.

This is a self-critical dimension, where the designer taps into that continuous checking that makes the project a sort of *self-reflection*[1]. «An exercise, almost as in Loyola, that will grow and develop through lucid experimentation with one's efforts, one's difficulty in maturing and reconfiguring things» (Moschini 2002). As Alain Berthoz, the engineer, psychologist and neurophysiologist, observed in 1997, «perception without design does not exist». According to Berthoz (1997) «in fact, it is indeed poor reflection on the nature of portrayal that leads the architecture of our time to forget, […] that buildings are not just a static combination of forms, but are also inspired by and extracted from movement; they are, that is, the result of the ability to not simply describe and portray reality as it presents itself, but to also *suggest hypotheses on the possible* and *predict the future*» (Tagliagambe 2014).

Fig. 1
Red Location Cultural Precinct Noeroarchitects, Venice Biennial 2012; Common Ground/Different Worlds. Noeroarchitects, Jo Noero Principal with The Keiskamma Trust, Hamburg, Eastern Cape, South Africa Collaborators-Aaron Factor, David Long. Hand drawing Jo Noero;"Transformation of Red Location", 2012, ink on paper digital post production printed on canvas, 9.4mx3.5m. © Noeroarchitects Archives, courtesy of Jo Noero.
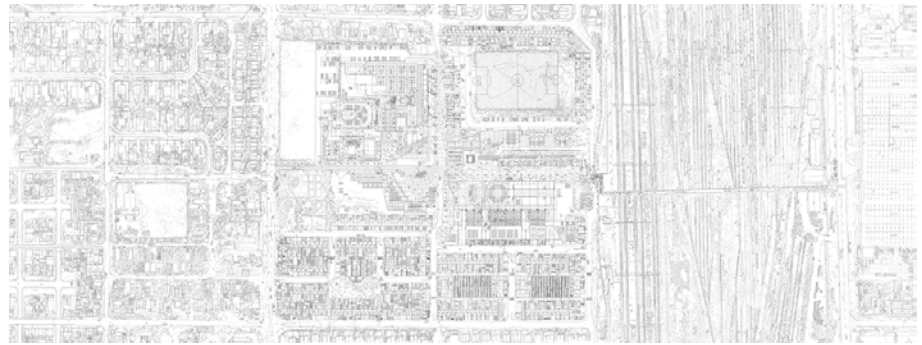
Fig. 2
Detail; "Transformation of Red Location". © Noeroarchitects Archives, courtesy of Jo Noero.
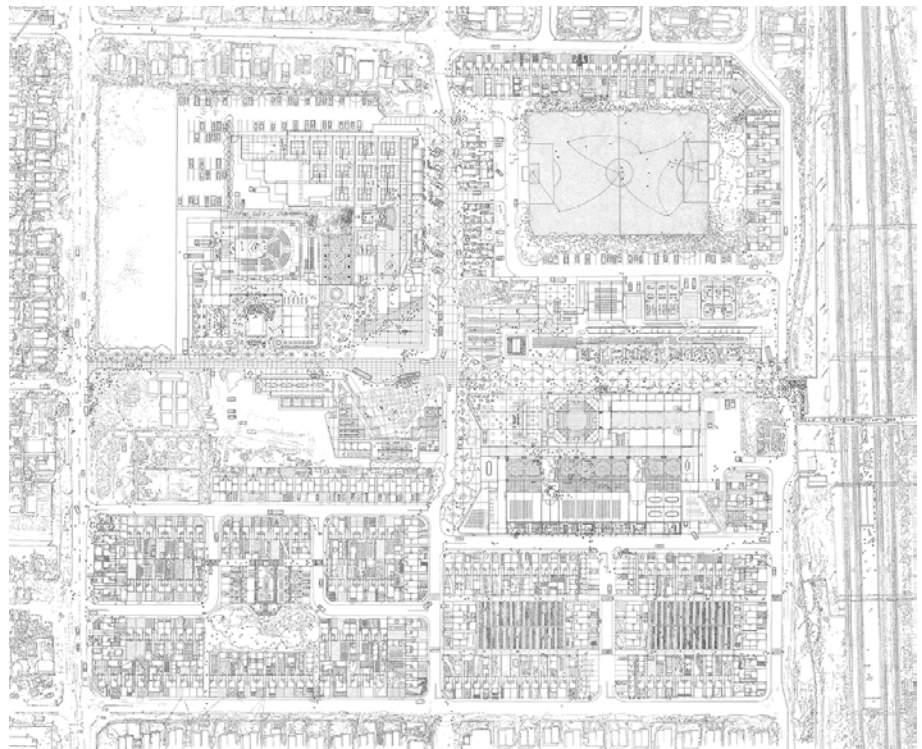
The place and the thread

Jo Noero[2] is one of the protagonists of contemporary African and South African architecture. For Noero «Architecture is a social art otherwise known as a practical art – as such architects do not possess the freedom of the fine artist, poet or sculptor to create works. Architecture is made to satisfy purpose – the social purpose for which architecture is made carries within it an ethical dimension – see Colin St John Wilson. Also refer to the five differences between architecture and the other arts described by Roger Scruton» (Noero 2018).

The cultural situation in South Africa has been changing continuously, especially over the last decades, and the course of action Noero has chosen has been to grant the highest degree of objectivity and clarity to the project location and construction practice. A sort of search for balance, almost salvific, in actions. For Jo Noero the Eighties were years of experimenting during *apartheid*; his repertory of built architecture explored, particularly with some residential building projects, the potential of the self-constructed buildings erected by township inhabitants. This was the start of a long season of reflection and action in which the art of practice, economy of materials and the meanings of construction shifted his interest onto direct experience of the ordinary and the everyday. His idea of transforming the everyday object into a subject from which to learn was a kind of revolution in the concept of architecture. Challenging the mere conservation of
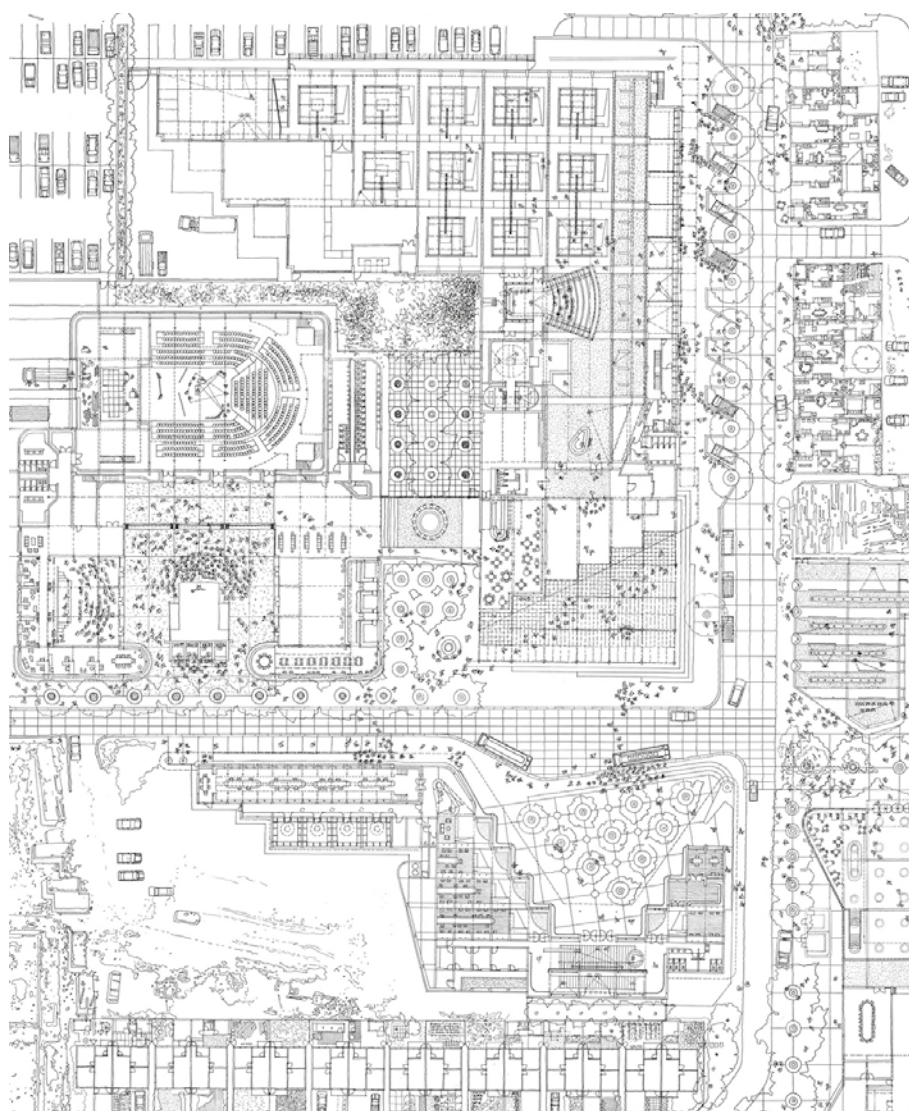
Fig. 3
Detail: at top Museum of Struggle, in lower margin the Archive and Library in "Transformation of Red Location". © Noeroarchitects Archives, courtesy of Jo Noero.

the colonial architectural style in South Africa was for Jo Noero the rediscovery of what might be called a line of coherence between function and expression.

A rich progressive repertory of projects hand-drawn by Jo Noero has plotted out the route of architectural research in the South African context. Free-hand drawing, which was the area of knowledge of the 'real' for him, was the means wherein he accommodated the everyday.

His architectural drawings were three-dimensional thoughts, elementary nuclei, the reference points of his own work and of the formal and symbolic origins up against the controversial history of South Africa.

Meditating, examining the deep reasons upon which the initial idea of a project is based, led to the concepts of Culture, History and Public Space – discussed elsewhere or simply revisited – being central to the vision of the everyday in *post-apartheid* South Africa.

Noero's Studio in Cape Town comprises a group of young people with whom he works in close contact. The initial drawing for each project is not a sketch for Noero but a very accurate drawing by hand (Chipperfield 2020), highly detailed and produced from a sequence of marks stratified on twenty or thirty layers of transparent shiny sheets; his drawing dominates the tools and is clearly the fruit of a rare ability. It is steered by his idea and is an indispensable tool to communicate and give life to the space for

sharing the idea. Drawing is, for him, a way to develop assessments and actions, since architectural design practice intentionally involves customs originating from different places and cultures, but also and especially, because – due to the solidity of the data it passes through and the confidence with which it transfers them – the plan becomes more and more an unambiguous pathway.

I find these worlds extraordinarily exciting in which to work and full of promise – much of my work has been directed towards finding ways to unlock these potentials.

The work I do is shaped by this sense of the origin of architecture. The work we do is shaped by two main ideas - the first being an engagement with the everyday and secondly a respect and commitment to the context both physical and social within which the work is located.

The following ideas provide a guideline to describe how we use the idea of the everyday in our work - some of which come from Deborah Berke and some from Noeroarchitects.

1. An architecture of the everyday may be crude.
2. An architecture of the everyday may be banal or common.
3. An architecture of the everyday may be quite ordinary.
4. An architecture of the everyday acknowledges everyday life.
5. An architecture of the everyday responds to both program and is functional.
6. An architecture of the everyday is capable of adjustment and adaptation over time.
7. An architecture of the everyday is capable of adaptation and adjustment over time.
8. An architecture of the everyday is buildable.
9. An architecture of the everyday is shaped by a careful consideration of those ordinary activities that form part of the domestic rituals and activities of people[3].

In his drawings the role of the architect is discovered once more.

The layering of signs makes it possible to carry out a critical gaze toa vision of the everyday, towards a need to transcend the roots, towards a remarkable manifestation of each man and woman.

Every drawing tells a story.

To me the plan is similar to a written text in as much as it narrates the architect's understanding of the program embedded in the organization of space in the plan. Taken further the plan represents the architect's view of the world and his/her value system. It is in this sense autobiographical and as such gets closest to telling a story about the architect and his/her relationship with the world within which the design is located […] Drawings probably represent in their abstract form the perfection of architectural ideas[4].

Noero is aware of the *unfaithfulness* of a map and of the biased story it can

Fig. 5
Study drawing of the space of the Memory boxes in the Museum of Struggle, in Red Location Cultural Precinct. © Noeroarchitects Archives, courtesy of Jo Noero.

Fig. 6
Axonometric study of the space of the Museum of Struggle, in Red Location Cultural Precinct. © Noeroarchitects Archives, courtesy of Jo Noero.of Jo Noero.
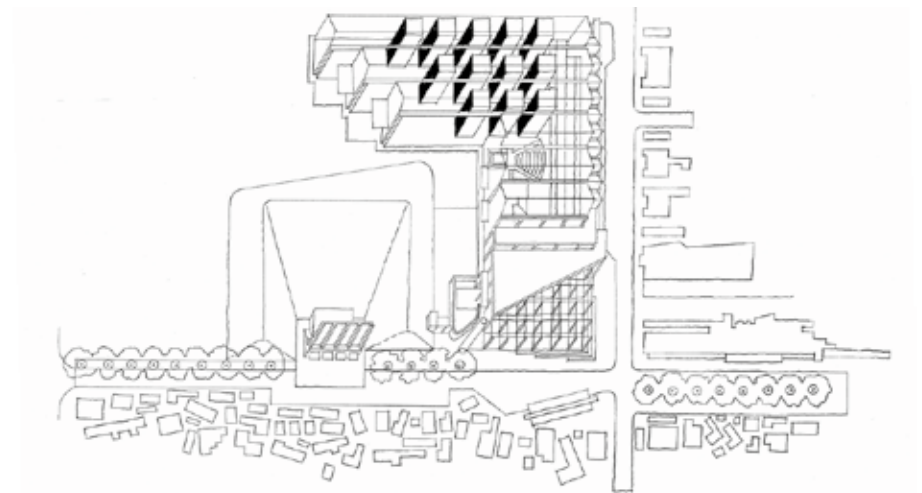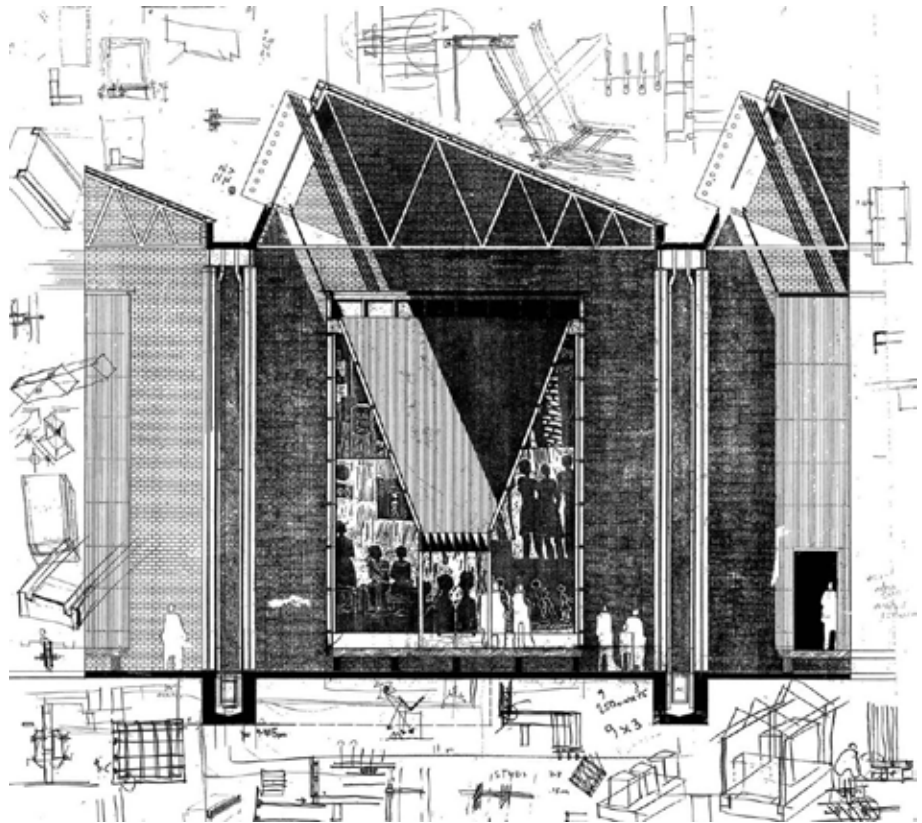
bring back to life; but the work *Transformation of Red Location,* which he displayed at the 13th Venice Architecture Biennial in 2012, logically explains through the architectural project the need to work bearing in mind the two meanings of time, coined by A. Rossi as *"chronological and atmospheric".* We do not know the world by portraying it but, rather, we can design it considering in the background the double nature of time that presides over every construction; architecture that fights time and architecture as a form of survival. Therefore, the indivisible variety of materials of a map turn into operative tools on the common ground between architecture and the everyday.

Jo Noero displays a 'combined' work that has a double nature, two wall-hangings measuring 9.4 m x 3 m, side by side. The first was created by hand by a cooperative of 50 women in Hamburg, Eastern Cape. With its title *Keiskamma After Guernica* and explicit figurative and dimensional references, it recalls Picasso's painting. The theme represented is of course

Fig. 7
Red Location Cultural Precinct and New Brighton; in the background the Museum of Struggle, on right the Art Gallery and at bottom the Archive and Library. © Noeroarchitects Archives, courtesy of Jo Noero.

a scenario of death and suffering, but it alludes mainly to the devastating effect HIV has had on the population, especially women, of South Africa. The second equal-sized wall-hanging is a large map on the scale 1:100 of the *Red Location Cultural Precint* project – the fruit of a design process underway for more than 20 years. Completely hand-drawn by Noero, this is a layering of the existing components, built and foreseen for the Red Location in New Brighton, Port Elizabeth[6].

It questions the spatial relations between the elements, between the public spaces, the Museum of Struggle, the art gallery, the archive, library and living space; «a sort of informative thread, it is the departure point for multiple series of different readings, interpretations and manipulation» (Tagliagambe 2005); it traces the movements of the inhabitants on any one day, and the spatialisation they produce over time.

The map is purposely over-written, re-written, stratified and rewoven throughout the public and living places; it is sketched out by the urban traffic, by actions in the playground and shopping places. The drawing portrays the complexity and correlation between the parts – *shack dwellers,* houses, social housing, museums, libraries, archives, art galleries, theatres, spaces for shows, for meetings and conferences, football pitches and a school of arts and crafts.

For Noero the place of drawing is not the last interlocutory act for the project but, rather, conserves within it the invention.

His need to redesign projects from scratch, even if partly finished, created a meditative space that in the case of *Transformation of Red Location* continued for six months' daily work.

The practice of redesigning a posteriori is a theoretical commitment to his personal thoughts on architecture seeking codes, principles of form and structure. In this work Noero makes clear the role of architect as an agent of change, the work inviting a gazing strategy, «a sort of sixth sense that is able to foresee what is about to happen in the reality of the surrounding space» (Berthoz 1997). It involves a change of perspective that replaces the act of representation with an action, or better, an interaction at the border between ourselves and the world.

Notes

[1] To study further see Moschini F. (2002) – *Disegni di architettura italiana dal dopoguerra ad oggi dalla collezione Francesco Moschini AAM Architettura arte moderna*. Edizioni Centro Di, Florence.

[2] Jo Noero founded Noeroarchitects in Johannesburg in 1984. Noero has received local and international awards, including the Lubetkin Award of the Royal Institute of British Architects in 2006, the Ralph Erskine Prize from the Nordic Association of Architects in 1993 and the Gold Medal for Architecture from the South African Institute of Architects in 2010. Noero's works have been displayed at the MoMA in New York, the Venice Biennal, San Paolo Biennial, Singapore Biennial, Cape Town National Gallery of Art and the MAXXI in Rome.

[3] This position which becomes clear in the statements given was rewritten and reformulated by Jo Noero some years later in his first critical text and can be found in full in the section "Generating housing, Architecture of the everyday", of the book by S. Bartocci, M. Faiferri (2021) – *Drawing and Building. Noeroarchitects*. List Lab, Barcelona.

[4] A fragment of conversation that took place with Jo Noero about his projects of recent years in the Noeroarchitects office, Cape Town, South Africa (2018).

[5] To study further see S. Bartocci (2018) – *Red Location Cultural Precinct, Noeroarchitects.* List Lab, Barcelona.

[6] The Red Location Cultural Precinct project was the fruit of a design process begun in 1998 with the architecture competition to develop this Precinct. In the first phase the Museum of Struggle was built, involving Noero Wolff Architects (Jo Noero [Principal] and Heinrich Wolff) in association with John Blair; in the following phases, developed and followed by Noeroarchitects, the art gallery, the archive and library were created. Financial and social problems brought the works to a halt on various occasions, putting to the test those parts of the buildings already constructed (the second construction phase ended in 2011). However, a third construction phase was foreseen which Noero drew in this work *Transformation of Red Location* of 2012.

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Caterina Lisini
The creation of happiness. About Lina Bo Bardi's drawing

Abstract
Drawing seems to have in Bo Bardi a dual soul, which results to range incessantly between expressive conciseness and inventive fury. Not only, or not so much, architectural drawings, technical drawings that are functional to the project, to its execution or to the worksite. But neither simply conceptual drawings, study sketches, theoretical or expressive research drawings, nor merely imaginative, perceptive or travel drawings. Her drawings, whose traits are often somewhat naïve, but at times meticulously precise and constructive, show a great variety of techniques and as a whole seem to be marked by the apparent, manifest oxymoron of the «fantasy of the real», borrowed, according Bo Bardi's words, from Majakowskij. A vision of architecture tenaciously adherent to reality, a spontaneous and impetuous creativity inseparable from the experience of the body and physicality of the real, which appears immediately contaminated, like personal expressive figure, with festive and ironic creation of happiness.

Keywords
Lina Bo Bardi — Drawing and reality — Autobiography — *Todos juntos*

«I am not interested in writing», Lina Bo Bardi told Francesco Tentori with sober frankness, «I am fully aware that I can write well. My masters are Stendhal and Majakovsky. The former taught me conciseness, when he declared that he had learned to write from the officers of the French building cadastre and the drafters of the articles of the Civil Code. The second taught me rhythm instead, the fantasy of the real» (Tentori 2004, p. 151).

Also drawing, seems to have in Bo Bardi a similar dual soul, which results in an extraordinarily multiformity of fertile significances. Not only, or not so much, architectural drawings, technical drawings that are functional to the project, to its execution or to the worksite. But neither simply conceptual drawings, study sketches, theoretical or expressive research drawings. Nor merely imaginative, perceptive or travel drawings. Her drawings, whose traits are often somewhat naïve, but at times meticulously precise and constructive, show a great variety of techniques, from pencil sketches, *gouache*, watercolour, ink drawing, and collage, and covering remarkably wide-ranging themes and scales, which include simple objects, furniture, jewellery, clothing, individual residential houses, housing estates, public buildings of great scale and complexity, as well as theatrical sets and museum and exhibition set-ups and mountings, as a whole seem to be marked by the apparent, manifest oxymoron: «the fantasy of the real».

In August of 1942, while the war was in full swing, the magazine «Domus», then under an emergency editorial staff which included Melchiorre Bega, Massimo Bontempelli and Giuseppe Pagano, asked «a group of architects to describe […] with intimate confidence, the ideal design of the house of their dreams», an elusive theme, almost involving «drawing the impossible» (Redaz. Domus 1942, p. 312), to such an extent that it was
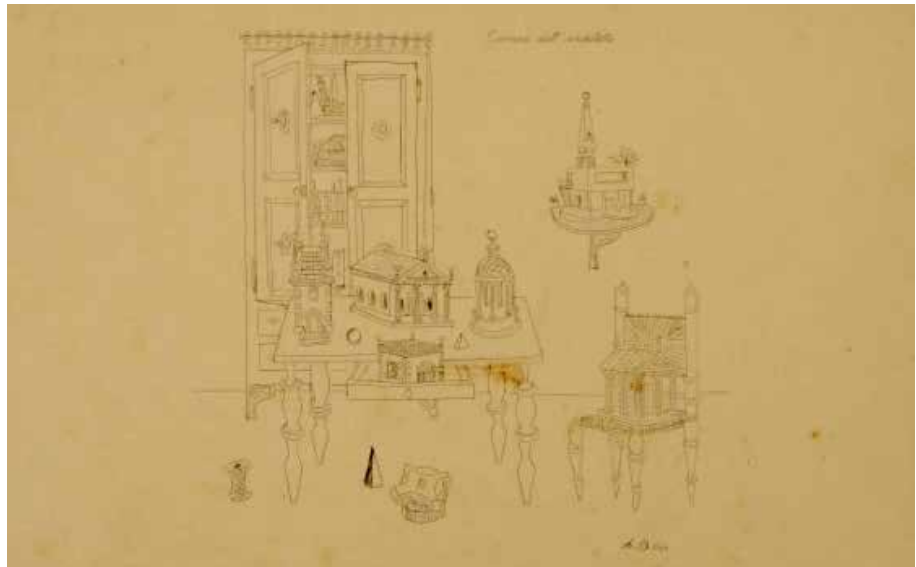
Fig. 1
Lina Bo Bardi, "Camera dell'architetto" lithograph.

interpreted, in the many 'confessions' that followed (Banfi, Belgiojoso, Zanuso, Cattaneo, Diotallevi and Marescotti, Cocchia, Bianchetti and Pea, Mollino, Pica, and others) as a symbolic rationalist house, as a spiritual abstract house, as a subject of pure escapism, or else as an autobiographical fantasy. Among the many drawings which exist from Lina Bo Bardi's years of education and training, first in Rome and then in Milan, a lithograph from 1943 entitled *Camera dell'architetto* seems like it could belong to this gallery of reflections, offering the ironic and meditative self-portrait of a period of her life which is about to conclude, and already revealing in a nutshell a constant of her work, that is the deep interweaving between drawing and autobiography. On an unremarkable wall, a stylish closet with half-open doors serves as a bourgeois backdrop to a small table with turned legs, next to which stands a traditional stuffed chair: the whole domestic space is crowded with a multitude of architectural models, mostly fictional, where a Classical temple and a Renaissance temple, a fragment of a Palladian villa and elements of historic dwellings meet in the foreground, while an Ionic capital lies on the ground next to abstract geometric shapes. Silhouettes of more distinctive architecture emerge from the closet: obelisks, a mediaeval tower, the leaning tower of Pisa, the Colosseum, and on one side, isolated above a small shelf, sits the model of a modern architecture, connoted by *pilotis* and a *fenêtre en longueur*, partially concealing a tall obelisk. Rather than an allegory, the continuous line of the drawing, as in an illustration which does not wish to show off any technical virtuosity, seems to represent a merry jumble which dissolves the multiple references from the architect's cultural baggage into a light image, placing them all together, without hierarchies, in a sort of silent dialogue. The mark of the cultural orientation derived from her collaboration, together with Carlo Pagani, in Gio Ponti's publishing enterprises during the years 1940-1943 is quite evident. She was a habitual presence in the last year of "Domus" before the war and collaborated with continuity on "Stile", where she wrote about furniture, interior architecture, and dealing as well with illustration and graphics, including the design of several covers of the magazine. She also collaborated occasionally on other magazines of Ponti's group, such as "Aria d'Italia", "Bellezza", and "Vetrina e negozio". However, by 1943 new concerns had taken hold Bo Bardi's life which seem to seep out of the sense of suspension of the drawing: as a result of the dramatic events of the war, the *impasse* of rationalism and the emerging debates within the
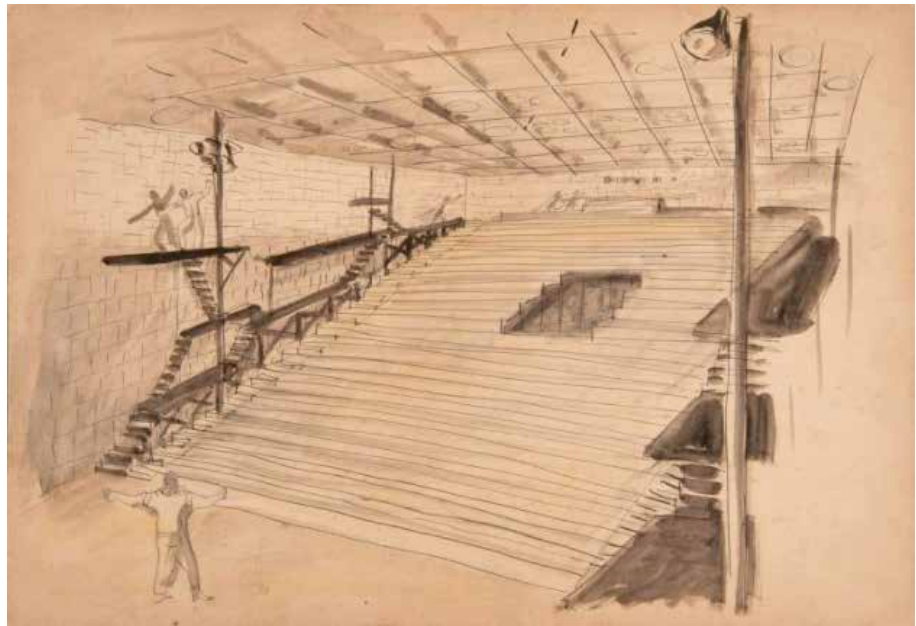
Fig. 2
Lina Bo Bardi, MAMB, Theater perspective.

Fig. 3
Lina Bo Bardi, study sketch for the stage costume for Caligola.

groups of young architects, as well as the encounter with Pietro Maria Bardi, and the growing need to assert her personal convictions, the classical and idyllic limits of Gio Ponti's *milieu* became too narrow for her.

The urgency of reality and a new awareness burst in: «I saw the world around me, Bo Bardi wrote some years later, only as an immediate reality, and not as an abstract literary exercise» (Carvalho Ferraz 1994, p. 10).

In this way a vision of architecture and of human works took shape that was always tenaciously adherent to reality, a reality which became imbued with hope and vitality since Bo Bardi landed in 1946 in Rio de Janeiro, the city that represents the heart of the Brazilian spirit, and to which she responded with a spontaneous and impetuous creativity – «furious» according to Semerani (2012, p. 8) – that is inseparable from the experience of the body and physicality of the real, exercised in shaping rigorous designs which were immediately contaminated with festive and ironic evocations. «Architecture as inhabited, human space, wrote Bo Bardi in the early Fifties, is a powerful reality, accountable for the behaviour of man, accountable even for his happiness. And in this sense the Modern Movement continues» (Carvalho Ferraz 1994, p. 86).

Among the drawings made for the Museu de Arte Moderna da Bahia (MAMB), which originated as part of her process of complex cultural refounding matured during the years in Bahia and after her exploration of the Brazilian *Nordeste*[1], those that stand out most are the ones produced for the construction of the theatre «one of the most direct means of cultural propaganda, since it contains all the other arts» (Carvalho Ferraz 1994, p. 144). The perspective of the audience *cavea* is sketched on one page, with a few lines in pencil and ink, emphasised by the usual watercolour brush strokes, to be built with simple wooden plank decks and enclosed by a tangle of trellises and walkable stairs, which could also be used for stage action, shaped almost as plant ramifications. There is no formal adjectivation or superfluous scenography, as well as no functional division between the space for the audience and technical spaces, stage mechanisation is abolished and there is a continuity between the theatrical representation and the audience, resulting from the proximity of the improvised stage, with as backdrop the bareness of the great structure of the Teatro Castro Alves, still partially destroyed by the fire of 1958. A modern, simple, com-

munity theatre, «poor yet violently emotional» (Carvalho Ferraz 1994, p. 144). Bo Bardi's study sketches seem to appropriate the profound simplification lesson[2] derived from her experience in Bahia: in their traits there is no originality or gratuitous invention but rather the constant search for the essential and an inclination for 'poor' and bare architecture, as well as for raw and unfinished materials, which seems to spring directly from the translation of the close link between human needs and their fulfilment, between usefulness and beauty. In this case drawing for Bo Bardi is not only a stage in her approach to the project, but becomes a social and existential reflection, an expression, *tout court,* of her poetics, that can be summarised, using her own words, in the determined «anthropological research in the field of art against aesthetic research» (Carvalho Ferraz 1994, p. 216). And when her drawings become populated and enlivened with figures and shapes, it is the reality of the Brazilian human environment and the specific features of the target community that enter into action, 'dirtying' the sheet of paper with graftings and contaminations. Thus in her work memory, the relationship with cultural manifestations and popular traditions, is never nostalgic, a mere revisiting of the past for its own sake, it is not even a critical act, an inquiry into time in order to understand the art or the discipline in question, it is rather a motion of continuous wonder, undertaken almost through the eyes of a child, an amazement before a repository of forms, a tangle of expressions and experiences, all human, indispensable to nourish the imagery of her art.

There are numerous studies, distributed over a period of time ranging from 1957 to 1966, for the solution of the facade of the great gateway of the Museu de Arte de São Paulo (MASP), iconically suspended at one end of Avenida Nove de Juhlo. The version dearest to Bo Bardi, which she tenaciously explored for a long time, envisaged the elevated body of the Museum as a single mighty concrete monolith, lit from above, materially dense and completely blind, except for a long horizontal slit at the level of the temporary exhibitions, and entirely embedded with plant inlays, drawing an irregular pattern of tropical vegetation emerging «among the interstices of the raw concrete, as if from the cracks in the stones of an old cathedral» (Lima 2021, p. 259). As part of that same series there is an unusual perspective of the Belvedere, traced precisely under the imposing frame of the museum and aligned with it, to the extent that it seems to stretch almost infinitely, which depicts, among the efflorescence of the vegetation, sketched in pencil, a collage of great tribal sculptures freely distributed throughout the vast space and surrounded by visitors, almost as if probing the vision of a new society capable of imagining a continuous overlapping of archaic artistic manifestations and contemporary creativity.

Bo Bardi draws what she is thinking about and designing, in fact she thinks by drawing and at the same time thinks by looking at the world. What guides her hand, as in any true artist, seems to be «the four-eyed head», imagined by the contemporary artist Tullio Pericoli, «with its double set of eyes, one on the forehead and one in the brain», the material eyesight and that of the intellect which cannot do without each other, in the same way that «it is not possible to see without involving the heart and the mind» (2021, pp. 43, 41). Even in her more specifically architectural drawings there is rarely anything conceptual about them, far from being polished, there is something immediate, spontaneous and vital in them, a kind of continuous flow between art and life, almost as if they had been made only for herself – Bo Bardi confessed: «I work during the night, when everyone
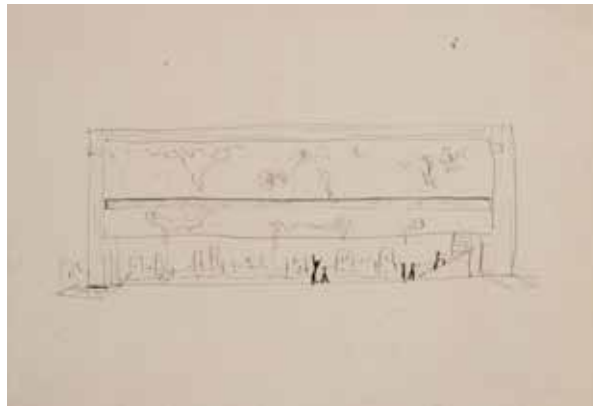
Fig. 4
Lina Bo Bardi, MASP, study sketch for the facade.

Fig. 5
Lina Bo Bardi, MASP, Belvedere perspective.

else is sleeping […] and all around me there is silence» (Dos Santos 1993, p. 17) –, for the urgency of putting her thoughts on paper as they are being formed.

There is in Lina's drawings (this is how she is affectionately known, still today, almost everywhere throughout Latin America) a conflict, or rather the fruitful co-presence of a rational inclination, on the one hand, which is well suited to her Eurocentric education, and a surrealist tendency, on the other, which blends with her instinctive attachment to popular culture, to myth, to the ancestral rites of the local tradition: that «enchantment», which she said she felt immediately after arriving in Rio, «a real, not metaphysical hope found almost on a daily basis in the simplicity of the architectural solutions, in human salutations, things that were unheard of for a generation that arrived from far away» (Carvalho Ferraz 1994, p. 12).

Surrealism seems to completely take over the drawings of the Leisure Centre SESC Fábrica da Pompéia, carved out of the industrial suburbs of São Paulo by converting an old metal drum factory. They show, through the huge number of sketches and tests, Bo Bardi's extraordinary capacity to hold together the very different scales of the project, from the high cement 'towers' of the sports facilities, to the minute design of the furnishings, the staff uniforms and even of the advertising indications. «As in any Surrealist research, from Savinio to Picasso, Breton, Buñuel or Jarry, it is the images and materials which generate the composition through which the mechanic and the organic, the pure and the impure, desire and chance traverse the boundaries that separate them» (Semerani and Gallo 2012, p. 29). Yet in the case of Bo Bardi a hermeneutic capacity is added: it is an attitude which draws and stages «the imperceptible rustle of life», which in turn seems to relate her artistic path to that of a writer such as Natalia Ginzburg, another extraordinary 20th century female figure who was her contemporary. «It is the pleasure of using the mind as the bowels, of having the mind walk in darkness, the journey and the vicissitudes of intellectual knowl-

Fig. 6
Lina Bo Bardi, SESC da Pompéia, plan study.
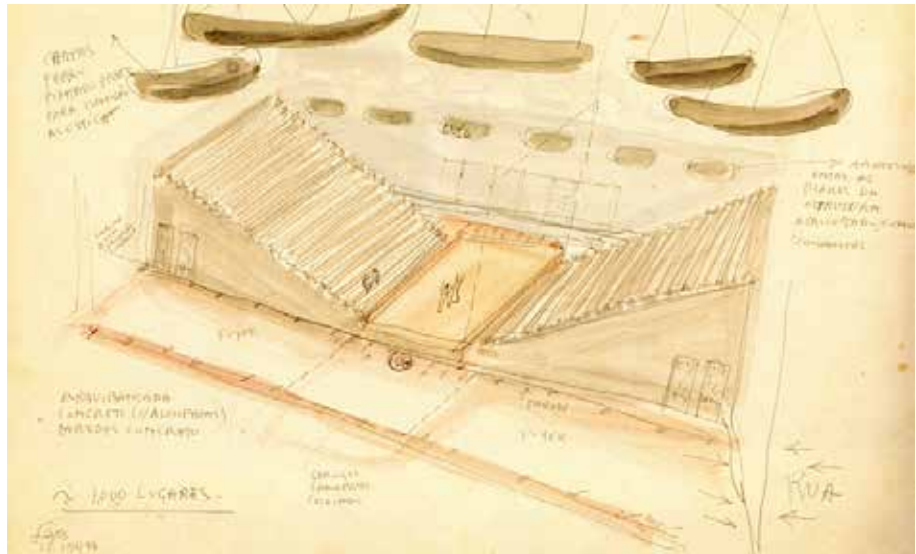
Fig. 7
Lina Bo Bardi, SESC da Pompéia, Theater perspective.

edge being nothing more than the slightly blackened mirror which reflects what in those depths [...] is dark yet still legible» (Garboli 1989, pp. 116, 106). For both probably an entirely feminine capacity for inclusion and appropriation of the world, that in the case of Bo Bardi seems to guide the steady hand with which sketches her creations.

From the first draft plans a theatre, symbol of life and participation, is placed at the cross-shaped intersection of the long open-air public paths that branch out from the Centre. A meaningful perspective sketch shows, in the elongated rectangle of the former warehouse, the completed layout for a modern theatre with a central stage made entirely in cement, with the monolithic block of the two cavea like terraced stands facing each other and surrounded by linear balconies overhead which offer additional space for the audience, with views from above and to the side of the stage, all of which animated by the sculptural presence of large steel plates, silver in colour, in the way of Calder's *Mobiles*, hanging from above and performing acoustic functions. All around, in the warehouses liberated from all interior partitions, the spaces for recreational and cultural activities are located, such as the library, workshops, reading and children's play spaces, as well as rest and exhibition areas and the vast lounge with the carvings recalling a watercourse and the *foguiera* – the great fireplace –: all places for social interaction interconnected and interwoven by way of a sought-after 'chancefulness' which reflects the unpredictable nature of life. All of Bo Bardi's drawings, full of voices and colours, seem to spread-out in thousands of rivulets of intense creativity that find expression even in the furnishings, such as the austere theatre seats, entirely in solid wood,
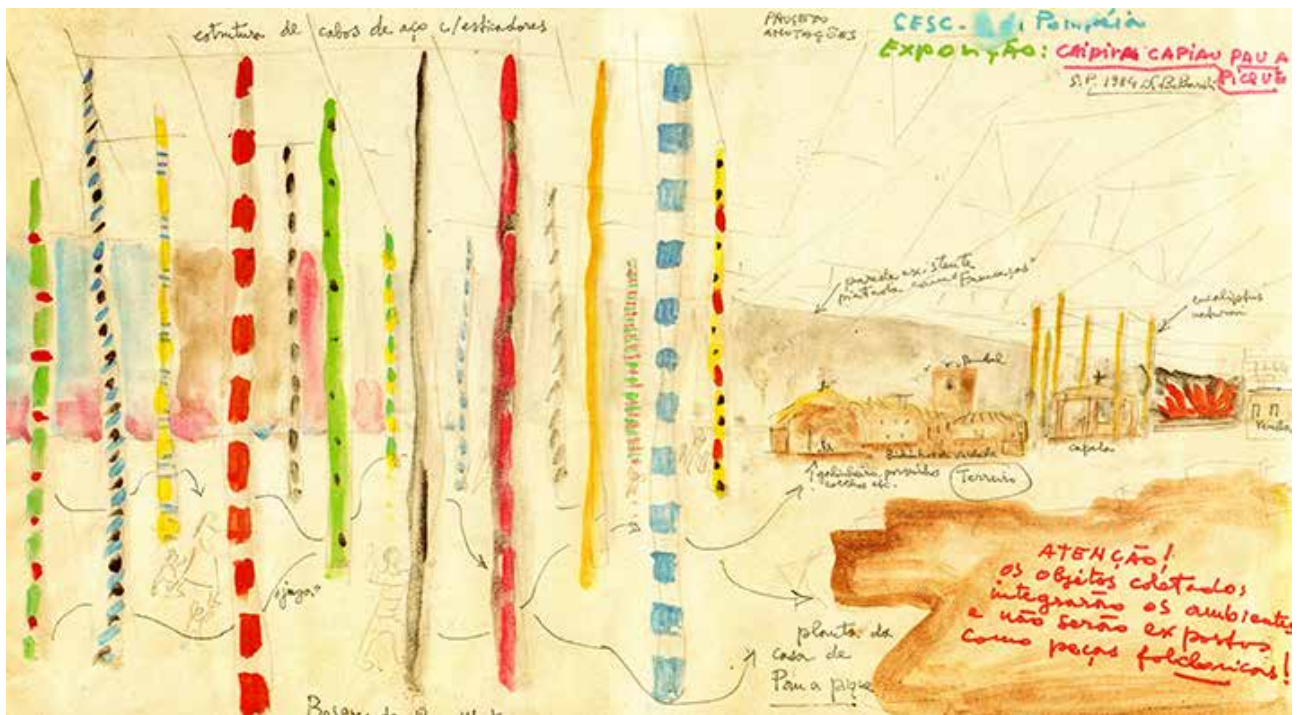
Fig. 8
Lina Bo Bardi, SESC da Pompéia, study sketch for the exhibition "Caipiras, capiaus: pau-a-pique".

not stuffed or upholstered in velvet as in 18th century court theatres or in accordance to contemporary comfort standards, but rather devised for «giving back to the theatre its capacity for both distancing and engaging». The drawings, even those more properly architectural, are never aimed at presenting a work or a creation, at presenting a professional proposal, but are rather intended as research and knowledge tools. A festive atmosphere, an ironic cheerfulness, continuously hovers above them, that is inseparable in Bo Bardi from a form of understanding or wisdom about life, and which seems to summarise her peculiar and unique creation of happiness. «*Todos juntos*», Lina wishes the recipients of her Sesc Pompéia to be, «young people, children, senior citizens, all united in the pleasure of getting together, of dancing and singing» (Bo Bardi 1992, p. 225).

Notes

[1] Lina Bo Bardi went to Salvador de Bahia for the first time in February 1958. She returned in 1959 and remained there until August 1964, a few months after the military coup d'état. On these experience she published an article in 1967 entitled *Cinco anos entre os brancos* ("Mirantes das artes etc", 6, November – December), later translated in *Cinque anni tra i bianchi* (Carvalho Ferraz, 1994, pp. 161-162).

[2] On the meaning of 'simplification' for Lina Bo Bardi see her words in the writings *Museu de Arte de São Paulo and Mostra Nordest* (Carvalho Ferraz 1994, pp. 100 and 158).

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Tiziano De Venuto
Drawing, thinking: the experience of Livio Vacchini

Abstract
Livio Vacchini's experience takes on a radical and particularly problematic perspective, especially if it refers to the relationship between drawing and research into architectural forms. Vacchini shunned the sketch as a place for the formation of ideas. Considering the project as a construction of thought, between questions and themes posed, his worktable was rather 'inhabited' by diagrams, signs, words. Instead, his drawings – those iconic ideograms that describe the concepts expressed in his architecture – are well known. Sometimes Vacchini used the sketch to describe the compositional 'structure' of some of his works. He did it during his lessons. Here, flowing from the mind and through the hand, his signs do not construct complete images or images endowed with any iconicity. Rather, they allow us to retrace the trajectories of his thought with amazement.

Keywords
Idea — Sign — Construction — Drawing — Project

Crossing the threshold of the Locarno office, in a landscape strongly measured by the light and the rough materiality of the *béton*, you come across the paintings that Livio Bernasconi – Ticino painter, whose experience is perhaps referable to the world of geometric abstraction – had given to the friend Livio Vacchini: acrylics on canvas, clear, precise signs; a reasoned sequence of figures and colors in complex "spatial" geometries. For one of these paintings – the one displayed on the wall of his personal office – Vacchini had also designed the wooden frame. A large, flat batten; a sort of *passepartout* that participates in the construction of the image itself, with a figurative intentionality comparable to some of Josef Albers' Homages to the Square, where the frame is inscribed in the homological sequence of the figures of the composition. Inside the same room, along the *béton* wall that divides the studio from the workspace for collaborators, some drawings by Vacchini hang. These are the abstract and well-known figures that represent his works in an icastic way: the house in Costa and the study of one of its variations for a project in Locarno-Monti, in this case. These are those highly iconic drawings that critics have repeatedly discussed, placing them in a perspective of progress, when Vacchini had decided to get rid of the sketch – and more generally of the drawing produced by the hand – as a place for research and construction of thought. They are his digital drawings, those produced «at and by the computer» (Masiero 2013, p. 24). Figures made for "solid" fields.
Yet Vacchini had been a "happy" draughtsman. Eloisa Vacchini (2018, p. 161) remembers this when she tells of the days spent by Livio – his father – with his grandfather (a baker), portraying horses «with coal from the bread oven». One day even «a professional counselor, seeing him draw,

expressed a strong and inviting opinion: 'but you have to be an architect! »
(*Ibidem*). A revealing and at the same time particularly problematic state-
ment, if placed with respect to the results of the Ticino architect's research.
Such an idea, in fact, would seem to recognize in the ability to draw, in the
virtuosity of the sign produced by one's hand, a sort of propensity for the
discipline and profession of architecture. At the same time, it would seem
to open up to a deeper reflection on the value of drawing, as a tool and as a
language of the job. Building an image, making a mark on paper with the
hand, is a work that engages the mind and that can support, or even coin-
cide, with the very formulation of thought. However, this does not seem to
be entirely true for Vacchini, who, on the contrary, claimed to design «hori-
zontally» (Masiero 2013, p. 8), lying on his sofa, without using his hand[1].

I have never seen Vacchini make a sketch. When he started a job he would put himself
in front of a blank sheet, on which he wrote down a series of questions, 15-20 ques-
tions that arose thinking about the project we had to face. Then, he went on to consider
which ones were less relevant, [...] progressively reducing the list until he reached one
or two questions. And on the answer to these questions he set up the project[2]. (Babyn,
Navone, Zaluska 2019, p. 2)

Vacchini shunned the sketch (or so he affirmed) as a place for the forma-
tion of thought. An apparently inexplicable renunciation, sometimes eval-
uated as painful[3], but which seems to coincide with the construction of his
own idea of architecture. Some of the drawings that Vacchini elaborated
at the beginning of the design process of each project seem to assume a
character close to that of some logical schemes, between signs and words,
questions and themes posed. These "sketches" propose a use of drawing
and the hand far from the idea of producing complete images or those with
any value foreshadowing reality. Vacchini's "drawn" questions – the ones
Snozzi talks about – and the schemes that often accompany his reflections
seem rather to express the logic, the rational thought that supports the ex-
perience of the project, which for Vacchini constantly seems to coincide
with the «construction of a concept» (Moccia 2019, p. 40).
The abstract drawings – those exact ideograms displayed along the walls
of his studio – express all their power in building and shaping the concepts
contained in his architecture. In these, Vacchini entrusts the representation
of his buildings to the Mongian projections alone, bringing back the space
and the prefiguration of his character to the exactness of his constructive
figures. This type of drawing seems to take on value in communicating the
thought of the project, verifying it through an exercise of reduction to its
elementary and therefore essential figures. Roberto Masiero, who has ded-
icated many important and profound reflections to the work of the Ticino
master, describes these drawings through an «almost cultic, liturgical, met-
aphysical value» (Masiero 2013, p. 10) which would also have to do with
the nourishment that Vacchini he drew from the experience of Minimal
Art. An experience of art that «proceeds by removing and simplifying in
order to reach the very inscrutability of the thing in itself» (*Ibidem*).
But reviewing the drawings that accompany some of Vacchini's "youth"[4]
projects, a significantly different style of representation emerges, still
drawn up with the drafting machine, with the hand. Here, plans, elevations
and sections are described through a technical drawing, inscribed within an
"objective" canon of representation. Vacchini outlines the forms of his ar-
chitecture with precise, abstract, neutral lines. His drawings reveal nothing

Fig.1
Livio Vacchini, Ai Saleggi ele-
mentary school, Locarno, 1979-
78 (published in Norberg-Schulz
C. e Vigato J.-C. (1987) – Livio
Vacchini. Editorial Gustavo Gili,
Barcelona, 27).
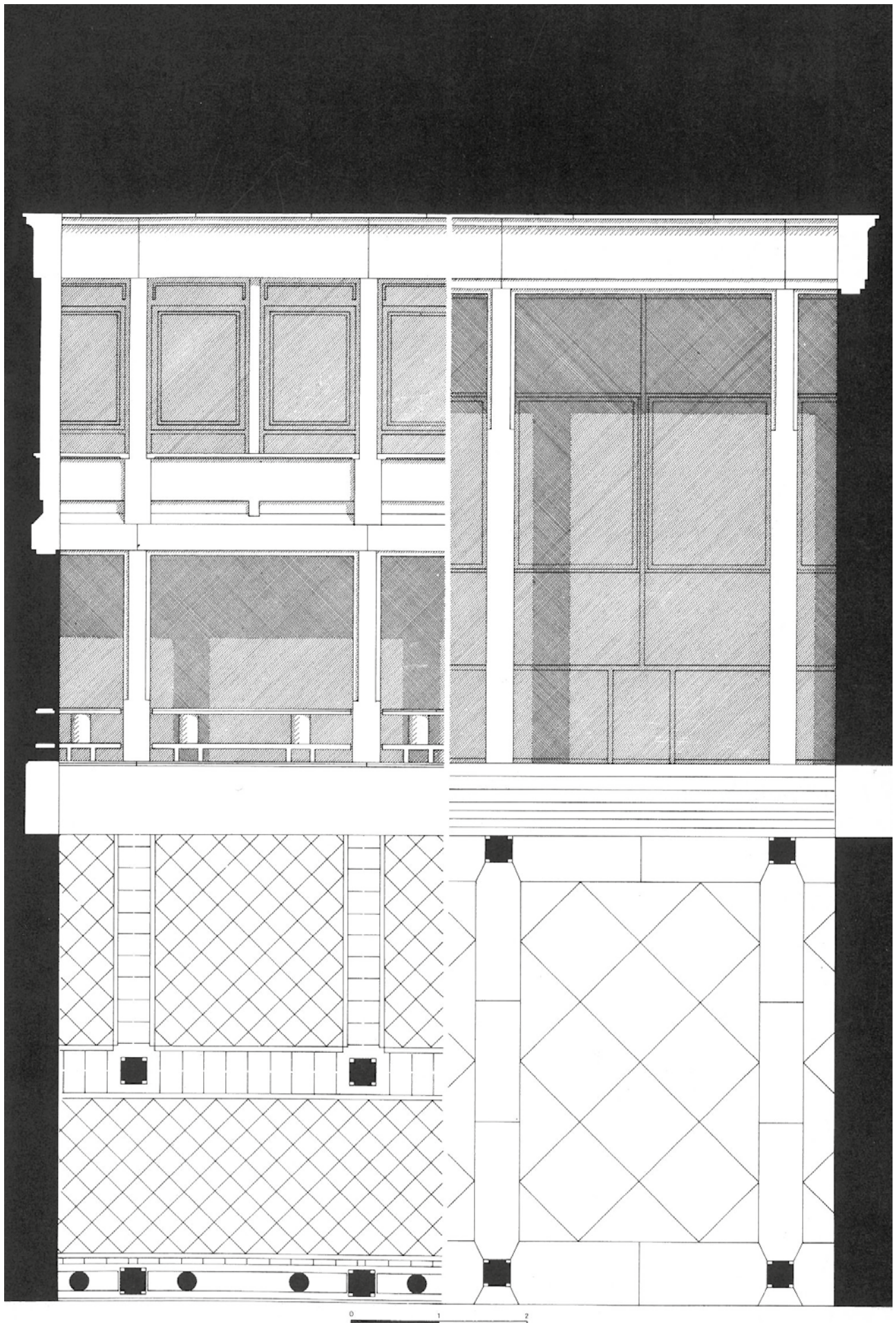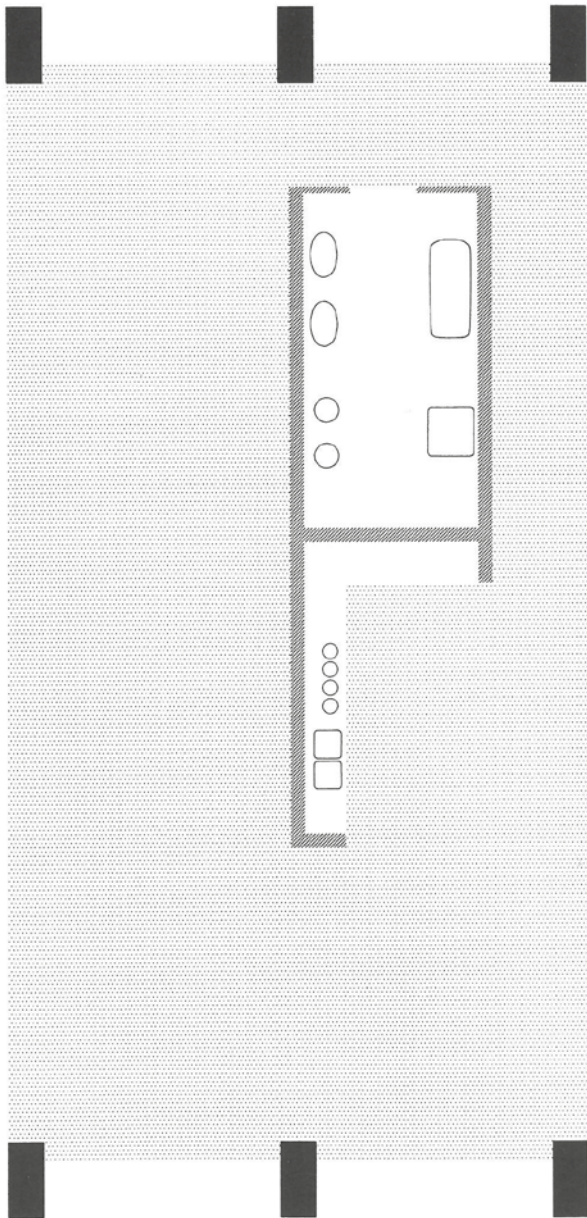
Fig. 2
Livio Vacchini, Costa-Tenero house, 1990-92, plan (published in P. Disch (edited by) (1994) – Livio Vacchini architetto. ADV, Lugano, 68).

Fig. 3
Livio Vacchini, Project for the Fiori-Pelosi 1990-92 administrative building, Via della Posta, Locarno, typical plan (published in P. Disch (edited by) (1994) – Livio Vacchini architetto. ADV, Lugano, 60).
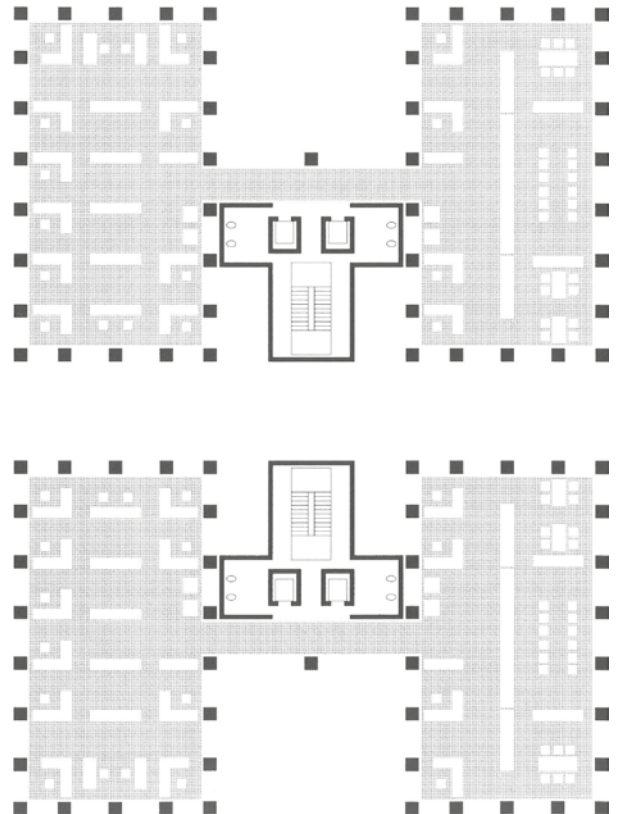
of the material that constructs space. It is only the shadows – also drawn in line, at 45° – that reveal the spatial depths of the forms that detach, by a sort of juxtaposition, from the deep black background of the "canvas" (fig. 1).

His "mature" drawings, on the other hand, are profoundly different. Curiously, his lines are almost completely absent: clear, exact figures, obtained solely through a "game" of vector surfaces, in black and white (fig. 2). No imperfection is attributable to the use of the hand. What changes is the relationship with the "panel", between the object represented and the background of the "canvas" which now no longer has color, is white. In plan, the elements of the structure – which give shape to the space – are shown with a solid black screen. With a tension comparable to Luigi Moretti's spatial models, the void takes shape. It is the shape of the space that takes figure through some filled surfaces, becoming the true subject of the representation. It is no coincidence that Vacchini no longer draws the movable furnishings that occupy the space, leaving traces of them through a "negative" white surface (fig. 3). The lines, when there are, appear as dotted traces that mark, in projection, some conspicuous points of the structure in space. Elevations and sections reinforce this interpretation;

Fig. 4
Livio Vacchini, Costa-Tenero house, 1990-92, elevation from the valley (published in P. Disch (edited by) (1994) – Livio Vacchini architetto. ADV, Lugano, 71).

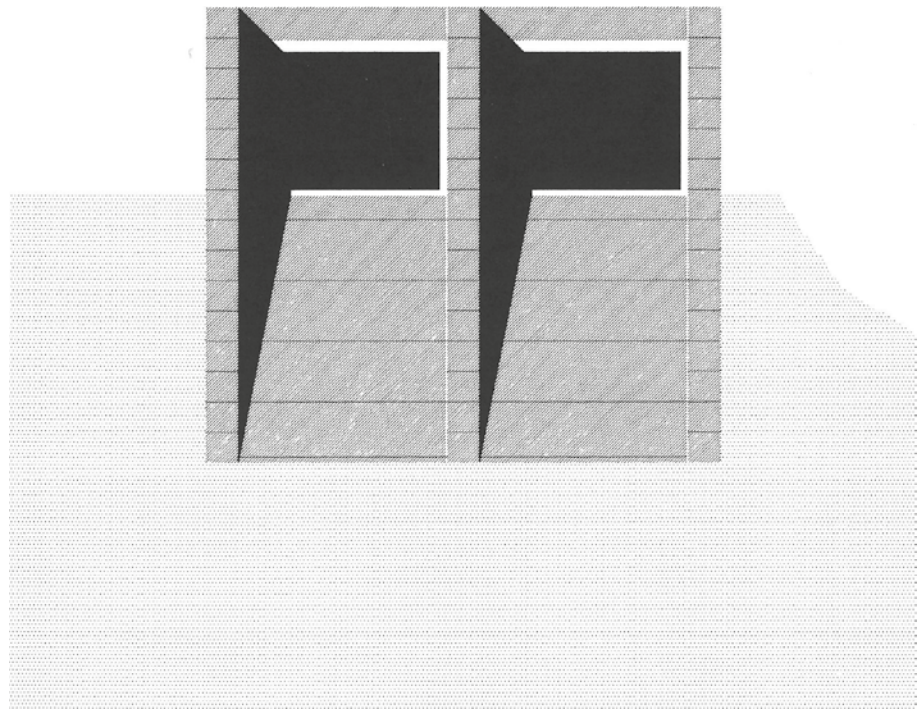Vacchini seems to represent the space that takes shape through material. Here, the representation of bodies is strongly characterized by solid black shadows that seem to "sculpt" the space in «reasoned relationships of light and material» (Le Corbusier 2003, p. 171). In projection, the constructive forms of the building (usually in *béton*) are still represented through textured surfaces: they tell nothing of the tactile physicality of the material, if not for some rare reference to the joints between the formworks in counterform for the casting of the concrete. It is a condition that undoubtedly arouses curiosity: walking through the valleys of Ticino one is sometimes struck by the canton's coats of arms carved into the hard granite rock. Red is represented, in abstract, through a sequence of vertical incisions, blue, on the contrary, through horizontal lines, following the symbolic language of heraldry. Similarly, Vacchini represents his forms with screens made of lines, probably expressing a sort of metaphor for material. But these signs, on the contrary, have no symbolic value, rather revealing an inner "sound" that belongs to the mind of its author (fig. 4). All these drawings are the digital product of an «exact machine» (Trentin and Vacchini 1999), whose value, at least for Vacchini, seems to be entirely contained in the *anti-impressionistic* character of the sign. Such a perspective, together with the conceptual dimension of his research, could even recall some of the principles of Concrete Art contained in the manifesto published by Theo Van Doesburg in 1930[5]. But the drawing, in Vacchini, is always subordinate to the construction of the work, it has no value in itself. With respect to such a critical perspective, it would be useful to recall a reflection by Jacques Lucan (1994, p. 25) who, describing the house in Costa, argued that if «[…] were it not for the raw cement, whose rustic quality and imperfections due to excessively "artisan" construction displease the architect, the house in Costa-Tenero would be like a diagram». For Vacchini, material is construction. In this problematic horizon, it is evident that even his drawings seem to affirm that it is not the sign, or the "language" of material the theme of his architectural research. Looking at the geometric-constructive rigor of his works, one would rather wonder if they themselves express an analogy with some experiences of Concrete Art, but it is a theme that would take us
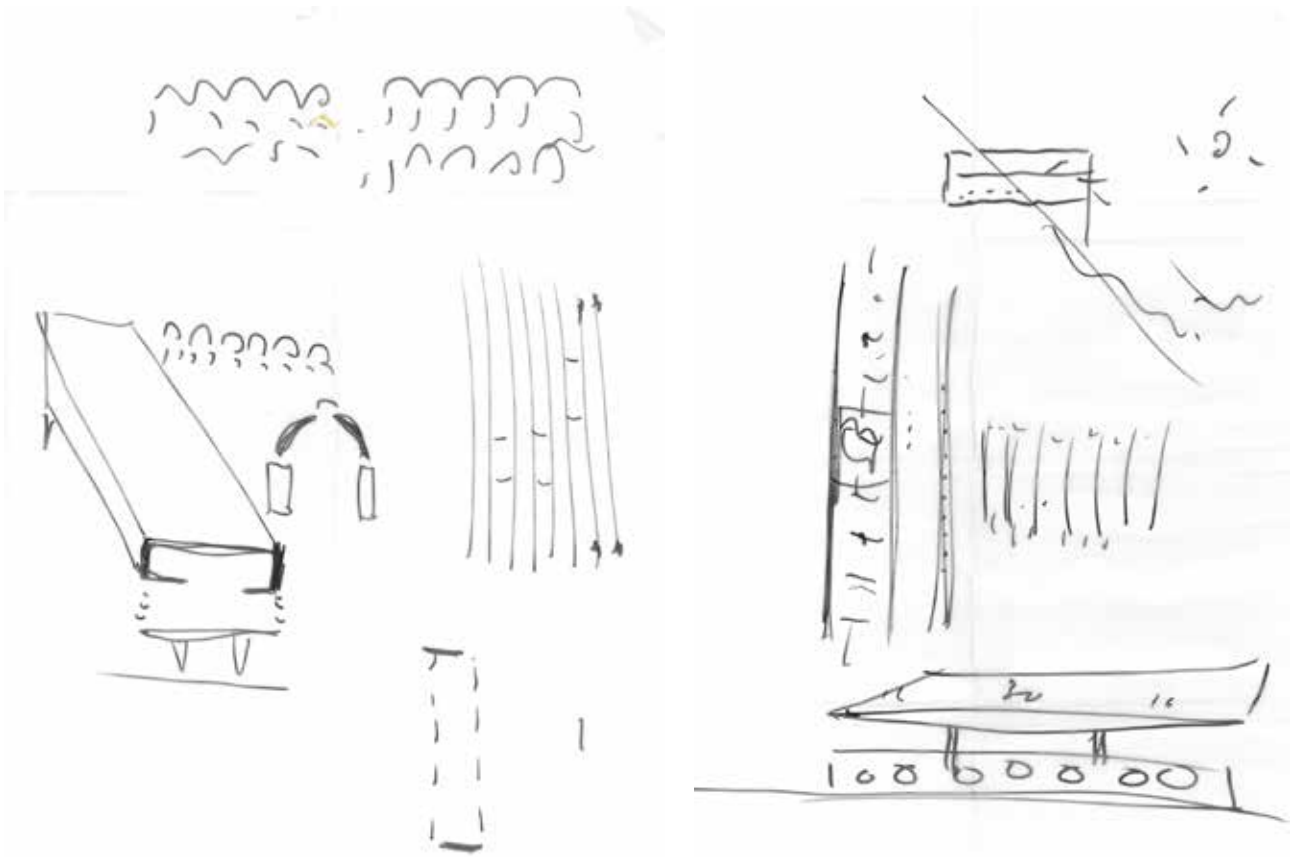
Fig. 5
Livio Vacchini, Sketches of a lesson held in Bari on June 13, 1996: plan and section diagrams of the Kimbell Art Museum of Luois I. Kahn, axonometric section of the Studio in via Bramantino, Locarno (private archive V.Ardito).

Fig. 6
Livio Vacchini, Sketches of a lesson held in Bari on June 13, 1996: Costa-Tenero house, plan and axonometric sketch of the Lido of Ascona, (private archive V.Ardito).

away from the much more "elementary" issues of this essay.

In some unpublished drawings - as testimony of a lesson that the Ticino architect held in Bari in June 1996 – Vacchini seems to have recourse to the sketch to describe the compositional "structure" of some of his works, inscribing them in the trajectory of his research and placing them in analogy to some of his "unedited" masterpieces (Vacchini 2017). Here, plans, sections, axonometries do not probably reproduce the forms of the project, but investigate its relations and its "structural" analogies in a highly ideogrammatic way. The contents of the lesson are not known, but the precise sequence of the drawings reveals itself as a precious trace through which to reconstruct the meaning of his reflections. In 1996, Vacchini had recently built his house in Costa and was about to complete the Losone gymnasium, undoubtedly recognized as one of his most representative works. In sequence, the stories of some of his projects follow one another quickly: the Locarno office, the powerful shelter for the Lido of Ascona and the house in Costa. It is also a chronological sequence, which tells a lot about the trajectories of his thought. Among these drawings (figs. 5-6) stand out some sketches from the Kimbell Art Museum by Louis I. Kahn, the work that for the Locarno master had accomplished a sort of revolution: Kahn had «freed architecture from the yoke of walls lateral bearing elements that had dominated it for five thousand years» (Falasca 2007, p. 87). It is not surprising, then, that the sequence of these drawings is articulated through a "structural" tension, building a critical comparison with his works, in the consubstantial relationship that binds the thought on space with that of the invention of its structure, between principles of composition and building systems. Vacchini seems to describe some of his works by reflecting on the spatial significance of the bay, starting from its meaning as a "confined"

place. In fact, in the axonometric section of his office in Locarno, Vacchini describes the different workspaces of the building with reference to the composition of two different structural systems. The roof, which covers the studio space, is defined by a beam-wall that constructs the metaphor of a "hollow" and inhabited space. The "open" workspace is thus defined in the relationship between the floor plate placed on the pilotis and its suspended roof, inside which the archive is located. It is the beginning of his research on complex, prestressed and post-tensioned structural systems, oriented towards the "new" spatiality of the structure. In the design of the house in Costa and with even more evidence in the axonometry for the Lido of Ascona, Vacchini highlights how it is the roof that delimits the place of the building, declining different characters and conditions of the space. Here, through a few decisive signs, the archaism of his figures is powerfully revealed.

Beyond any autograph dimension, these drawings seem to clearly express a more general point of view on architecture and the research of its forms. It is perhaps not entirely true, then, to affirm that Vacchini did not draw: «it is not that [...] he does sketches, but I do not use them as a communication towards the outside: I have modesty about my work» (Trentin and Vacchini 1999, p. 48). These sketches do not construct iconic images to be framed in a frame or with a *passepartout*; rather they seem to investigate the structures of composition / construction through an "anatomical" tension, shunning any exercise of prefiguring reality.

Looking back over the sequence of these signs, which flow from the mind and through the hand[6], the beauty that appears is not that of the eye satisfied by the virtuosity of the image, it is that which springs up in the mind amazed at the thought. After all, this was Vacchini's idea: «designing means abandoning oneself to the pleasure of constructing thought» (Vacchini 2017, p. 93).

Notes

[1] «Why are all these drawings produced by machines? Does drawing by hand, the mark of the designer, no longer matter? […] Machines help me to keep personal sentiment, as such, out of the picture». Lucan J. (1994) – "Livio Vacchini. L'implacabile necessità del tutto". In: P. Disch (edited by), *Livio Vacchini architetto*, ADV, Lugano, pp. 28-29.

[2] Translatet by the author. Babyn E., Navone N., Zaluska M., (2019) – *Luigi Snozzi su Livio Vacchini, l'architettura e la città*, https://www.ticino4580.ch/interviste/Luigi-Snozzi.

[3] Natalini A. (2003) – "Per Livio Vacchini. Una lettera". Anfione e Zeto 16, 75-76.

[4] Jacques Lucan offers a precise historical-critical reading of the Ticino architect's work, placing his point of view within a training path that, from a «learning»" phase, will mature with the construction of his house in Costa, at the beginning of the Nineties. Lucan J. (2002) – "Livio Vacchini et l'intemporel". Werk, Bauen + Wohnen 89, 68-73.

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Vincenzo Moschetti
Peter Märkli: Things Around Us

Abstract
In defining his work, Peter Märkli has repeatedly indicated the existence of the letter A as a likely design phenomenology. As he related to Samuel Penn in 2012, «I remember very clearly being a small boy in class and being told by my teacher not to write the letter A in that way, that it always has to be written like this, upright».Text is constructed beginning with this symbol, with the letter A as the start of a genealogy orchestrated around three themes that intersects *alphabets* and *adventures* to explain, through the practice of drawing, the practice of design, that is, *architecture*, the third A. The various passages are expressions of events that enter the circuit of a possible world where representation marks inheritance, explorations, and the presence of the author, Märkli, who, working in a state of *boredom*, founds new geographies based on the *things* that exist all around us.

Keywords
Peter Märkli — alphabet — geography — grammar — boredom

Alphabets
So these drawings refer back to the basic grammar of the elements. (Märkli 2021)

The architectures of Peter Märkli are nestled within the folds of the Swiss Alps according to a principle of *boredom* in the sense given to this word by Alberto Moravia[1], each time modifying the geography that hosts them. That is to say: by offering the observer an updated alphabet within its syntax where things that have disappeared sometimes return. The selection of the volumes is a slow process, a sort of storyline that unfolds around the letters of the composition. Expressed according to a series of recollections inscribed within a set of continuous drawings, the letters embark on an earnest quest to establish just a few elements that acquire new shapes. Märkli's drawings are flows of a sequence that he attempts to possess, to reconstruct, and to observe in his projects within a system that is open but fixed by just a few marks aimed at giving structure to a sort of collection rendered by topographic images. In this sense he affirms that «I realized that not only could these words be used to describe things […] but also that it had, in literature, the power to describe feelings and world views. […] I looked to the profane and the visual arts and started to observe and slowly learn the language. I simply began by observing the grammar of our discipline» (Penn 2012).
In the ordering of his language, Märkli uses the paradigm of letters as the basis of a design alphabet, the phrases of which – at times very complex, and articulated at the intersection of multiple focal points – introduce a reversal. This consequence can be replicated within an authorial machanism where, tracing this mode of expression back to its etymology, we discover

Figg. 1-2
Peter Märkli, *Drawings 1053 e 1050*, pencil on paper, 1980-1999. Courtesy: Studio Märkli.

that the architect is an *expander* (Marini, Mengoni 2020), acting in such a way that this increase becomes matter for experimentation for the *study of a language* (Azzariti 2019) that serves to rewrite portions of geography through professional practice. Thus, his practice is a sort of reduction derived from a programmatic approach that allows us to recognize the fact that «to be able to communicate, we have to know the rules of language» (Märkli 2008 (2006), p. 10).

The existence of an alphabetical code is the framework within which Märkli acts, comprising a system of tools of the discipline that, assembled together in the form of a drawing or of the project "under construction", configure phrases capable of building focal points that increase the established distances from territorial boundaries in order to update their positions and operate by means of prefigurations. In a manner similar to Ad Reinhardt's use of the color black (Viray 2008), Märkli too – in the wake of Max Raphael – often uses drawings to explore the possibilities through the opposition of two fields: on the one hand the solid mark, «the indeterminate, the unbounded, the immaterial» (Bronfen 1992, p. 9), and on the other hand the white of the paper, the constant. This use of the mark thereby establishes not limits but deep, distant movements in depth that the project will be able to experience as an object of discussion and comment. The subject of this discussion is a given place that the white of the paper, in the moment, does not always specify.

Adventures

These drawings have to be small – they cannot be large because they are not about detailing. They're explorations of principles. They capture the essence of things in few lines that nevertheless encapsulate a lot of possibilities. (Märkli 2021)

Märkli's research defines an imagery that since his years at ETH in Zurich has operated along the lines of the adventure. His insistence on displaying a «unique event […] unexpected case»[2] serves to create the territory within which he can observe his production and position his letters in order to achieve the modernization of the discipline proposed by him with respect to a territory

Fig. 3
Peter Märkli, *Drawing 1115*, pencil and ballpoint pen on paper, 1980-1999. Courtesy: Studio Märkli

characterized by severe shadows. The fundamental idea at the base of the operations between drawing and project is that of «tout *ce qu*'on *invente* est vrai» (Flaubert 1998), where representation, above all in the form of "sketches", long before construction, establishes a process of rewriting and programming, of pillages apparently from other worlds. Already from the start, the relationship between drawing and project seems like a program where the expression can be recognized according to which «our earliest ancestors built their huts only after having conceived their image» (Boullée 1967, p. 55).

Märkli's drawings offer a basic course on comparative anatomy, much like what is taught in the first years of veterinary sciences. The comparison between the structures of the various groups establishes a possible re-signification of the content, applicable to both the representation and the architectural project. The architect's gaze enters into the rooms of the drawing with its volumes rendered in dual dimensions, spaces that are only apparently enclosed by the orthogonal boundaries of the sheet of paper, where black lines emphasize connections in which the architecture is presented as an action. The figure of the room is an illusory strategy that allows the imaginary world to be rendered as both visible and concrete, while the drawing permits the production of inhabitable tensions in which the play of mirrors between the various geographies and worlds builds complexities on several levels. «By connecting the regular and irregular, Peter Märkli could create order, organized forms and immersive space. Inside the work, through Peter Märkli's eye, I could move around and feel my presence in the world, either in silence or with a pleasant whisper. Peter Märkli's 'eye' is 'I'» (Viray 2015, p. 114). This being *inside* is the lens that serves to activate the reconstruction process, not something that has to do with ruins so much as a program that in reality observes a genealogy for *making*

Figg. 4-5
Peter Märkli, *Drawing 1147*, pencil and ballpoint pen on paper, 1980-1999. Courtesy: Studio Märkli. (On the right), Peter Märkli, Haus Hobi, Sargans, 1983-2014. Courtesy: Studio Märkli.

architecture. The drawing, with its "rooms", anticipates the construction of the building without having to observe the laws of statics beyond those required by the representation itself.

Not all of the drawings will come to fruition; they are in part *exempla*, experiments of an open construction site that still feels the need for figurative representation to make the project a reality. Arranged together, indeed they represent adventures, established by means of marks that are none other than narrative practices where the inversion between light and shadow, and the testing of colors and materials, and of grades and proportions, connects the parts of the worlds from which they originate. They are questions that move the design investigation away from predefined distances, making it possible to verify the declaration according to which Märkli, like «Shakespeare approximates the remote, and familiarizes the wonderful; the event which he represents will not happen, but if it were possible, its effects would probably be such as he has assigned; and it may be said, that he has not only shewn human nature as it acts in real exigencies, but as it would be found in trials, to which it cannot be exposed» (Johnson 1765, pp. XI-XII).

The drawings of Peter Märkli thus cannot be considered exclusively as an exploratory tool so much as a design event in itself, where the process of *spolia in re* is substituted, within the territory of the sheet of paper, by that of *spolia in se,* effectively translating a principal of *auctoritas* in the field of architecture[3]. The composition then undergoes reversals in which the continuity of the ancient is assumed by the reappearance of color, in a correction of Winckelmann's interpretation, thus embodying the return of a compositional tool that had been superimposed over the stones of the ancient temples before its disappearance. The use of color is the unique and unexpected event of the adventure into which the architect invites the observer, where the causes and effects of a time (that of architecture, which sees no pauses but only returns) become immersed in a collection and repositioned. Based on the idea that the animal structures of today are derived from those that came before them, biologists use scalpels and microscopes to access the concrete world of vertebrates. Märkli uses sheets of A4 paper and colored pencils to construct the space of architecture in an inquisitive process of verification, analogous to that of the veterinary scientists but born of his hands-on experience of teaching architecture.
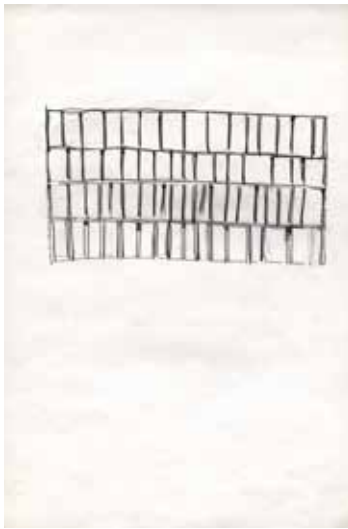
Figg. 6-7
Peter Märkli, *Drawing 1249*, pencil on paper, 1980-1999.
Courtesy: Studio Märkli.
(On the right), Peter Märkli, Mehr-familiernhaus, Sargans, 1986.
Courtesy: Studio Märkli.

Architectures

The mechanisms traversed mark the existence of lists in which the positioning of the elements of architecture, treated as letters of an alphabet, permits the discovery, through the practice of drawing, of the existence of an updatable grammatical syntax. Upon entering Märkli's architectural studio in Zürich, as if in a dizzying list of things (Eco 2009), one sees that «his modus operandi is made explicit by the drawing board with Mayline parallel motion […] books lie open on the floor, sketches and drawings are pinned to the walls» (Chipperfield 2020, p. 22). His studio expresses the need to remain within, as if in a density within which «the drawings become the place where the ideas are found and formulated» (Chipperfield 2020, p. 20), thereby defining an operational centrality.

The territory of representation becomes, for Märkli, the field on which to let flow and prefigure the physicality of architecture and its making. Paper architectures, before reaching the ground, thus negotiate an inventive possibility with geography and time. Their relationship with history translates into one with multiple "stories," and drawing becomes a project in itself. Märkli, therefore, has the merit of working on a dual track, that of paper and that of the construction site. He composes devices (Deleuze 1989) by means of these architectures, identifying with what will become the "structures" of the finished project and of the inhabited space.
Märkli's building for the European headquarters of the Synthes company in Solothurn, Switzerland, completed in 2011, is an investigation of history through drawings. A series of lines and surfaces sunk into the paper gave structure, long before the concrete was poured, to the entire workspace. In his graphic execution, the architect's questions traverse much of the history of architecture. Summarized in a collection of images in which the façade of Alberti's Palazzo Rucellai is overlaid onto that of Palladio's Palazzo Thiene, they led to the creation of a solution that can be defined by the term *node*. His executive accuracy is thus the result of a crossroads where «the joining of the horizontal and the vertical became a preoccupation» (Johnston 2017, p. 120), and where both the construction of the work and its structural solutions are discussed within the two-dimensionality of the sheet of paper. Horizontal areas, devoid of thickness, anticipate the verticality of the project, where the presence of black marks in the field of the A4-size paper compiles practical questions by depriving itself of the regularity of measurements. The absence of right angles does not lead
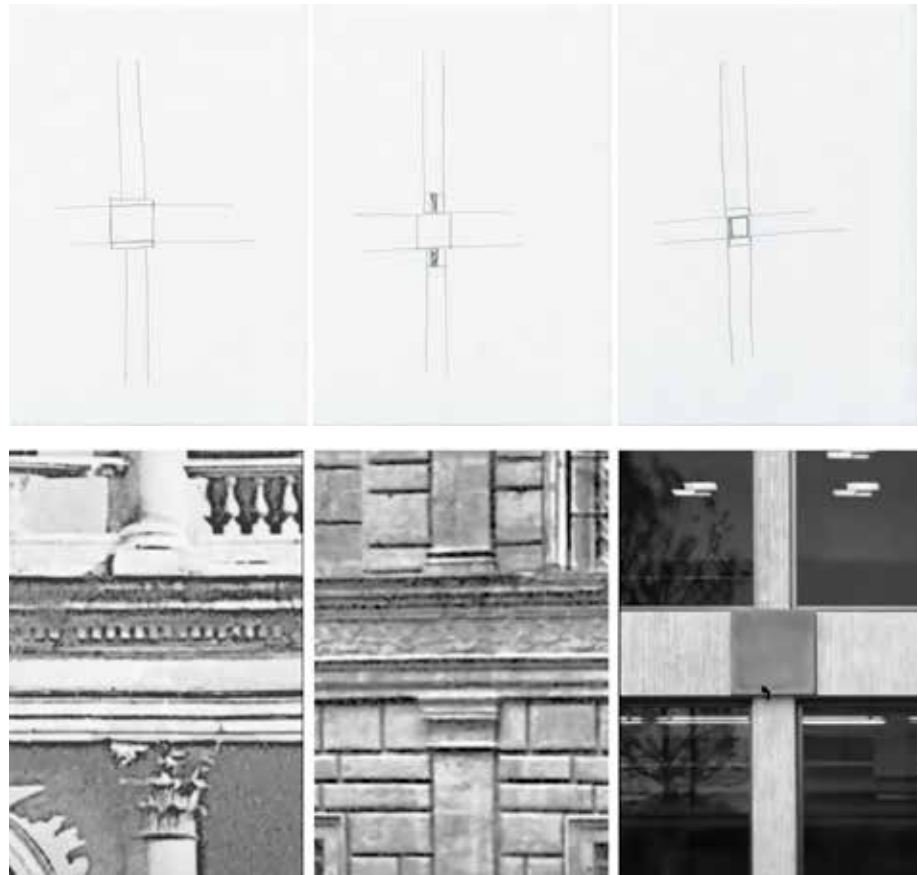
Figg. 8-9
Peter Märkli, *Drawings 2066, 2072 e 2083,* "Nodes", pencil on paper, 2000-2019. Courtesy: Studio Märkli.
(Below), Andrea Palladio, Palazzo Thiene (dettaglio), Vicenza 1542; Leon Battista Alberti, Palazzo Rucellai (detail), Florence 1446, Peter Märkli, Synthes Headquarters (detail), Solothurn 2011. Courtesy: Studio Märkli.

to the abandonment of geometric rule, of a logical and proportional construction; on the contrary, it demonstrates a knowledge of the disciplinary codes of the profession, which emerge in the guise of objects, elements and colors aimed at solving the entire composition. In this sense, Synthes joins the logical succession rendered by the architect on paper, where, from the Renaissance onward, things have re-emerged with the reintroduction of a letter A, which has nevertheless been able to update the positions, bringing together the experiments of a destiny that can produce new figures from copied objects.

The junction between the vertical and horizontal systems is highlighted by the presence of a square element made of exposed concrete: the knot, an important synthesis that Märkli finally reaches after much research and after a thorough investigation of the ability to reconstruct an entire network of relationships based on a simple allusion to partial formal clues. This research finds its origin in the columns of Olgiati's Radulff house, in Palladio's moulding designs, and makes its way through to his first houses with Josephsohn's reliefs above the pillars, finally reaching maximum abstraction in the junction/knot of the Picassohaus in Basel. One of the images that was used to illustrate the project presented two different architectural references: Palazzo Thiene – in which the distinction between vertical (columns), horizontal (entablature), and transitional (capitals) elements is rather canonical – and Palazzo Rucellai – where instead this distinction tends to diminish. (Azzariti 2019, p. 111)

The façade is a process of re-signification of this design program, where the architecture asks questions to which the building site attempts to respond in an attempt to verify the existence of a drawing that is not only visible but also, more importantly, is traversable. The node – an adept ad-

Figg. 10-11-12
(Above), Peter Märkli, Synthes Headquarters, Solothurn 2011. Photo: Caroline Palla.
(On the right), Peter Märkli, Synthes Headquarters, Solothurn 2011. Photo: Alexander Gempeler, Bern.

vancement of the sculptural practices learned in the studio of Hans Josephsohn[4] – announces the work performed by the project in horizontal section, determined by a pattern of dots, and in vertical section, where the pillars meet the floors on which the rooms are placed. The presence of the architectural order signals the insertion of a double register that addresses multiple scalar dimensions: the first order, "giant" at 22 meters high, seems to want to position itself in a territorial paradigm, while the second order, the interior one, speaks to the lives of human beings. This distinction is the discussion of an executive palimpsest of graphic investigations in which geometric grids, orthogonal to each other, verify the grammar between the primary and secondary objects that emerge or are submerged by the chosen syntax.

If, in light of this fact, the pillar appears autonomous, the drawings demonstrate that it is instead a "victim" of a heteronomy that was already reflecting on a dual track of considerations from the time of the apartment building in Sargans (1986). The mass of that building – primitive in terms of dimensions – positioned itself as a comment on the surrounding mountains, introducing a narration of darkness and cavities; in Solothurn, the comments have continued, responding to the geography with a contemporaneity that does not renounce the archaism of 1986 but which sees in it a possibility of proceeding towards new dimensions of things.

The drawing is also a thing. Once the hand has traced onto the paper – the drawing has a physical presence, its own presence. It has a "*Gestalt*" and comes forward towards the viewer. This form of its own is also beside its originating image, impulse, idea, search or context. It is a mark. It makes a mark. (Hatz 2015, p. 146)

The system of drawings that preceded the project, and that precede all of Märkli's architecture, reveals the presence of a method that seeks the

existence of a language that can establish itself as a graphic form of trial and error, thereby becoming constructed matter. Within the lines produced by his displacements, Märkli processes oscillations[5] capable of clarifying that those black marks are profound presences, with as-yet undefined but clear contours with respect to a linguistics of architecture. The objects that emerge are the result of a migration that collects clues on paper, where the project, in this case Synthes, but even before that Sargans, is the solution to an enigma in which the use of such fundamental elements as plinths, columns, and pilasters, that is the letters of the compositional alphabet, like a letter A, allows Märkli to found new geographies through the construction and re-elaboration of *things* positioned around us, with *space* as the reference.

Notes

[1] «Märkli's working procedures, however, are self-induced and are in part a deliberate reaction to the prevalent notion of the architect's studio as an office machine. Among the writings of Alberto Moravia, one of a host of influential twentieth-century Italian writers well known to Märkli, is a novel published in 1960, entitled *La noia*. Moravia defines through his protagonist the concept of *noia*, boredom: 'The feeling of boredom originates for me in a senso of absurdity of a reality which is insufficient, or anyhow unable, to convince me of its own effective existence… For me, therefore, boredom is not only the inability to escape from myself but is also the consciousness that theoretically I might be able to disengage myself from it thanks to a miracle of some sort'. Most people think of boredom as the opposite of amusement, but for Moravia this is not the case. In fact, for him boredom comes to resemble amusement […]. In the same way that the interruption of the electric current highlights the artefacts of Moravia's fictional house, distraction leads to a closer reading of things» (Mostafavi 2002, p. 8).

[2] *Avventura*, entry in Devoto G., Oli G.C. (2000), *Il dizionario della lingua italiana*, Le Monnier, Florence, p. 193.

[3] «*Spolia in re* (through the physical transportation of ancient objects – sculpture, architectural elements, and gems – and their insertion in a new context) and *spolia in se* (objects created *ex novo,* but based on ancient models) are thus two sides of the same coin: in its new context, the antiquity is no longer perceptible in its entirety, yet it is clearly defined and endowed with meaning. This sense is embodied and translated into the principal of *auctoritas,* which surrounds the handed-down antiquities like an aura. On the one hand it is defined by their presence, visibility, and accessibility, and on the other by the (relative) lack of corresponding knowledge and technical abilities, and even more by the awareness or sense of that lack» S. Settis, *Continuità dell'antico*, entry in AA.VV. (1994) – *Enciclopedia dell'arte antica, classica e orientale*, Istituto della Enciclopedia Italiana, founded by Giovanni Treccani, Rome, 256.

[4] It is as if these nodes had taken on an ulterior precision or preciseness with respect to what preceded them. Citing Kubelik's studies, Märkli has repeatedly pointed out that Palladio's elements were also already present in Venetian architecture, and that they took on greater precision, for example, in his designs of villas. See Kubelik M. (1986) – "Palladio's Villas in the Tradition of the Veneto Farm". Assemblage, 1, 90-115.

[5] «What happens if the images [that is the maps] begin to oscillate?» Wittgenstein L. (1971) – *Osservazioni sopra i fondamenti della matematica*. Einaudi, Turin, 183; original ed: Wittgenstein L. (1956) – *Bemerkungen über die Grundlagen der Mathematik*. Blackwell, Oxford.

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Giovanna Ramaccini
Minimum drawing, maximum dwelling
Existenzminimum forms between drawing and design

Abstract
The trouble of the passage from the immediacy of the ideative drawing to the exactness of the executive drawing is particularly evident in the cases in which the realization of the project foresees the definition of standards, possibly to reproduce in series. In this sense, with specific reference to architectural design, the theme of *existenzminimum* assumes special importance. The human needs are broken down into limited main functions, distinguishing "typical parts" recognized by precise codes of representation and recomposable in various spatial configurations that meet the needs of economy, modularity and flexibility. Drawing assumes a central role in this framework as a means of verifying the achievement of optimal performance.

Introduction

«Aldo Rossi had a totally different way of dealing with technicians from what we had experienced up until then: he made sketches, then presented them and waited for the technicians to make all the observations and corrections [...] so much so that one day my uncle said to him, in his gruff way: 'But architect, can't you bring us executive drawings instead of these sketches from which you can't understand anything?' That was the only time I saw Rossi angry» (Alessi 2016, p. 76). The anecdote, which concerns the stormy incipit of what would later turn out to be the successful partnership between Aldo Rossi and the design company Alessi, exemplifies the need to adopt a codified language when communicating an idea, even when the interlocutor concerned is a notorious expert. The difficulty of the transition from the immediacy of the conceptual drawing to the accuracy of the working drawing is particularly evident in cases where the execution of the project involves the definition of standards, possibly to be reproduced in series. In this regard, with specific reference to the architectural project, the theme of *existenzminimum* takes on particular importance, where the dwelling, understood as the favoured place to guarantee high quality standards and to respond to the needs of its inhabitants, is conceived as a *machine à habiter* in which the reduced dimensions of the spaces are combined with high functionality characteristics. At the international level, the concept of *existenzminimum* was sanctioned by the *II Congrès International d'Architecture Moderne* –CIAM – held between 24 and 27 October 1929 in Frankfurt am Main (*Die wohnung fur das existenzminimum* 1979). The congress, curated by Ernst May together with Mart Stam, sees some of the main protagonists of modern European architecture

take part in the theoretical debate, aimed at defining a minimum housing standard for the urban population.

Professor Dr. Water Gropius from Berlin was entrusted with the general summary «The Sociological Assumptions of Minimum Housing». Victor Bourgeois from Brussels and Pierre Jeanneret from Paris dealt in detail with the issue of housing for the minimum standard of living. Bourgeois started with the physical fundamentals and Pierre Jeanneret – replacing Le Corbusier who was in America – mainly indicated the possibilities of realisation. Finally, Hans Schmidt, from Basel, gave a talk on the important topic «Minimum Housing and Building Regulations» in which he showed how the current building regulations, with their rigid characteristics, do not at all prevent an effective housing solution for the minimum standard of living. (Aymonino 1976, p. 96).

Starting from the principles illustrated by Ernst May in his introductory contribution, the minimum housing standard is interpreted in both quantitative and qualitative terms, taking into account the biological and sociological conditions aimed at satisfying the material and spiritual needs of the inhabitants, with specific reference to mass housing (Aymonino 1976, p. 100). Within the different types of houses studied in the 1920s, the one intended for the working class was the one most investigated by architects, as it allowed them to express more strongly the ideas of rationality applied to interiors, such as order, simplicity and economy. (Savorra 2019). In addition to the theoretical contributions, the CIAM exhibition *Die Wohnun für das Existenzminimum*, co-ordinated by May himself, at which numerous examples of minimal houses were exhibited and subsequently published, is equally important. It is a series of floor plan images of flats located in different parts of the world, which, as intentionally expressed by the participants in the debate, is motivated by the intention to codify the different equipment sizes by introducing an international convention, according to the criteria of industrialisation and Taylorisation – as described by Le Corbusier and Pierre Janneret (Aymonino 1976, pp. 113-123) – and hoping to achieve typological standardisation. After all, the concept of type is insistently sought after with the housing experiments by the Modern Movement: «from the prefabricated town planning of the Bauhaus […] to the numerous experiences related to the construction of *Siedlungen*» (Belloni 2014, p. 33). For the specific purposes of this contribution, one thinks in particular of the studies and experiments by Alexander Klein and the importance they assumed for the development of *existenzminimum* theory.

Minimum drawing, maximum dwelling[1]

With regard to the specific aims of this contribution, in this part of the text, it is important to stress the value of drawing in research dedicated to *existenzminimum*, highlighting its implications from the design point of view, starting with the studies conducted by Alexander Klein since 1906 (Baffa Rivolta, Rossari 1975). Klein's aim was to provide tools for measuring and verifying optimal performance in terms of the organisation of living space in order to develop a minimum living standard. He developed a comparative method, which can be implemented entirely within the drawing process, because it is based on the comparison of diagrammatic plans that are graphically uniform, thus proposing a taxonomic classification that has its roots in 19th century treatises, in which the transmission
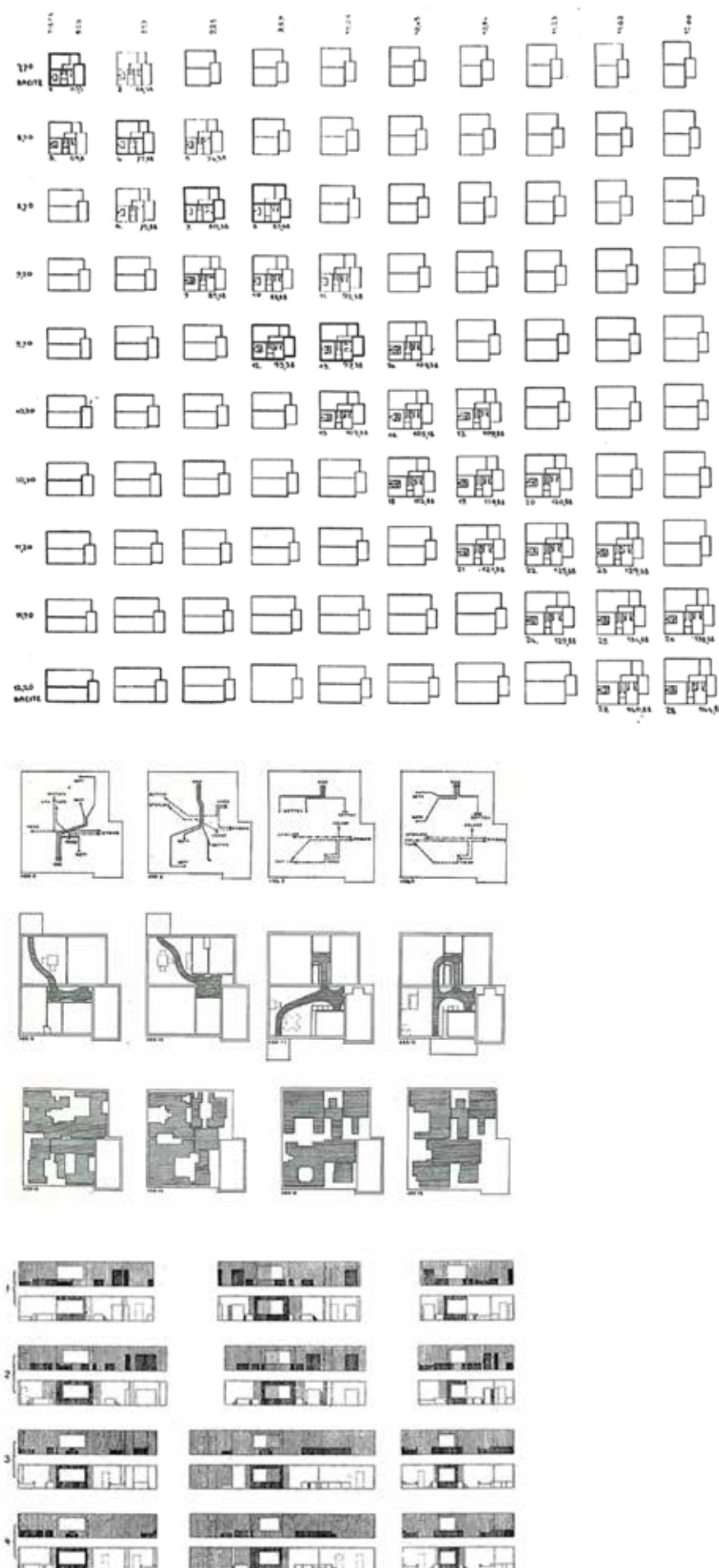
Fig. 1
Alexander Klein, Comparison and evaluation of different projects reduced to the same scale (Baffa Rivolta, Rossari 1975, p. 90).

Fig. 2
Alexander Klein, Analysis of paths and free surfaces (Baffa Rivolta, Rossari 1975, p. 94).

Fig. 3
Alexander Klein, Analysis of internal elevations (Baffa Rivolta, Rossari 1975, p. 98).

of knowledge is functional to its practical application – one thinks of the tables in the *Précis* in which, identifying *Convenance* and *Économie* as the two fundamental criteria for design practice, Durand proposes a veritable «reasoned handbook of architectural prototypes that are easy to use in relation to functional needs» (Belloni 2014, p. 30) –, and which will be adopted by subsequent design manuals (Strappa 1995, p. 110) – from the *Manuale dell'architetto* by Mario Ridolfi (1946) to the *Architettura pratica* by Pasquale Carbonara (1954).

The functionalist experience, which finds in Klein one of its greatest exponents, works on the «fine-tuning of part-types of building organisms (staircase, office, bathroom-kitchen, room, classroom, etc.) that [can] once again become instruments of a broader architectural composition» (Aymonino, Aldegheri, Sabini 1985, p. 11). The accommodation is designed on the basis of the identification of three main moments of daily activity in the domestic environment: cooking-eating, living-resting, and washing-sleeping, connected by short, mutually non-interfering steps. The survey method developed by Klein is divided into three stages: proceeding from statistical analysis by means of questionnaires, through the reduction of projects to the same scale, to the graphical method by which «to refine a project meaning to increase the efficiency of the dwelling while maintaining the same surface area or to decrease the surface area while maintaining the efficiency of the dwelling» (Baffa Rivolta, Rossari 1975, p. 93). Although clearly oriented towards identifying the functional and distributive characteristics of buildings, Klein's classification cannot be understood as a mere objective method of evaluating living space. Despite being schematic representations, the mediation value they assume between theoretical elaboration and design realisation is by now well established «[combining] an extraordinary capacity for descriptive synthesis with a great potential for poetic-ideative projection, at the same time establishing the possibility of an authentic scientific dialogue between the words of theory and the things of construction» (Ugo 1986, p. 23). While the graphical method acts as an analytical tool, it also takes on an operational role in the creative process where, by comparison, it attributes a genetic and inventive component to the schematic plan (Ugo 1986, p. 27; Purini 2000, pp. 155-156; Belloni 2014, pp. XXIII-XXV). On the other hand, this is consistent with the context of modern thinking that gives the plan a central value in design at different scales, from architecture to the city, and even involving social issues (Carones 2017, pp. 37-59). Just think of Le Corbusier's exclamation: «The plant is the generating element. So much the worse for the unimaginative!» (1973/2010, p. 35). Against the scientific definition of the standard, Klein introduces a psychological lens.

We are all aware of the harmful influence of tobacco, alcohol, spices, etc., and we take an interest in these problems; however, only a few of us take an interest in the scientifically proven fact that a favourable environment can have a healthy effect on our mental condition [...]. The accommodation we build for ourselves must be actively and organically related to the living conditions and cultural needs of our time, and it must also meet the necessary demands for greater economy and simplicity; in a word, it must help us in every part and in every respect to make life easier for ourselves while maintaining our physical and spiritual energy. (Baffa Rivolta, Rossari 1975, p. 77)

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Besides clear distribution criteria, in fact, the adoption of simple forms in construction, layout and furnishing are considered fundamental to guaranteeing calm, rest and recuperation of the energy consumed during work. From this perspective, it is interesting to note how the attention paid to the intimate dimension of living is confirmed in representations exclusively aimed at interior spaces. The plan diagrams of the dwellings are associated with their interior elevations in order to assess the spatial quality perceived by the inhabitants. Thus, window surfaces – sources of light and ventilation – the arrangement of furniture along the walls, shaded areas as well as free surfaces are shown. So, in order to guarantee as free circulation spaces as possible and to avoid «a useless waste of physical strength, generated by the continuous need to accelerate and slow down one's pace and repeatedly rotate the body» (p. 95), the new dwelling calls for the need for storage units built into the walls rather than bulky furniture set against the walls, leading to the integration of furniture into the architectural space and thus to a standardisation of furnishings based on the criteria of modularity, versatility and componibility (Forino 2019, pp. 193-195; Nys 2020). As perceived by Le Corbusier and Pierre Jeannert in the design of the *casiers standard* of 1924 or by Adolf Loos in his writing programmatically titled *The abolition of furniture*, also dated 1924, where the author emphasises the future dissolution of mobile furniture because it is expected to be absorbed by the wall.

The walls of a house belong to the architect. There he rules at will. As with the walls so with any furniture that is not moveable, such as built-in cupboards and so forth. They are part of the wall, and do not lead the independent life of ostentatious unmodern cabinets. (Loos 1972/2014, p. 324)

Moving on to introduce the evolution of the *existenzminimum* in the contemporary era (Irace 2008), it is exactly from the reference to the element of the wall, by definition the boundary between interior and exterior space, that it seems necessary to focus on an aspect that has only been treated implicitly so far. Although associated with an increase in the level of equipment and performance, the reduction of surfaces in living space entails an articulated and complex conception of housing, which inevitably takes into account a relationship with the outside world (Baffa Rivolta, Rossari 1975, pp. 36-37), both from a functional and an emotional point of view. One thinks of Ugo La Pietra's far-sighted Telematic House (1972), conceived as a micro-architecture with a triangular cross-section, in which communication with the outside world takes place through virtual connections mediated by equipment such as the "Ciceronelettronico" and the "Videocomunicatore". Or think of the more recent Diogene project, by RPBW (2011-2013), conceived as a perfect *machine à habiter*, standardised and in the forefront of technology, in which the relationship with the outside world is ensured by a vertical cut, of humanistic memory, "in contact" with the sky (Ottolini 2010, pp. 17-31).

Conclusions

Turning to the conclusions, it is only right to dwell on how the advent of the Covid-19 pandemic has highlighted the need to live in adaptable and flexible homes, whose interiors can be modified and reconfigured easily and with light intervention (Bassanelli 2020; Molinari 2020). A need even more exasperated in conditions of minimal living space. Although

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Fig. 4
Ugo La Pietra, «Casa telemati-
ca», 1975.

Fig. 5
RPBW, «Diogene», 2008.
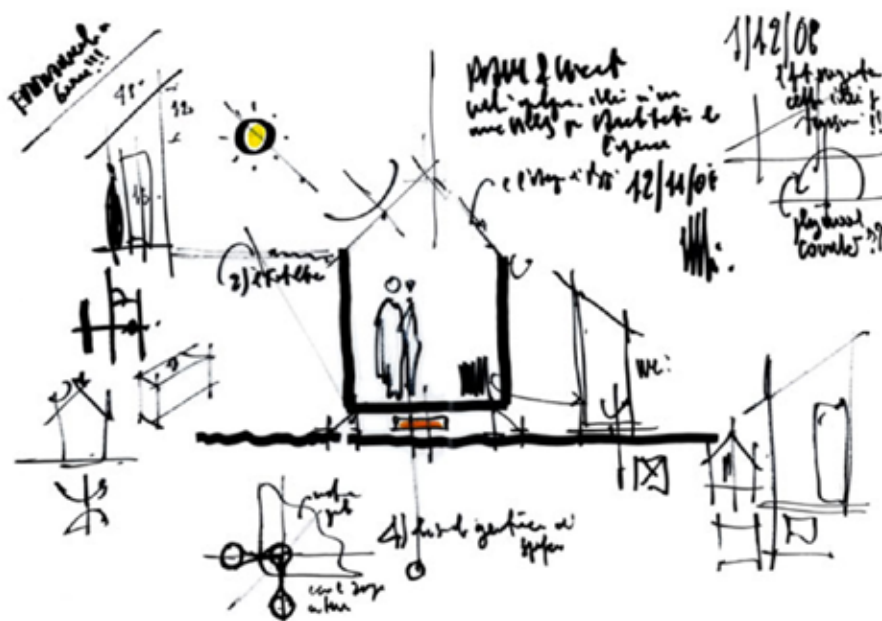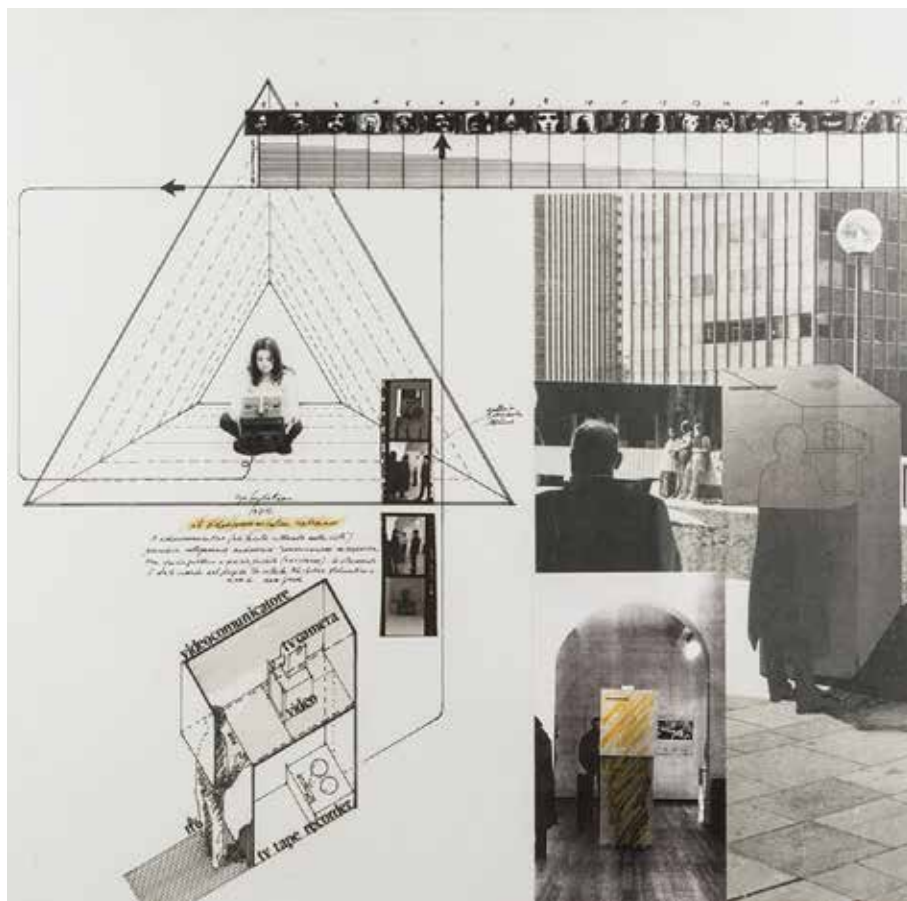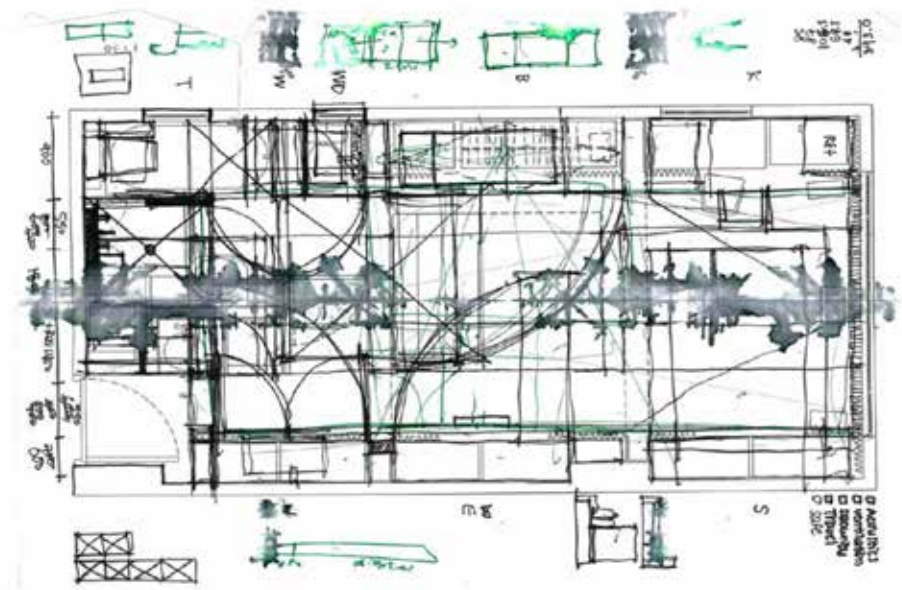
Fig. 6
Gary Chang, «32 m2 Apartment», design studies.

Fig. 7
Gary Chang, «32 m2 Apartment», patterns of different spatial configurations.

it preceded the emergence of the health emergency, the experience of the Japanese architect Gary Chang is exemplary in this respect (Chang 2012). Over a period of thirty years, from 1976 to 2006, the designer transformed the 32 square metres of his home into twenty-four different distribution solutions, each time varying in response to changing personal conditions, conceiving architecture as a device capable of adapting to change. If, on the one hand, the idea is represented through plan sketches in which annotations and afterthoughts are stratified, certainly functional to the development of thought and probably sufficient for the relative communication – given the specific coincidence between designer and client – on the other hand, the author develops plan diagrams, addressed to an external public, entrusting the drawing with a gesture of registration and documentation aimed at bearing witness to a situation that is planned but changeable, because it is in continuous evolution. Once again, as in the case of Klein's diagrammatic representations, the abacus of plants drawn up by Chang is not an abstract scheme, but rather the instrument for the slow and progressive definition of minimal forms, maximally adapted to life.

Fig. 8
Gary Chang, «32 m2 Apartment», progetto.

Notes

1 The title of the paragraph, as well as that of the entire article, is intentionally referred to Karel Teige's work *The minimum dwelling* (1932/2002). Although the text differs in its treatment from the topics of the present contribution, it is an indispensable reference for the literature relating to the reflection on the subject of minimum housing that affects the international debate of the early 20th century.

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Luigi Savio Margagliotta
The drawing of the territory's form

Abstract
The term *construction* indicates to the territorial and geographical dimension a practice that is not exclusively about building, but about the meaning and value of a process of reinterpretation and formal restructuring of the existing. In relation to the *space to be represented*, therefore, the type of *representation of space* changes, which must describe not only different scales but also the elements and relationships that define it, as well as communicate, even at the big scale, a spatial form and idea of space. The canonical drawings and urbanistic representations give way to the invention of an almost biographical writing, aimed at describing intentions, interpretations and relationships between forms through the use of an expressive code that lies somewhere between concept and image.

Keywords
Architecture — Territory — Form — Drawing — Expression

The topic of drawing here addressed is related to the transition in scale of the architectural design: on the capability and consistency of Drawing in representing and communicating a spatial form and an idea of space even to the big scale, territorial and geographical.

The development of *territory representation* proceeds hand in hand with the succession and evolution of the *visions of territory* that change over time, which is why we want to initially propose the events that over the course of the second half of the twentieth century led to the most recent theories, as well as the related forms of design writing.

Since the last century, the relationship between space and time has changed radically, both in terms of technological advancement that has increased the speed and expansion of settlement and infrastructural processes, and in terms of the increasing speed of travels and the possibility to reach every part of the globe in ever shorter time. As man's radii of action and the extension of his interventions change, the dynamics of mutation in the territory vary accordingly and with them the scales of the project, which must confront broader dimensions and new topics that no longer concern only the scale of the city and its surrounding but the bigger scale of the territory in which the former is included.

However, the combination and expansion of these accelerating phenomena has made evident the inadequacy of the usual design tools and the absence of big scale intervention techniques capable to control the effects or provoking them. This opens at both practical and theoretical levels to reflections that concern not only the research for an updated design methodology, but also the need for an appropriate means of expression to represent its intents.

The design in the territory

The design at the territorial scale was until the last six decades linked to the theme of the city; only after a series of events it did assume its own thematic autonomy. It was in fact the onset of problems related to conurbation and uncontrolled city expansion that gradually shifted the plane of architectural debate beyond urban limits.

In 1930 the geographer Walter Christaller published his theory on central locations, in which the city was considered in an integrated view as the physical pole of the surrounding territorial system. From that moment, as Emilio Battisti states, the city is recognized as structurally connected to its territorial surroundings; a connection from which it will no longer be «conceptually admissible to speak of the city in isolation from the territory» (1975, p. 224).

It was evident that something was changing: new and relevant topics required the widening of the viewpoint towards broader dimensions and new criticalities heralded the need for renewed tools to push beyond the design and functioning of the *forma urbis*. The apparent unresolved disagreement between city and countryside[1] on the one hand, the problems related to the dislocation relations between production-service-residence places on the other, and finally the changing physiognomy of the city into a metropolis, or megalopolis, which, was advancing unchecked engulfing the surrounding land in disorderly fashion, gave an account of an indisputable truth: in order to defuse some of the effects produced by modern urban planning practices, it was not enough to have recourse to predictive logic and zoning, but it was necessary to question of new spatial figures capable to find answers to the emerging problems[2].

Such was the premises of the 1962 Stresa Conference in which *city-territory* was the central theme, a new dimensional entity that was now to be based on the decentralization of the city's load-bearing functions and their more extensive and homogeneous re-location. «What is the fundamental dimension to be referred to in our urbanistic development hypotheses? What, too, is the structure that frames our formal research?» (1962, p. 16). These are the fundamental questions that Giorgio Piccinato, Vieri Quilici and Manfredo Tafuri ask about the current situation: that is, does the term of *city-territory* indicate only a change in scale or also a different visual angle in dealing with the rapid changes that were taking place?

The design of territory

Parallel to the hypotheses for countering peripheralization and urban sprawl that still identify the system-city as the sole focus to be resolved, a different point of view is asserted extending the concepts of space and architectural form to the entire territorial context. The urbanocentric conception is abandoned in favor of a vision that recognizes the structure and materiality of the entire territory, as a concrete space operable through the tool of the project design: a morphological context of which the city represents only one of the elements contained therein, on par with the natural facts and the other anthropic signs; as well as an autonomous system and an exhaustible resource, to be understood, re-signified and protected through architectural operations. Similarly, territory represents the result of the layering of successive actions. And this means not only more or less modified physical environment, but also behavioral attitudes to it refered (Olivieri 1978, p. 14).

«Territory is not a data, but the result of several processes», André Corboz writes about it. «In other words – he continues –, territory is object of construction. It is a kind of artifact. And since that it also constitutes a *product*. [...] Consequently, territory is a *project*. [...] These different translations of territory into figures refer to an indisputable reality: that territory has a *form*. Indeed, that it is a *form*. Which, of course, doesn't necessarily have to be geometric» (1985, pp. 23-24).

In light of the current conditions, the territorial topic is now more central than ever since new and different complexities related to the advance of a conflict involving both marginal and extended territories are added to the previous ones, in which forms, practices and cultures acting through complex relationships and ancient balances are dying out (Falzetti 2015, pp. 10-11). Reasoning about the capabilities of architectural design as a tool able to producing visions and about the process of *form's construction*, which has no dimensions but rules and principles, thus becomes necessary to analyze and understand the phenomena of the world and to be able to intervene in his processes of transformation that affect all scales of the artifact: from the building, to the city, to the territory.

The drawing of territory

The term *construction* indicates to the territorial and geographical dimension a practice that is not exclusively about building, but about the meaning and value of a process of reinterpretation and formal restructuring of the existing. In the architectural design on the grand scale, which contributes to the construction of a formal whole, not only the dimensions but also the composition of space change, determined by the spatial relationships between distinct, even distant, elements. In relation to the *space to be represented*, therefore, the type of *representation of space* changes, which must describe not only different scales but also the elements and relationships that define it, as well as communicate, even at this scale, a spatial form and idea of space. Canonical drawings such as plans, sections and elevations, often referring to artifacts of the smallest dimensions, are thus replaced by planimetric and perspective views suitable for reproducing the field under examination in its entirety. Similarly the urbanistic illustrations give way to the invention of an almost biographical writing aimed to describe intentions and interpretations through the use of an expressive code «that stands halfway between concept and image» (Pellegrini 1966, p. 103)[3].

A very important date for the historical and thematic development of the topic is that of 1963-64, the year of Salvatore Bisogni and Agostino Renna's graduation thesis precisely titled *Introduction to the Naples urban design problems*[4]. It is no coincidence that this turning point occurs just in Naples, an area in which natural facts, first and foremost that of Vesuvius, which has always been a physical and symbolic landmark of the Parthenopean environment, impose themselves with considerable formal and evocative impact.

The study questions the big scale morphological problems in the face of the research for a design methodology that seeks to overcome the operational impasse, which is why a non-descriptive but more specifically design point of view is applied. Initially, the authors perform a decomposition of the field by analyzing the present features in isolation, to finally propose an urban model without hierarchy of levels, in which orographic structure and building fabric, natural pre-existences and anthropic layout, constitute a formal and inseparable continuity: a complex «[...] "Design"
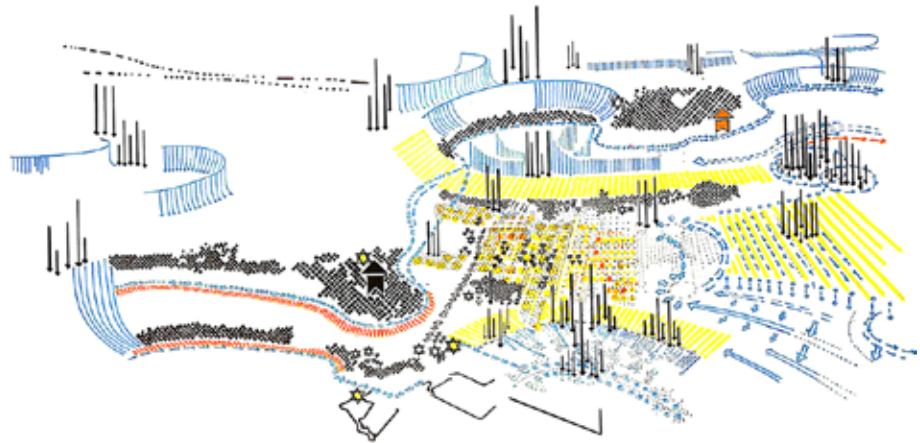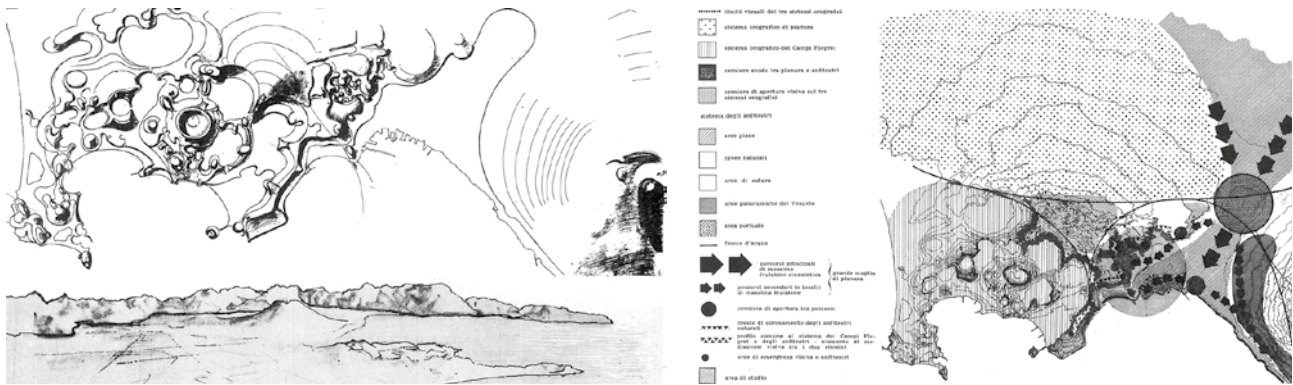
Fig. 1
Salvatore Bisogni and Agostino Renna, Introduction to the Naples urban design problems. Spatial interpretation of the orographic condition of the area, 1963-64

Fig. 2
Salvatore Bisogni and Agostino Renna, Introduction to the Naples urban design problems. Visual and kinaesthetic enjoyment fields of the amphitheater system, 1963-64

Fig. 3
Salvatore Bisogni and Agostino Renna, Introduction to the Naples urban design problems. Expressive model for emerging areas, lines and fabrics, 1963-64

not to be understood as a visually well-ordered whole, but as a *"field" of formal relationships between the constituent elements*» (Bisogni and Renna 1966, p. 131).

The term *Design* here takes indeed on the double meaning of tool and composition; it is both a means of representation and the object of representation itself. This is important to grasp that the theme of Bisogni and Renna's work is twofold, as it investigates in its entirety the design question of big scale but also the problems related to its representation. «The set of their drawings, suspended in a productive ambiguity between symbolic image and objective projection, is [...] capable to depict all the material, geographical, typological and historical complexity of an urban and territorial whole», Vittorio Gregotti in fact writes (1974, p. 7). Bisogni and Renna state that they initially operated in the usual way, using planimetric drawings to represent the organizations of the area; then, through diagrams and bird's-eye views (Figs. 1, 2), «it appears the attempt to substitute for *realistic* type direct annotations some symbols tending to represent *relations between forms rather than forms*» (1966, p. 129). The representation of territory until then limited to an urbanistic vision is definitively overcome by a drawing capable to illustrate in an autographic and interpretative way what has been analyzed but also what has been inferred and proposed: the images of concrete forms are transported to the plane of symbolism and formal evocation, highlighting the formal relations among them through the preparation of *expressive models* (Fig. 3), synthetic and evocative elaborations in which suggestions and one's own interpretations are also translated into drawing.

Several design researches began in those years, now focusing on the form and structure of the territory. Carlo Doglio and Leonardo Urbani constitute two particularly relevant figures and, for academic reasons, also in

Fig. 4
Carlo Doglio and Leonardo Urbani, Neapolitan area. Structure of territory and liquefaction (liquidation?) of artifact, 1970.

Fig. 5
Carlo Doglio and Leonardo Urbani, La fionda sicula. Piano della autonomia siciliana. Text and context: identification of formal presences corresponding to Belice valley, central-southern belt, Corleone and Palermo area, Etna, 1972.

Fig. 6
Carlo Doglio and Leonardo Urbani, La fionda sicula. Piano della autonomia siciliana. Polyducts and land use, 1972.
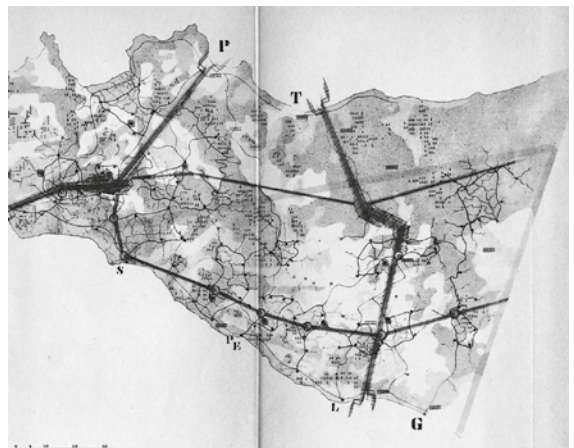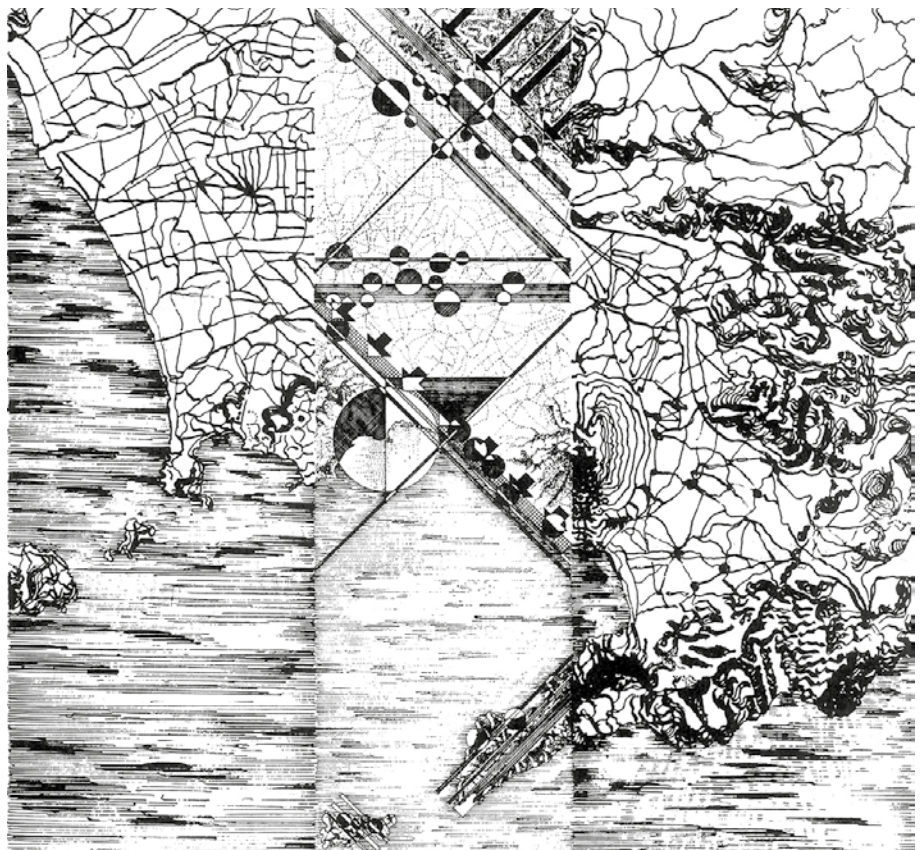
some ways two bridges between Naples and Palermo regarding the applied methodology. At the base of their design theories are inferred a certain degree of *abstraction* that unties the form-structure dynamic of the territory to the system that identifies it in a given period, and the use of an expressive language capable of offering cultural interpretations of the territory (Doglio and Urbani 1970, p. 35). These assumptions are perfectly matched by the visions the two architects propose for Naples (Fig. 4) but above all for Sicily. Specifically, the drawings in support of *La fionda Sicula. Piano della autonomia siciliana*[5] (Figs. 5, 6) and *Braccio di bosco e l'organigramma*[6] (Figs. 7, 8, 9) fully demonstrate the complexity to illustrate a discourse that holds together the natural and the intangible data, whether economic or administrative. And it's precisely the research for a *mathematically impossible sum between different elements* that leads to a form of drawing that must at certain times necessarily abandon objectivity in order to succeed in communicating an idea. The result is drawings that partly depict the structure of the territory through the analysis of orography, and

Fig. 7
Michele Procida, Braccio di bosco e l'organigramma. Forest Arms, 1984.

Fig. 8
Leonardo Urbani, Braccio di bosco e l'organigramma. The birth of design, 1984

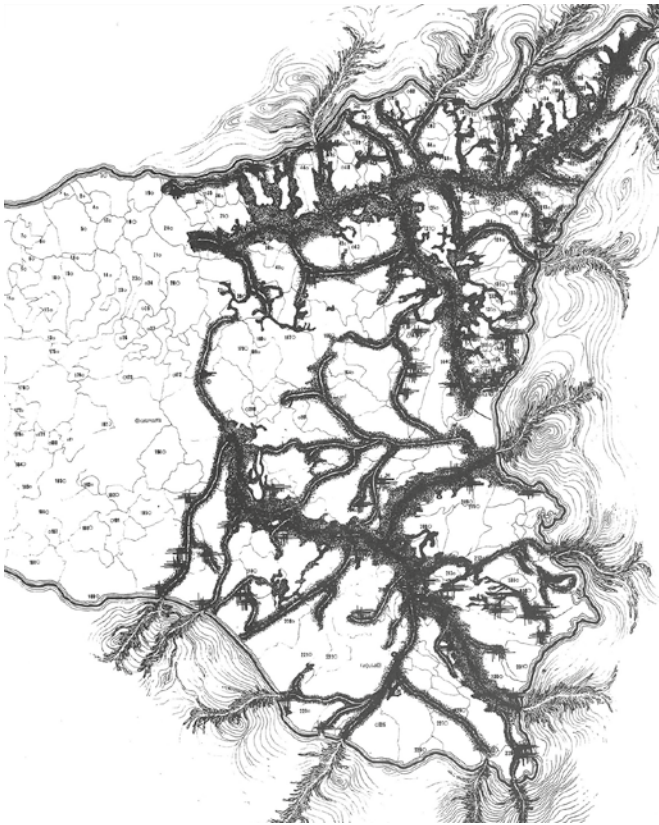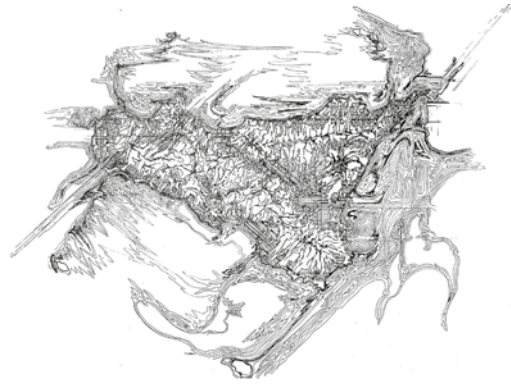**Fig. 9**
Nicola Giuliano Leone, Braccio di bosco e l'organigramma. The three Sicilies: Ionian, Tyrrhenian and of the African canal one, 1984.

partly drawings (of considerable aesthetic content both for creative invention and technical execution) to whose formal interpretation is entrusted the sense of design intention.

One of the main draughtsmen of Doglio and Urbani's works was Nicola Giuliano Leone, architect and urban planner, author of several projects and town and territorial plans in Italy and abroad. His representations constitute the distinctive feature of his projects, true «endo-products capable to communicate immediately the idea of city and territory in a virtuous symbiosis of sign and thought» (Gabellini 2020, p. 10). This is patient and meticulous work for which digital means of representation can hardly replace the communicative power of a hand stroke with great artistic and expressive value. One experience in particular sums up the importance of drawing as a research tool in Leone's work. In 1979 he was commissioned to curate a perspective that would serve as an icon for the tourist launch of Mount Amiata and to construct a trademark for the production of pork sausages started on the same mountain (Fig. 10). Drawing, taken as a figurative medium through which to understand, to rationalize and to shape the existing, here also becomes a tool to strengthen the social cohesion of a physically unitary territory but divided into eleven municipal administrations and two provinces. Like Vesuvius for the Parthenopean capital, Etna for eastern Sicily and beyond, the figurative constructions of Hokusai's Mount Fujiyama and Cézanne's Sainte-Victoire Mountain, Mount Amiata is elected as a territorial and landscape reference for the construction of an idea of territory, in which the physical element artificially acquires social significance becoming a cultural icon.

«To represent the territory is already to take possession of it – Corboz writes indeed –. Now, this representation is not a cast, but a construction. One makes a map first to know, then to act» (Corboz 1985, p. 25).

Through drawing, territory is broken down into forms that attempt to be known through its graphic geometrization. Similarly, in order to design

Fig. 10
Nicola Giuliano Leone, A "perspective" for the Amiata Project: preparatory drawing (general plan of the territory of Mount Amiata's mountain community, Indian ink and pastel on glossy paper) and perspective (final version, with names of urban centers and boraciferous soffions, Indian ink on glossy paper), 1979-1981; Logo for the Mount Amiata producer cooperatives, Indian ink on glossy paper, 1981.
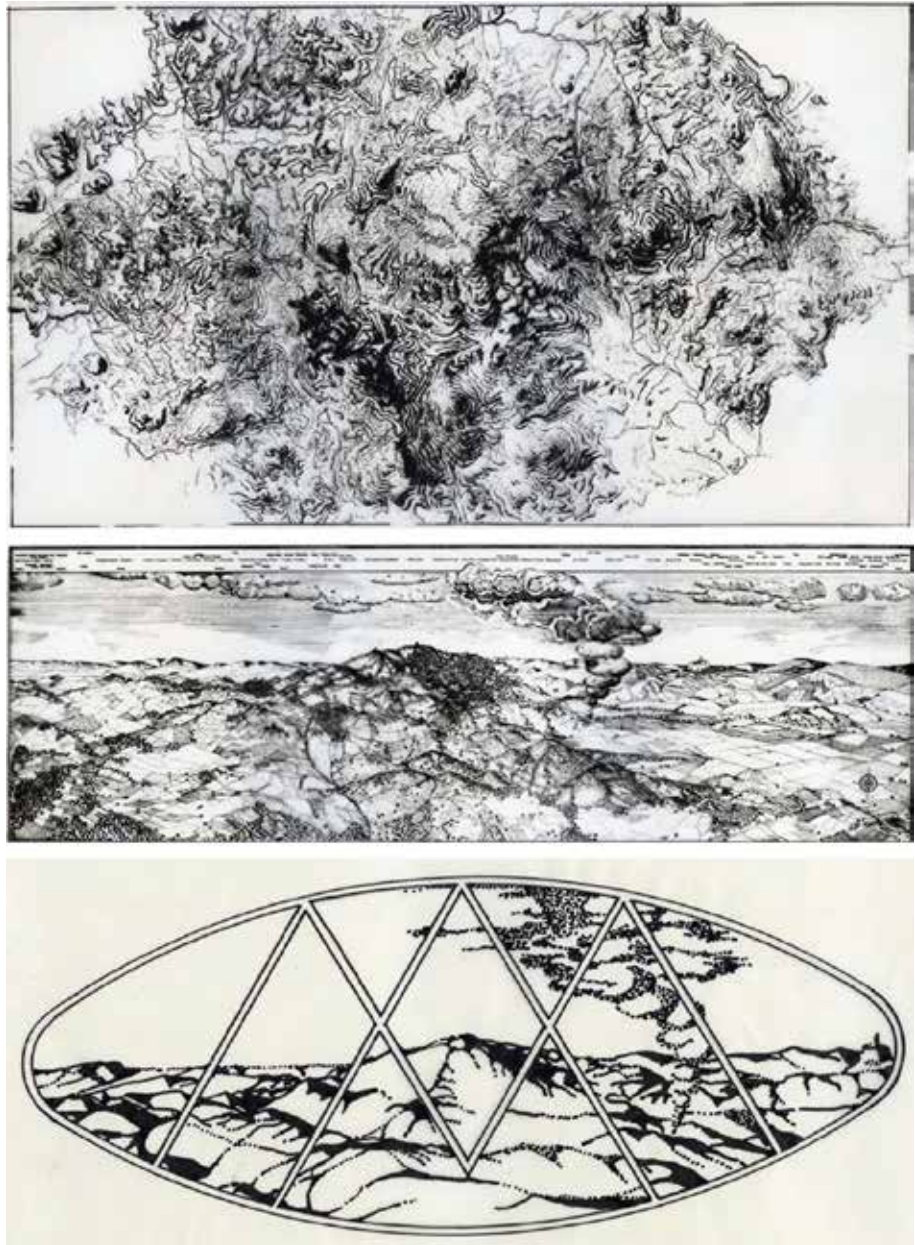
it will be necessary to intervene by recomposing the matter of which it is made up, that is forms assembled in space. However, simple orthogonal projections fail to exhibit the physical, anthropological and immaterial complexities present in the territory. Thus we move on to a less objectifying form of writing, sometimes pictorial, but able to interpret the spatial phenomena of territory, cultural and formal ones, as well as communicating through one and the same sign an idea of design. Architecture Drawing, even at the territorial scale, therefore constitutes an inextricable part of all its phases. In addition to being a tool for analysis and representation, it is also entrusted with the expressive channel: cooperating with the formal aspects, it is in fact able to emphasize theme and accents; and through the use of a specific stylistic code it allows us to understand, along with the work, built or merely imagined, the author as well.

Notes

[1] In this regard, Giuseppe Samonà proposes in 1976 his theory about *The city in extension*, whose ever actual key to understanding lies on the possible «very lively dialectic between the balances of the new spatial relations that will be created between the agricultural territory that has become a city in extension and the big natural territory that is not permanently inhabited».
In: Samonà G. (1976) – *La città in estensione*. Atti della conferenza tenuta presso la Facoltà di Architettura di Palermo il 25 maggio 1976, STASS Stampatori Tipolitografi Associati, Palermo.

[2] In this same period were the spatial and figurative researches of Ludovico Quaroni, the experiments on the theme of the *unicum* of business centres or territorial parks, or even those on the *continuous city* somehow already introduced at the turn of the 1930s by Le Corbusier who coins the term of geo-architectures: city plans that are developed on the grand scale proposing in the same sign a housing system and a model of mobility.

[3] Cesare Pellegrini's design proposals published in 1966 in *La Forma del Territorio* of «Edilizia Moderna» No. 87-88, a sort of compositional exercises defined by the same author with the terms of *figurative qualifying interventions*, demonstrate in this sense an employment of drawing not as a tool of representation but as a means of composing. Pellegrini works with the precise intention to reorganize the structure (*to restructure* precisely) of a part of territory through the insertion of signs, often abstract and of uncertain entity but charged with *formal intention*, that introduce image potential into the surrounding.

[4] The work related to the dissertation (Supervisors: Profs. Giulio De Luca and Francesco Campagna) was initially published in 1966 in the monographic issue edited by Vittorio Gregotti *La Forma del Territorio* of «Edilizia Moderna» No. 87-88 and later, in 1974, in the volume *Il disegno della citt*à *di Napoli* by the same authors Salvatore Bisogni and Agostino Renna with an introduction by Gregotti.

[5] The project of *La fionda sicula* is first and foremost about the vision of a Sicily as a central point and bridge of exchange within the Mediterranean, proposing a new framework of territorial infrastructures (the *polyducts*) to make crossing and internal transportation easy; then also a *Plan for the autonomy* of a region that is careful of own resources, which focuses on its territorial talents to undertake production activities and a new economic development. In: Doglio C. and Urbani L. (1972) – *La fionda sicula. Piano della autonomia siciliana*. Il Mulino, Bologna.

[6] In *Braccio di bosco e l'organigramma*, the two architects present a possible model for the administrative and productive development of the region, in which natural geometries and ideal geometries overlap generating a new territorial design governed by a *dual-regulatory approach*. In the Forest Arms, *natural vocations* prevail: these depart from the island's historical-natural lines of force, constructing a territorial fabric for which a *strict constraint* regulation are provided, aimed to safeguard and to preserve its original characters. For the remaining areas, in which instead *territorial indifference* prevails, regulations will be with *agile constraint*, that is, from time to time directed to the emerging needs of individual productive districts and their enhancement. In: Doglio C. and Urbani L. (1984) – *Braccio di bosco e l'organigramma*. Flaccovio Editore, Palermo.

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Lino Cabras
**ETFAS towns: rural architecture in Sardinia
through the archival drawings**

Abstract
The Authority for Land Use and Agriculture in Sardinia (Ente per la Tras-
formazione Fondiaria e Agraria in Sardegna – ETFAS) was founded in
May 1951 with the goal of reforming agriculture on the Italian island and
building infrastructure, towns and centres that would serve the public and
social life of settlement assignees. Archival research carried out at the
Laore Sardegna Archive of Cagliari and the Archive of the Modern of
Mendrisio has brought to light an important number of drawings through
the forms of institutional representation encoded in plans, elevations and
sections by the architects tasked with the creation of the towns. Particular
attention has been given to the representation of public buildings, pre-
sented here in a few original drawings and sketches by architects Figini
and Pollini for the Porto Conte town in the Alghero territory, and for the
service center of Monte Cadelanu in the Sulcis, by architects Zanuso and
Crescini.

Keywords
ETFAS towns — Sardinia — Archival drawings — Figini and Pollini
— Zanuso and Crescini

Fig. 1
Map of ETFAS settlement
centers and autonomous farms
[Source: ETFAS 1962, p. 4]

The surveys published to date on ETFAS towns and service centers are limit-
ed to a small number of contributions mainly concerning urban and planning
aspects[1]; on the other hand, there is a lack of critical contributions related to ar-
chitectural projects, particularly on spaces for education and social life, which
constitute important evidence of single experimentations within the frame-
work of a programmatic initiative implemented in Sardinia after World War II.
The analysis of the institution's archival fonds[2] revealed through the design
drawings unexpected spatial and typological qualities that this paper aims to
explore.

The Authority for Land Use and Agriculture in Sardinia (Ente per la Tras-
formazione Fondiaria e Agraria in Sardegna – ETFAS)[3] was founded in
May 1951 as part of the national land use reform contained in Italy's 'Stral-
cio Act'. Its goal was land reclamation and the construction of infrastruc-
ture, farmhouses, towns and centres for improving the lives of the farmer
assignees. However, its primary purpose was to reform agriculture in the
region through a real work of 'human transformation' (ETFAS 1958, p. 6).
The plans for hamlets and towns are characterised by the provision of
shared infrastructure that varies according to the context, based on the 'pe-
culiar geographical and environmental situation of Sardinia, which is rich
in very marked zonal diversities, with profound dissimilarities between
even contiguous areas, created for historical and economic geological rea-
sons' (ETFAS 1962, p. 2).

In a fragmented patchwork of about 92 hectares of land (fig.1) five au-
tonomous farms and twenty-one settlement centers[4] were established, for
which a master plan of services had been planned for the construction of
seven residential towns, thirty-three service centers[5], fifty isolated rural
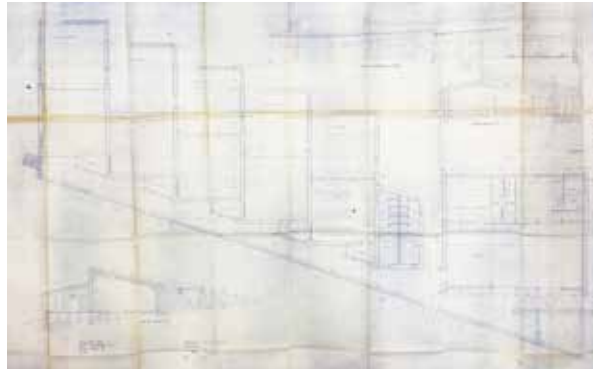
Fig. 2
Master plan of the town of Porto Conte, L. Figini and G. Pollini (1953).
[Source: Agenzia LAORE Archive, ETFAS fonds].

Fig. 3
Plan and sections of the elementary school in the town of Porto Conte, L. Figini and G. Pollini (1953).
[Source: Agenzia LAORE Archive, ETFAS fonds].

schools and fifteen chapels. The residential hamlets were, however, an exception to the rural settlements planned by the authority, which were usually of the "scattered house" type; it therefore became necessary to equip the territory with service centers for the agrarian inhabitants, to be located barycentrically to the farms.

The approach to the context, understood as a collection of land-based, social and economic factors, was the foundation upon which the designs for these new settlements were developed, starting from the initial studies carried out by the UN organisation UNRRA CASAS for the Nurra area, in the implementation of the Sardinian re-population plan within which the UNRRA interdisciplinary team was working (including architect Fernando Clemente[6] and engineer Oreste Noto (Casu 2001).

Despite the fact that the design assumptions were informed by high standards, especially found in school architectures inspired by contemporary international experiences (Roth 1950), the ETFAS towns system encountered a gradual and generalized abandonment by the allottees, as Di Felice (2005) notes: «already during the 1950s, before the lure of the large factories of the North was felt, numerous colonial families preferred to abandon the reform lands, while others were terminated by the same entity».

In the architectural debate of the time, the critical issues of the new Sardinian rural towns emerge clearly in the words of Giuseppina Marcialis[7] (1957):

Settlements rise at considerable distances, separated by immense expanses of deserted and uncultivated land that offer no direct possibilities of connection for the time being; moreover, Sardinian peasants traditionally live in centers in whose community life they actively participate [...]. Social centers are located in the geometric center of gravity of a settlement, but often at an excessive distance from houses [...].

The general plan for the services proposed by the Entity included the
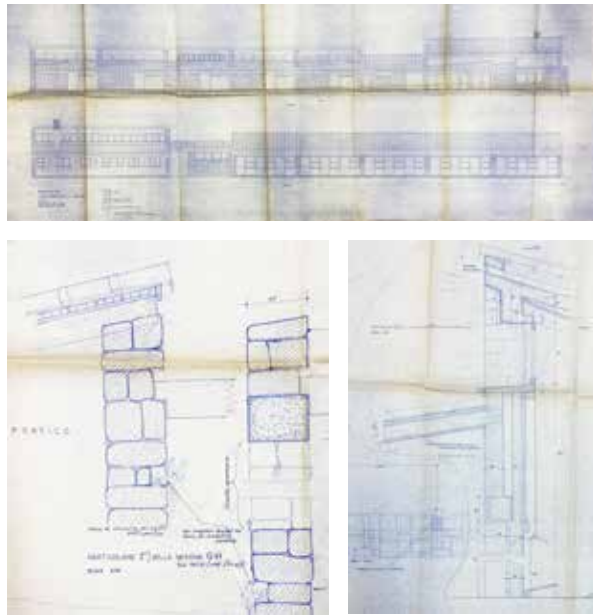
Fig. 4
Main elevations of the elementary school in the town of Porto Conte, L. Figini and G. Pollini (1953).
[Source: Agenzia LAORE Archive, ETFAS fonds].

Fig. 5
Construction detail of the primary school in the town of Porto Conte, L. Figini and G. Pollini (1953).
[Source: Agenzia LAORE Archive, ETFAS fonds].

Fig. 6
Construction detail of the primary school in the town of Porto Conte, L. Figini and G. Pollini (1953).
[Source: Agenzia LAORE Archive, ETFAS fonds].

creation of seven residential towns, 33 service centres, 50 isolated rural schools and 15 chapels. The towns and the service centres had a general zoning framework whose main schema included: a social centre, a primary school, a nursery school, a retail space, a post office and barracks.

In just a few years, the town system would come up against its progressive general abandonment by the assignees, a reflection of the critical issues detected well in advance by Giuseppina Marcialis (1957) in relation to the creation of the first clusters:

The inhabited centres are notably far from one another, separated by immense expanses of deserted and uncultivated land that do not, for now, offer the direct possibility of connection; moreover, Sardinian farmers traditionally live in centres where they actively participate in community life [...]. The social centres are located in the geometric centre of gravity of a settlement, but often too far from the homes.

By contrast, archival research has brought to light case studies that demonstrate all their expressive potential, going well beyond the meaning of drafts and drawings created as technical documents in the institutional forms of architectural representation (plans, elevations and sections).

The first – unrealized[8] – design by Luigi Figini and Gino Pollini for the town of Porto Conte is presented exclusively in drawings of public buildings, which make clear the attention to detail that went into them. The plan was designed on behalf of ETFAS in the early years of its operation. The executive drawings of the public buildings denote the extreme attention to detail, both graphic and textual. The nature of the site and the reasons for the project are described in the project's explanatory report[9] as follows:

Between the sea and the hilly bumps of reclamation, an attempt was made to insert the lines and volumes of the plan within the undulating lines of the landscape in the most natural way, so that it would almost come to be part of it, in all unity and without overpowering it; to complete it almost, if possible [...].

The master plan[10], dated December 1952, (fig.2) represents the entire town in 1:500 scale with the communal buildings placed at the heart of the village, whose hierarchies are dictated by the orography of the site.
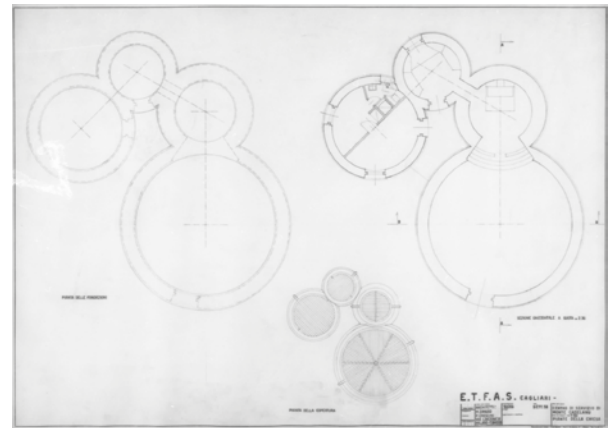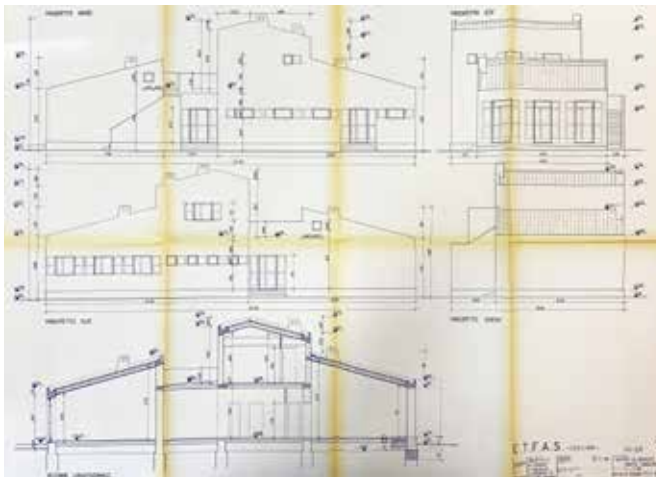
Fig. 7
Plan for the town of Monte Cadelanu with an alternate (unbuilt) version of the church, M. Zanuso and P. Crescini (1958).
[Source: Archive of the Modern, ETFAS fonds].

Fig. 8
Elevations and main section of the school Plan for the town of Monte Cadelanu, M. Zanuso and P. Crescini (1959).
[Source: Agenzia LAORE Archive, ETFAS fonds].

Fig. 9
Plans of the alternate (unbuilt) version of the church of the town of Monte Cadelanu, M. Zanuso and P. Crescini (1958).
[Source: Archive of the Modern, ETFAS fonds].

At the lowest elevation the town's square is closed to the southwest by a U-shaped colonnaded building that hosts various businesses: a bakery for bread, a post office, offices for the town delegation, a medical clinic and a café; an axis road extends to the northeast until rising in elevation and reaching the village church, which crowns the public road upon which the crèche, nursery school, and primary school are placed crosswise.

The project drawings for educational buildings show the spatial layout that integrates the interiors with the landscape through solutions designed to make the teaching spaces flexible through mobile partitions and niches for various activities. The idea of an outdoor classroom is a theme that reappears in different ways. In the building for the crèche, it's a single space at the end, determined by an overhead covering and masonry partitions. The same solution is echoed at the Olivetti crèche in Ivrea[11], while at the primary school the minimal classroom spaces are conceived of as an aggregation of staggered cells composed of an indoor room and an outdoor patio that are grouped one after another, nestled into a longitudinal portico to mark the edge of the building in the north-west elevation (fig. 3). A common element seen throughout the project's architecture is exposed stonework walls alternating with walls covered in rustic plaster (fig. 4), as are the pitched roofs that mark the spaces within the buildings. The volumetric variations created by the angles of the pitched roofs, as seen in the detail drawings (fig. 5), have numerous window openings that, with various solar screen systems and types of windows, make it possible to modulate the entry of natural light and ensure the circulation of air in the rooms. These detailed drawings also provide a few precious indications as 'irregular compart-

Fig. 10
Elevation of the main facade of the alternate (unbuilt) version of the church of the town of Monte Cadelanu, M. Zanuso and P. Crescini (undated).
[Source: Archive of the Modern, ETFAS fonds].

ments left in the wall for pendulous plantings' and 'panoramic windows'[12] (fig. 6) in the patio that, positioned at various heights, unite the built environment and the natural one[13].

Archival research has also brought to light the preparatory documents for the unpublished plan[14] built for the ETFAS service centre in Monte Cadelanu[15], part of the Cixerri Settlement (fig. 7), by Marco Zanuso and Pietro Crescini[16]. The ETFAS fonds stores the folder with the executive plan containing heliographic copies of documents and drawings, dated between January and December of 1959, of the executive project with the heliographies, while the Archive of the Modern of the Architecture Academy of Mendrisio holds in the Zanuso fonds[17] nine graphic works (on microfilm cells stored on aperture cards)[18] dated between September 1958 and May 1959. The project, completed after 1962, belongs to the last phase of ETFAS construction works and is built on a flat area bordered by rows of wind-breaking trees in the direction of the Mistral. The service centre includes a small school with a single classroom, plus a library and lodging for the teacher, a market and a church.

The school[19] (fig. 8) is distinguished by its domestic dimension and again, as found in almost all ETFAS schools, prioritizes continuity with the surrounding context:

[...] In the two heads, the southeastern side of the building contains the teaching room overlooking a large raised square for outdoor teaching, and the northwestern side contains the library and meeting room with a separate entrance [...], around the building a large trapezoidal-shaped space available for games and practical gardening exercises [20].

A rather unique variation (compared to the other buildings) was previously designed for the church, made up of multiple spaces with circular floor plans (fig. 9), evoking a probable archetype of Nuragic villages[21]. Four secant conical volumes[22] of varied heights are arranged in pairs: in the first, the space for the faithful is connected via its central axis with the area containing the altar raised on a three-step platform, while the second group, rotated compared to the first which is on the south-eastern side, holds, respectively, the sacristy and the priest's living quarters, complete with an independent entrance from outside. An ample portal, offset compared to the central axis of the main body, serves as the entry point to the church, almost as if in search of a relationship with the side of the forecourt overlooking the other community buildings. The vertical surfaces of the volumes extend upward, hiding sunken wooden roofs that are thus invisible from the outside and are marked by radial vertical slits that extend into concave overhanging gutter spouts to redirect rainwater.

The graphic representation that best embodies this version of the church is the elevation without a title block (fig. 9), most likely in graphite, in which the evocative strength of the drawing enabled the viewer to imagine slices of life embodied by the two presumably female figures that walk toward the entrance, which is composed of a pointed arch topped by a rosette. In the esoteric drawing, it is still possible to contextualise the work in the Sardinian landscape, though quite abstract, through what seem to be two prickly pear cacti.

The two projects for Porto Conte and Monte Cadelanu presented herein are testimony to the expression of post-WWII modernism, whose style incorporated codified rural elements in an effort to re-establish dialogue with the landscape. The narrative suggestions expressed by the architects through

graphic marks, which open up to an interpretation that runs parallel to the need to respond to the constructive procedure for which they were produced, are meaningful, composing far-reaching images and visions for the community that soon would inhabit those places.

Notes

[1] For an in-depth analysis about the urbanistic events of ETFAS see Casu 2001a, and Casu 2001b. For a broader historical overview of land reform in Sardinia, see Di Felice 2005.

[2] The ETFAS fonds, deposited at the LAORE Agency in Cagliari, is currently available for consultation. It has no chronological order; the only accompanying tool produced during the census phase is a general archive consistency list in which chronological details and title related to the original preservation unit are indicated. There has been no digitization of the documentary material, with the exception of a few drawing boards of religious architecture published as part of the Ministry of Culture's *Architectures of the Second Century* census on the platform http://architetturecontemporanee.beniculturali.it/architetture/ [Last accessed August 21, 2022]. The archive is not included in the SIUSA database.

[3] ETFAS was formed in May 1951, as a result of the national land use reform approved by Italian Parliament with law n. 841 of 21.10.1950, known as the 'Stralcio Act' (Legge Stralcio) or the 'Segni Act' (Legge Segni).

[4] The map drawn up by the Authority shows the uneven distribution of acquired land – fielded in black – in which the settlement centers fall, marked by progressive numbers called out in legends and geometric perimeters indicating their area of influence. Autonomous farms, on the other hand, are marked by letters of the alphabet.

[5] For the towns and service centers actually implemented, see ETFAS 1962, p. 41.

[6] Fernando Clemente (1917-1998) was a student of G. Michelucci, from whom he learned of Lewis Mumford's principles of 'neighbourhood units' and the requests of the Movimento Comunità (Community Movement) founded by Adriano Olivetti, eventually applying them to his designs for ETFAS. Along with Oreste Noto, Clemente created the town of Tottubella (1953-56) in the settlement centre of Sassari. See Casu 2001a, p. 65.

[7] Giuseppina Marcialis (1933-2018) graduated from the Polytechnic University of Milan with a degree in architecture that same year. She was a teacher in addition to an architect and urban planner, getting her start in Rome as the assistant to Piccinato and Benevolo, then in Florence as an outside lecturer. She filled that same role at the IUAV University of Venice starting in 1976, which she joined in 1975 as Vice Chancellor.

[8] The plan, drawn up on behalf of UNRRA CASAS, was meant to meet the settlement needs of the refugees of the Istrian-Dalmatian exodus on the island, leaving to ETFAS the sole assignment of land and the creation of public buildings, as can be learned from Deliberation no. 208 dated 21 September 1952 (LAORE Archive, ETFAS fonds, sh. E, fold. n°27). For more on the Porto Conte plan by Figini and Pollini, see Blasi 1963. To understand why the town wasn't constructed see Casu 2001a.

[9] The excerpt from the report is taken from Gregotti and Marzari 1996, pp. 364-365.

[10] (LAORE Archive, ETFAS fonds, sh. E, fold. n°27, draw. 394). The version of the master plan is the one presented at the IX CIAM in 1953 in the session of the Mediterranean area.

[11] Built between 1939 and 1942. See Savi 1980.

[12] (LAORE Archive, ETFAS fonds, sh. E, fold. n°27, draw. 51).

[13] See Figini 1950.

[14] The project appears in the list of works by Zanuso in De Giorgi 1999.

[15] Which would meet the needs of a community of about 150 residents.

[16] In 1957, architect Pietro Crescini (1921-2007), a regular collaborator of Marco Zanuso as of 1956 and his business partner from 1977 to 1999, drafted the project for the service centre in Baratz in the settlement centre of Sassari, later renamed Villassunta, on behalf of ETFAS. For a biographical note on Crescini, see Triunveri 2020. 17<https://www.archiviodelmoderno.org/fondi-archivistici/schede-dei-fondi/fondo-marco-zanuso-1960-1998> [Last accessed August 21, 2022].

[18] According to the classification attributed by Studio Zanuso, which over the years

had worked on transferring less recent projects onto that type of media, eliminating paper documents.

[19] In the version for the executive project (LAORE Archive, ETFAS fonds, sh. A, fold. n°48, draw. 7).

20 From the general report of the executive project (LAORE Archive, ETFAS fonds, sh. A, fold. n°48).

[21] The version of the church with the circular buildings is represented in the master plan stored at the Modernism Archive on microfilm (Archive of the Modern, Zanuso fonds, pos. MZ Arch Micr 25). In the executive plan the church appears as it was actually built (LAORE Archive, ETFAS fonds, sh. A, fold. n°48, draw. 11).

[22] The project shares different elements with that of Zanuso and Crescini drafted in January of that same year as part of the invitation-only competition (won by Mario Salvadè) for the church and the parish complex in Campione d'Italia, despite being more detailed with its seven volumes and a bell tower, all arranged into a circular plan. The project documents are stored at the Marco Zanuso fonds at the Archive of the Modern (cat.: MZ Arch. 22).

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Graziana D'Agostino
The design poetics of Francesco Fichera, between traditional representation and digital communication

Abstract

This contribution illustrates the important relationship between architectural project design and the modern instruments of digital representation and communication. We investigate the integration between the traditional techniques for elaborating and the digital methods for communicating a project through the "G. De Felice" Technical and Commercial Institute (1926) project by architect F. Fichera of Catania, Sicily. The nature of the documentary material, exhibited and conserved at the MuRa museum in Catania, demands an analytical reinterpretation of the design poetics of the time and the place, and the need for new digital languages to document and communicate the precious archival heritage through close comparison between realised architecture and design thought.

Keywords
Archives — Project Design — Digital Representation — Communication — Digital Cultural Experiences

Local identity can be understood, experienced, and expressed through the architecture, planimetric solutions, and spatiality of the buildings that characterize the city. This is also achieved through the visual perception of the inhabitants and the analytical perception of those who study them for the relationships between solids and voids, the implied geometries of individual projects, and the recognition of architectural styles. This paper explores and illustrates the important relationship between the design drawings conserved in archives and the digital tools available to support their representation, knowledge, fruition, and communication in cultural spheres. The study is part of a research project that aims to reveal and appreciate the early 20th century architecture that enriches the city of Catania with a stylistic and formal identity of high cultural value.

Architectural archives represent unique and significant sources for understanding and transmitting the design principals of the historical period and the architect, as well as emphasising the importance of the figurative value of architectural design (Palestini 2016, 2017, 2019).

This paper investigates the irreplaceable traditional approaches to design expression and the digital techniques for its communication through detailed analysis of a project by Sicilian architect, Francesco Fichera[1] (1881-1950), who designed the "G. De Felice" Technical and Commercial Institute in 1926. The study is part of the research, teaching and dissemination activities conducted at the MuRA museum[2] in Catania (Galizia et alii 2019). The museum exhibits and preserves the original projects of the architect that contributed to the design and form of the architectural and urban identity of the territory. It is the very nature of this documentation that prompts the need to study and analyse the design poetics of the time

and place, as well as the need to harness new languages and digital tools to collect and narrate the precious documentary heritage, associating architecture with its prevailing design thought.

The methodological approach adopted consists mainly of two phases:

Historical and archival investigation: understanding and analysis of project drawings to highlight the importance of traditional drawing in the conceptual and final design phases.

Digital representation and communication: graphic enrichment of heritage documentation and narration through virtual, immersive, and interactive explorations.

The possibility of comparing archive documentation (period photos, eidotypes, and technical drawings) with the realised architecture in its current state spurns the need to communicate and render the design principals appreciable through a virtual simulation experience using 360° panoramic images. Therefore, an immersive experience of fruition and knowledge of one of the most emblematic and characteristic public buildings designed by the architect from Catania is proposed.

Catania in the early 20th century: urban planning and Fichera

The urban environment of Catania is the result of its connection with the two natural backdrops that characterise and enrich the area: the sea to the east and to the north, Mount Etna, the volcano from which lava flowed into the western part of the city in 1669. In 1833, Sebastiano Ittar provided designs of the northward expansion of the city along the north-south axis of the present-day Via Etnea, highlighting the expansion of the historic centre outside the walls. Towards the end of the 19th century, the urban layout changed with the addition of two expansion axes, Via Umberto and Asse dei Viali, crossing Via Etnea orthogonally north of the ancient walls. In 1888, the new urban development plan of the city[3] aimed at developments inspired by 18th-century notions of a modern city. The first public buildings of a social nature began to flourish along the new Asse dei Viali in the early 20th century; among these was the 'De Felice' institute. Forming a scenic backdrop to the trapezoidal Piazza Roma, it is set inside a context characterised by large green spaces and neoclassical and modern architecture (Fig. 1). The project was entrusted to the architect Francesco Fichera, a great protagonist of Sicilian architectural culture in the first half of the 20th century, who realised numerous residential and public works. His design poetics is characterised by the continuous relationship between functionality and aesthetics, ranging from Rationalism to Eclecticism, Liberty, and Déco. Especially in the public buildings he designed[4], he managed to combine present and past and negotiate representative and symbolic requirements with the new culture of the period. This was achieved through the contemporary use of classical stylistic elements and the search for significant design solutions that give plasticity and three-dimensional spatiality to the buildings, while respecting the linguistic continuity between tradition and modernity (Galizia 2002; Guarrera 2017).

The Fichera Fund and the project archive drawings of the 'G. De Felice' Institute (1926): analytical reinterpretation and design genesis

The MuRa museum exhibits, archives, and preserves the Francesco Fichera Project Archive Fund, donated to the DAU[5] by his heirs in 1976. The architect's large body of work in Sicily gave rise to a heritage of original documents in the archive consisting of about 1600 drawings made
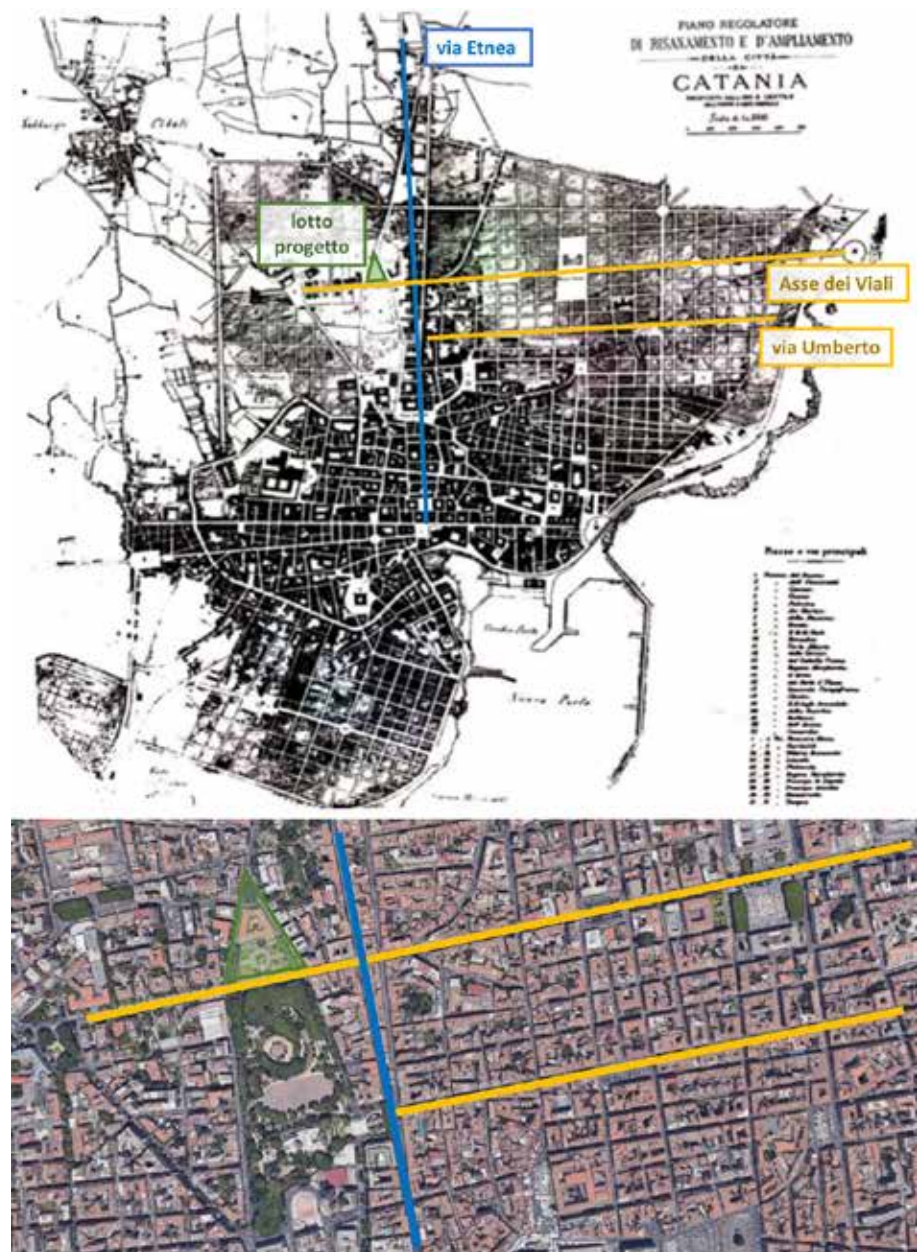
Fig. 1
Top: Master plan for the renovation and expansion of the city of Catania by Bernardo Gentile Cusa (1988); bottom: current view from above.

with different techniques or in heliographic copy. Among the drawings, it is possible to admire preliminary sketches for the project in question, drafts from different conceptual phases, and final graphic designs. They are all orthogonal or perspective representations ranging from detailed drawings to broader urban contexts, highlighting the important role of design in the conception phase. Figures 2 and 3 show how Fichera uses traditional graphic representation codes to emphasise the importance of design both in the conceptual phase and in the final rendering of the project, enriching the representations with graphic details and notes that offer greater comprehension of his work. The integrated use of different scales of representation, perspective projections, and shadows allow the designer to better communicate the three-dimensional articulation underlying his work. The prevalence of the technical elaboration based on the Monge projection method, which is still of undisputed importance today, is supplemented with 2D three-dimensional representations that provide information on the use of the materials envisaged for the project in addition to the geometric aspect. This allowed the architect to expand the graphic language code used to communicate the project at a time when the graphic
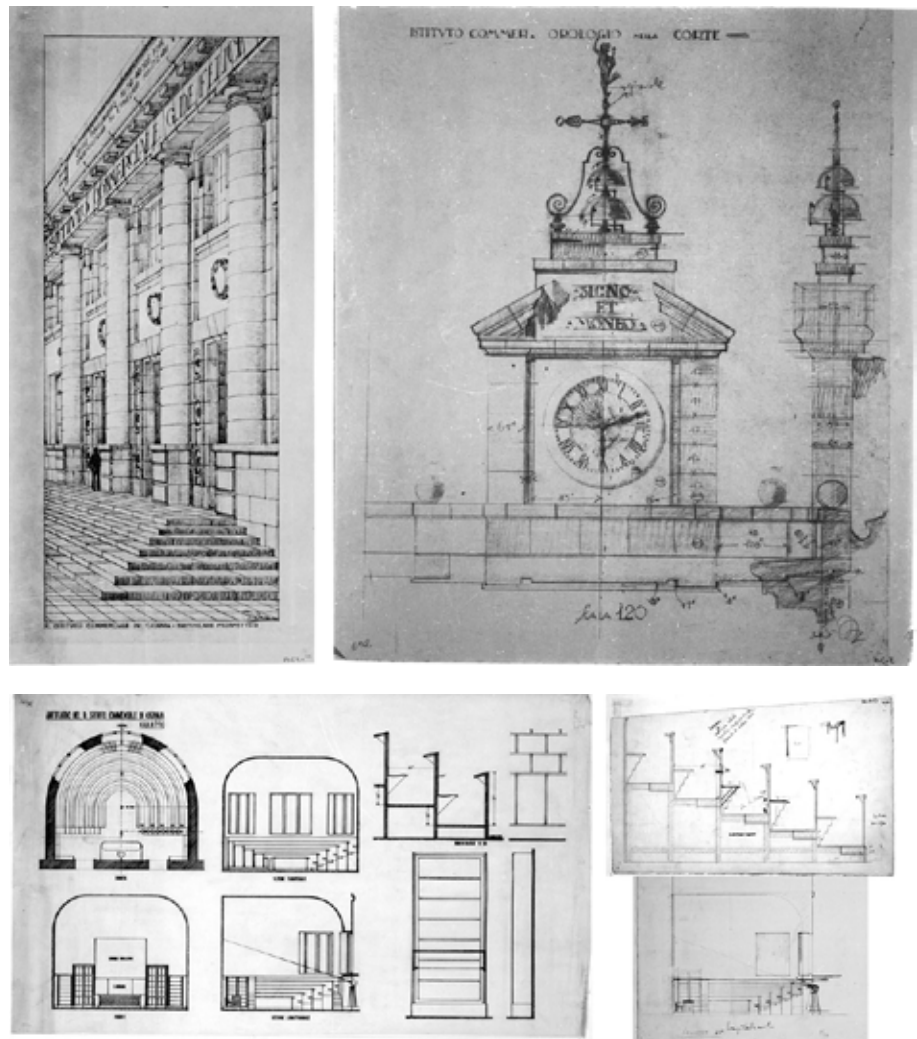
Fig. 2
Francesco Fichera, De Felice Institute. Left: perspective of the entrance; right: project drawing of the courtyard clock (F. Fichera Fund - MuRa).

Fig. 3
Francesco Fichera, De Felice Institute. Preliminary and final designs of the aula magna (F. Fichera Fund - MuRa).

design was not yet influenced by the new forms of digital representation. The architectural choices adopted for the institute summarise the architect's *modus operandi* and the historical period in which he worked. Here, more than in other projects, Fichera finds himself making use of the design flair that distinguishes him, especially in corner solutions, having to design the building within an irregular triangular lot. «L'irregolarità non è d'altra parte così sentita che possa vantaggiosamente sfruttarsi per trarne un motivo pittoresco» (Fichera 1928) and for this reason, he decides to disguise this dissymmetry by constructing an apsidal rear elevation. This feature is skilfully implemented to conceal the offset between the symmetry axis *a* of the building and the median *m* of the irregular triangle of the lot, as can be seen from the analysis of the implied geometries applied to the design drawing of the ground floor plan (Fig.4).

Despite this, the architect does not forego defining the project through proportional ratios and gives further plasticity and movement to the north elevation, creating a play of volumes defined by the superimposition of planes and surfaces of different thicknesses that disconnect the wall mass. Fichera also smooths the two side wings of the planimetric layout with two cuts that are orthogonal to the bisectors of the triangle, giving perceptive continuity to the reading of the wall envelope. With clear reference to the Viennese culture of Otto Wagner, the architect manages to harmoniously relate to the triangular plot and organises the system of classrooms on two floors, along a corridor facing the trapezoidal courtyard, concentric to the perimeter of the building. The apse on the rear elevation, the annular dis-
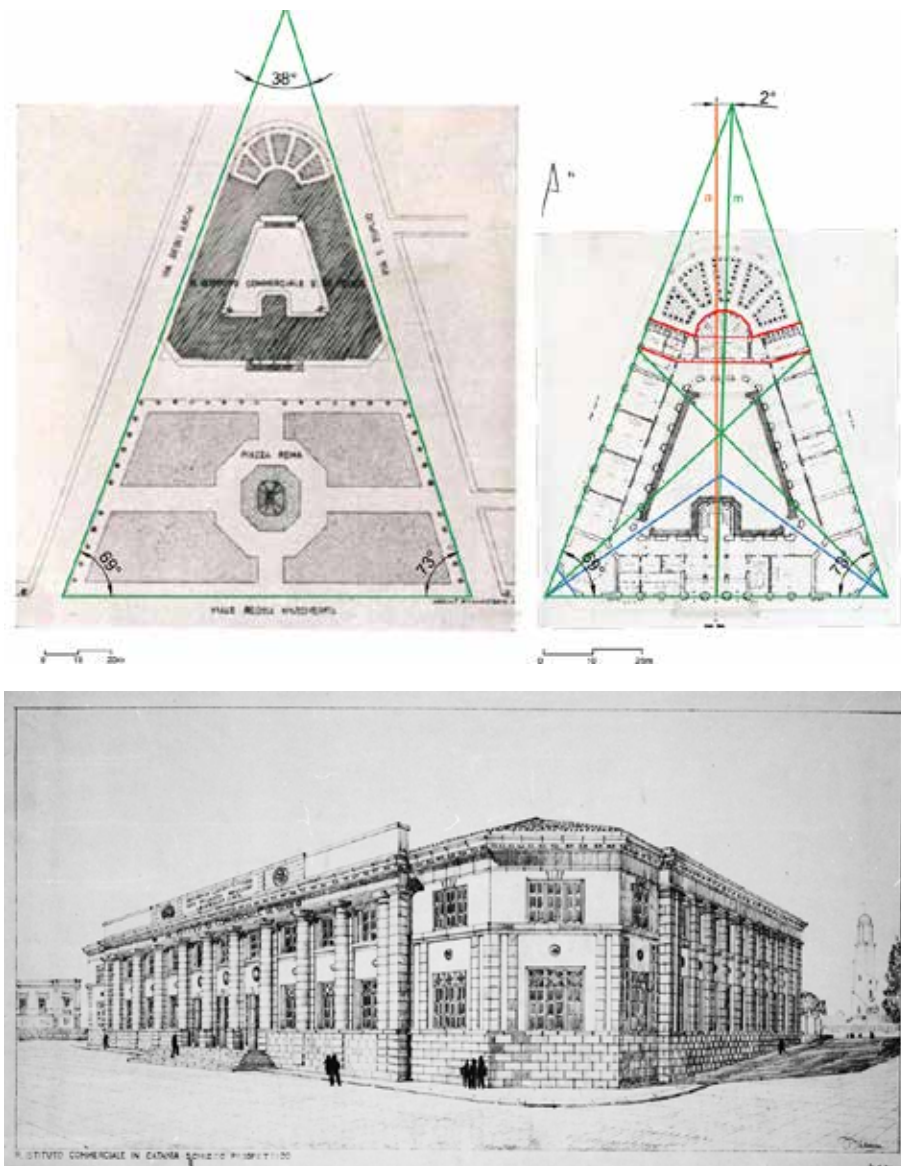
Fig. 4
Left: general plan; right: ground floor plan and rough compositional genesis (triangular plot and medians in green, building axis of symmetry in orange, bisectors and chamfers of the corners at the base in blue, and elements delimiting the empty/full boundary in red).

Fig. 5
Francesco Fichera, De Felice Institute. Perspective of the corner solution between the south and east elevations (F. Fichera Fund - MuRa).

tribution system, and the polygonal rooms at the two corners of the main elevation are, in fact, an obvious reference to the plan of the Postparkasse building by the Austrian designer. These devices, together with the two-tone lava stone on white background decoration of the elevations and the overlapping surfaces that compose them, exalt the perceptive values of the intentional breaking of the volumetric compactness, which is well illustrated in the perspective view in figure 5 (Guarrera 2020; Messina 2020).

In attempting to reconstruct the compositional genesis of the building in plan and elevation through traditional drawings, one cannot fail to emphasise the obvious reference to Marcello Piacentini's Courthouse in Messina. The tripartite openings of the elevations are certainly reminiscent of the compositions of the Viennese secession architects, and the use of Doric half-columns and half-pilasters reminiscent of the Italian neoclassical tradition. Fichera develops the representative role in the main elevation, endowing it with the same number of columns and tripartite scheme of openings as the elevation of Piacentini's Courthouse. Unlike the Courthouse, however, he interrupts the giant order used along the two lateral elevations and lends a simpler geometry to the corner solutions that are set slightly back from the planes of the elevations (Rocca 1988).

The *a posteriori* graphic analysis carried conducted on Fichera's traditional design drawings once again highlights the importance of the role of
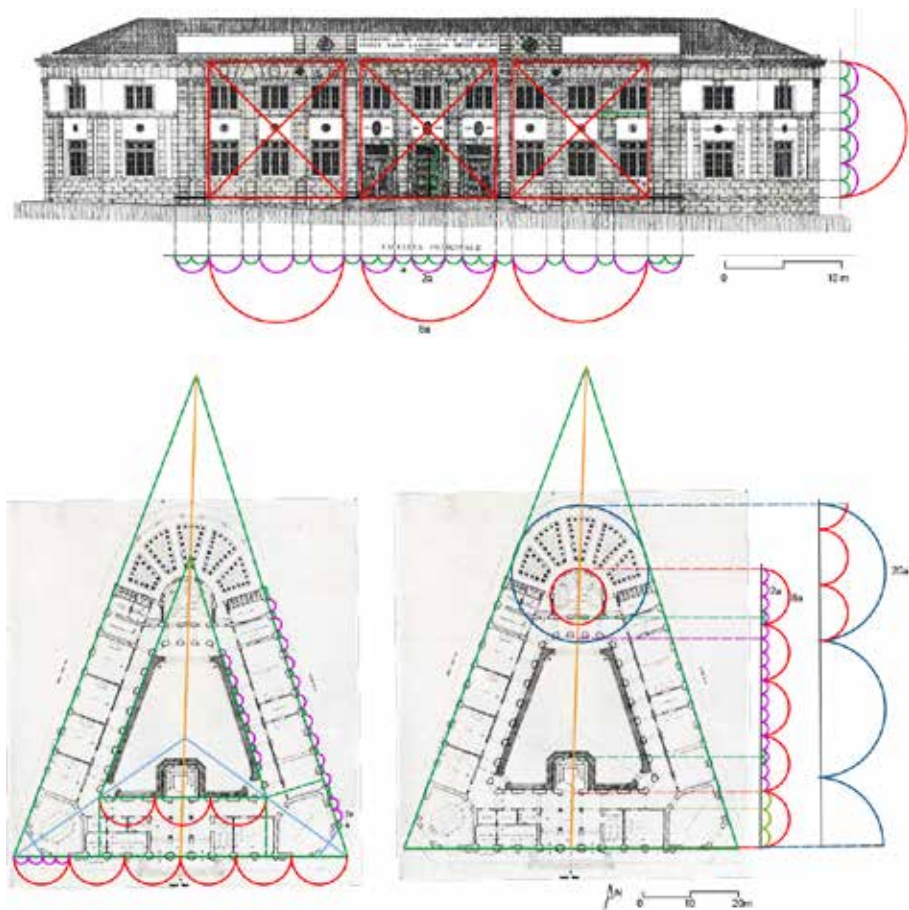
Fig. 6
Geometrical analysis of the south elevation.

Fig. 7
Geometrical analysis of the ground floor plan.

drawing in the conceptual and control phase of the project (Vernizzi 2018). The search for geometric genesis highlights the desire for a design harmony between the parts, achieved through regulating paths underlying the compositional form (Figs. 6-7). The positioning of the structural and decorative elements is defined by a modular grid that marks the relationship between solid and void. The regulating aspect is given by the width of the Doric columns and the frame superimposed on the masonry (a), which define the solid section and lend rhythm to the architectural composition. The tripartite entrance openings are defined by the same module (2a x 3a), as is the height of the building (8a) and the proportioning of the other openings and elements that make up the façade layout (Fig.6). The same modularity is found in the compositional definition of the l planimetric plant. As can be seen in Fig. 7, the depth of the corridor, the stairwell, the courtyard, the diameters of the apse of the north elevation (8a), and the circumference of the lot closing (20a) are all based on the same modular genesis, similar to the openings of the side elevations and the inner courtyard.

The advantage of analysing the original plans from the archives and publications in architectural journals of the time together with digital representations obtained from the survey of the realised work as it stands, represents an opportunity for graphical enrichment for a better understanding of the architect's design process and the importance of the graphic tools used.

New forms of digital communication: the role of drawing, surveying, and 3D modelling in understanding and using architectural design
The early 20th-century designs and period photographs that bear witness to the realisation of the project in those years, together with the study of the designer's expressive poetics, stimulate broad reflection on the role of

Fig. 8
Digital drawing of the south elevation, superimposed on the orthophoto taken from the photogrammetric survey (reconstruction by Di Salvo C., Murabito R., Russo E., and Spampinato M.).

digital drawings in the documentation of valuable historical architecture. In recent years, information and communication technologies (ICT) have been applied to the apprehension and dissemination of archive projects through different forms of representation. It has allowed the digitisation and preservation of archival heritage and dissemination and accessibility to a greater number of users (Galizia et alii 2020; Guccione 2009b; Santagati et alii 2020).

In order to document Fichera's compositional poetics and render the substantial body of graphic design representations of the institute clear and interactive, a photo acquisition campaign was implemented with a dual role: A multi-image photogrammetric survey to convey the three-dimensional spatiality of the building and the possible variations between design and actual state.

The acquisition of 360° panoramic photos for the creation of a virtual tour including interactive elements for viewing archive drawings and period photos, enabling the enjoyment of the architectural work, even from a distance. Figure 8 shows the digital reconstruction of the institute's main elevation viewed through the orthophoto obtained from the photogrammetric survey and the 2D CAD representation of the elevation. Comparison with the project drawing in figure 6 evidence the loss of the dual tones of the façade designed and realised by the architect, while the architectural design harmony remains unchanged. The relationship between the two representations is crucial for the apprehension of the historic building, also in terms of potential restoration work aimed at returning the architecture to the city as it was conceived by its designer.

Being one of Fichera's most important building designs now on display at the MuRa museum in Catania, we opted for appreciation and dissemination methods that could be integrated into the museum's repertoire. The virtual tour was conceived and designed around the most significant areas of the building–the relationship with the context, the courtyard, the entrance hall, the monumental staircase, the lecture hall, and the library–and ensuring user interaction with the multimedia elements that narrate the building as it stands (Fig. 9). The interaction with the architecture takes place from the same photographic perspectives of the period photographs and Fichera's project drawings, in a continuous dialogue between the realised work and archive documents. This places visitors and students at the centre of the path between the architectural project and the construction, allowing them to appreciate the variations between the building in its current state, its initial state, and the project drawings. The multimedia elements available during the virtual tour include photogrammetric models, orthophotos, archive project drawings, and 3D reconstructions (Fig. 10) (Vernizzi 2017). For example, the 3D rendering of the courtyard façade allowed the interpretation of Fichera's design choices, of his attention to the laws of perception applied through the implementation of two tones,

Fig. 9
Virtual tour. Top: external view from Piazza Roma; bottom: entrance hall.

Fig. 10
Top: photogrammetric model, orthophoto, and 3D model of the courtyard elevation (modelling by Di Gaetano F., Pirrello G., and Miceli D.); bottom: longitudinal section of the courtyard (Fichera 1928).

which is currently hidden by inappropriate restoration work.

The digital representations and innovative tools allow the collection of data and processed information that are central to the appreciation and communication of the existing heritage within a single virtual environment. From this perspective, the survey and the 2D and 3D digital representation become interpretative and communicative tools of the architectural heritage, within a path of understanding architectural spatiality and education on the importance of archive documents. VR techniques project designs beyond conventional museum displays and allow connection with the underlying architecture of the city. Today, digital representation technologies provide a valuable contribution to the communication of Fichera's poetics and render the precious collections of project drawings usable in innovative and

alternative ways. They form a path from the traditional drawings evoking the original design techniques of the time to digital representations that transcend the flatness of the design sheets.

Note

[1] Born in Catania in 1881, he graduated from the Royal School of Application in Rome in 1905 and, in 1909, he obtained a Diploma in Architecture at the Academy of Fine Arts in Palermo. From 1913 he held the chair of Ornate Design and Elementary Architecture at the first unit of the Faculty of Engineering in Catania.

[2] The Museum of Representation since 2015 is part of the Museum System of the University of Catania pertaining to the Department of Civil Engineering and Architecture of the University of Catania. The scientific director of the MuRa is Professor of Architecture, Mariateresa Galizia. The research is part of the PIA.CE.RI Plan funding. - MUARCH UNICT 2020-22 intradepartmental project line 2. The author would like to thank the Museum of Representation for allowing the drawings and images from the Francesco Fichera Fund to be consulted and published.

[3] 'Master Plan for the Rehabilitation and Expansion of the City of Catania', drafted by Bernardo Gentile Cusa.

[4] Among the public works designed in Catania: the Electric Company Building (1913), the Post Office (1919), the 'Archimede' Technical Industrial Institute (1917), the Courthouse (1936).

[5] Department of Architecture and Urban Planning. Currently Department of Civil Engineering and Architecture, University of Catania.

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Szymon Mateusz Ruszczewski
**From the "soft media" to the concept
legacy of Le Corbusier and his collaborators
based on Jerzy Sołtan designs and teaching**

Abstract
The relevance of "soft media" – such as charcoal, soft crayons, and clay – is essential in order to reach the very essence of architecture, at least according to Le Corbusier. Along with artistic and visual research, using such techniques contributed to the poetics, meaning, and definition of his work. This article analyses the work and teaching of Polish modernist architect Jerzy Sołtan through the prism of Le Corbusier's heritage and legacy and it examines how the use of specific tools and techniques could influence development of a design concept. Based on archival data and oral histories interviews, it explains the connection between Le Corbusier, his collaborators, and their own students, looking for the continuity of design approach in the first stages.

«The initial creation moment of the project lies in our soul and in our mind as a fluid thought, an element that cannot be boxed at the beginning with sharper and rigid lines» – these are words on Jerzy Sołtan's approach expressed by his design studio student from Harvard Graduate School of Design (Guarracino 2020). Within the larger context of the importance of hand drawn sketches for early design stage, this idea underlines the relevance of "soft media" – such as charcoal, soft crayons, and clay. Their relevance can be illustrated by Sołtan's teaching and by his own work, which had been influenced by his employer in 1945-1949 and lifelong mentor, Le Corbusier. Jerzy Sołtan (1913-2005) was a Polish modernist architect who in addition to his own design work in Poland and in the United States, was committed to teaching architecture at the Fine Arts Academy in Warsaw and later at Harvard Graduate School of Design. His example shows how Le Corbusier's *modus operandi* influenced his collaborators and how it could be passed onwards to new generations of architects.

The article is based on extensive archival research of designs, drawings, texts, and teaching-related documents illustrating Sołtan's body of work, in addition to a series of oral history interviews with his students and colleagues from Poland and the United States, contributing to understanding of the role of a specific drawing technique in the creation of an architectural idea. After explaining Le Corbusier's approach to drawing during the design process, the article concentrates on the role of these initial visual explorations in Sołtan's own architectural work and practice. Further analysis on the application of these ideas in Sołtan's teaching at Harvard and of

Fig. 1
Jerzy Sołtan, pencil sketch of a monument for 'Diomede' competition for the end of the Cold War (1989)

the impact it had on the architecture students he taught enables to discuss the legacy of the "soft media" approach.

Art, sketches, and Le Corbusier
Thanks to Sołtan, the account of Le Corbusier's work and routine has been very clear, as he explains in the essay 'Working with Le Corbusier' (1987), written first in the 1980s and since published several times. He gives testimony of how Le Corbusier was communicating, and of how design work proceeded. He draws the image of Le Corbusier for whom architecture and painting were tightly connected, but also an image of Le Corbusier who wanted to use specific tools when working at the early stages on his designs. In Sołtan's account, the mornings were usually marked by Le Corbusier's absence who was working alone on art in his own apartment. These paintings, artwork, and rough architectural sketches, called by Sołtan «fine arts callisthenics», were vital aspects to the development of Le Corbusier's designs (1995, p. 10). According to Sołtan, «it was for him a period of concentration during which his imagination, catalysed by the activity of painting, could probe most deeply into his subconscious. It was probably then Le Corbusier produced his remarkably sensitive poetic metaphors and associations» (1995, p. 11). In this sense, Sołtan sees sketches and visual exploration as a vital element, not only in Le Corbusier's designs and projects, but also in his theories and ideas. The importance of sketching and painting lies exactly in the possibility of exploring what yet needs to be determined and discovered. It means to work with rough ideas, which only later would become clearer. It becomes evident in the account of Le Corbusier's sketching next to Sołtan, when the former was to comment on mechanical pencils and more technical drawing tools saying, «*il ne faut pas immortaliser des aneries*» – one should not immortalise the "assinine" (1995, pp. 21-22).

The "assinine" refers to the attempts, trials, and uncertainties of the early stages of a design, when the drawings should leave enough space for interpretation and should not limit the further possibilities of development. To «immortalise the assinine» would mean to yearn too early for a definite line that prevents to alter the design. Indeed, Le Corbusier's sketches are called by Sołtan as «more his digging into the subconscious, his guessing, than a finished proposal» (1995, p. 18). It is also important to underline that Le Corbusier wanted to apply these methods in the atelier too – which could be easily understood from the imperative tone he used when talking about drawing tools. Differently from many functionalist designers, inclined to use more technical tools, Le Corbusier wanted to follow his "pictorial thinking" in the atelier (1995, p. 20). Therefore, Sołtan and other collaborators were not only expected to decipher his drawings, but also to continue to work in a similar spirit. As a result, Sołtan's own design workshop and artistic research stand as a manifestation of how this approach could be shared by others.

From Le Corbusier to Sołtan's workshop
Starting from the period of imprisonment in a POW camp in Murnau during the Second World War, Sołtan had always had close contacts with artists. In the camp, thanks to the high number of intellectuals and artists amongst the prisoners, he became close with a number of Polish painters, with whom he collaborated later in the 1950s (Bulanda 1996). During this
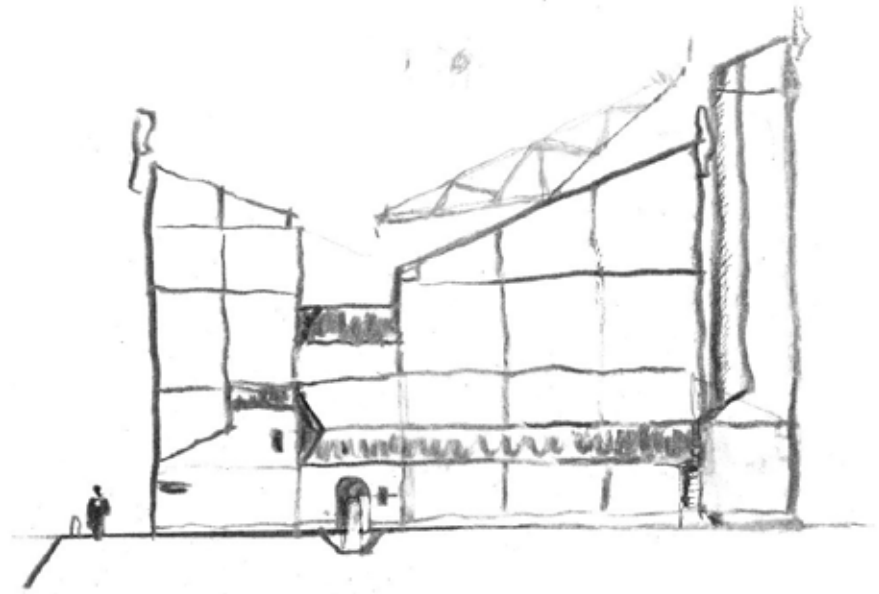
Fig. 2
Jerzy Sołtan, pencil sketch of a church (1990s).

very same period, he started to paint much more, probably using art as a cure for the harsh reality of imprisonment (Sołtan 2019). That said, the importance of art and visual research for Le Corbusier was aligned with Sołtan's prior experiences and interests, which resulted not only in a close professional, but also intellectual relationship between mentor and mentee. Both contacts with artists and Sołtan's own painting did develop during his stay in Paris: he was taking painting lessons under Fernand Léger, and he entered the circle of artists who were meeting at Le Corbusier's apartment (Sołtan 1995, p. 51). Sołtan's own writings from the 1950s indicate that he was still researching new methods and forms in art, studying paintings of various artists. In addition, a vast archive of his own artworks at the Museum of the Fine Arts Academy in Warsaw testifies of a constant research in visual arts, in parallel to his professional work as an architect.

In addition, he was also often producing charcoal-made sketches, similar to Le Corbusier's. A number of those relate to theoretical studies of churches (fig. 2), which he was working on continuously throughout the years until the 1990s. Similar charcoal-made drawings were produced for other designs, especially at the conceptual stage for a number of designs in Poland and the United States, such as 'Warszawianka' sporting centre in Warsaw or Salem High School in Massachusetts. For example, in the drawings from Salem, he used charcoal in order to visualise shadows, materials, and to accentuate some aspects of the design (for example, brickwork) without establishing precise patterns (fig. 3). As Sołtan explained in his account from Le Corbusier's studio, the lack of precision of these drawings were enabling him to work on the project gradually, being able to interpret some graphical signs left by charcoal on paper in more ways than in case of thin and precise pencil-made lines. In relation to this approach, one of Sołtan's collaborators in America, Edward Lyons, manager at the office where Sołtan was the main designer, recalls, «he would always do sketches on tissue with charcoal; he would not pick up a pencil or a marker. He always wanted yellow too. You could not give him a piece of white paper» (2019). These words relate directly to the sketching practice that Sołtan inherited from Le Corbusier – both charcoal and yellowish tissue or butcher's paper were often used in the atelier in Paris. However, Sołtan's
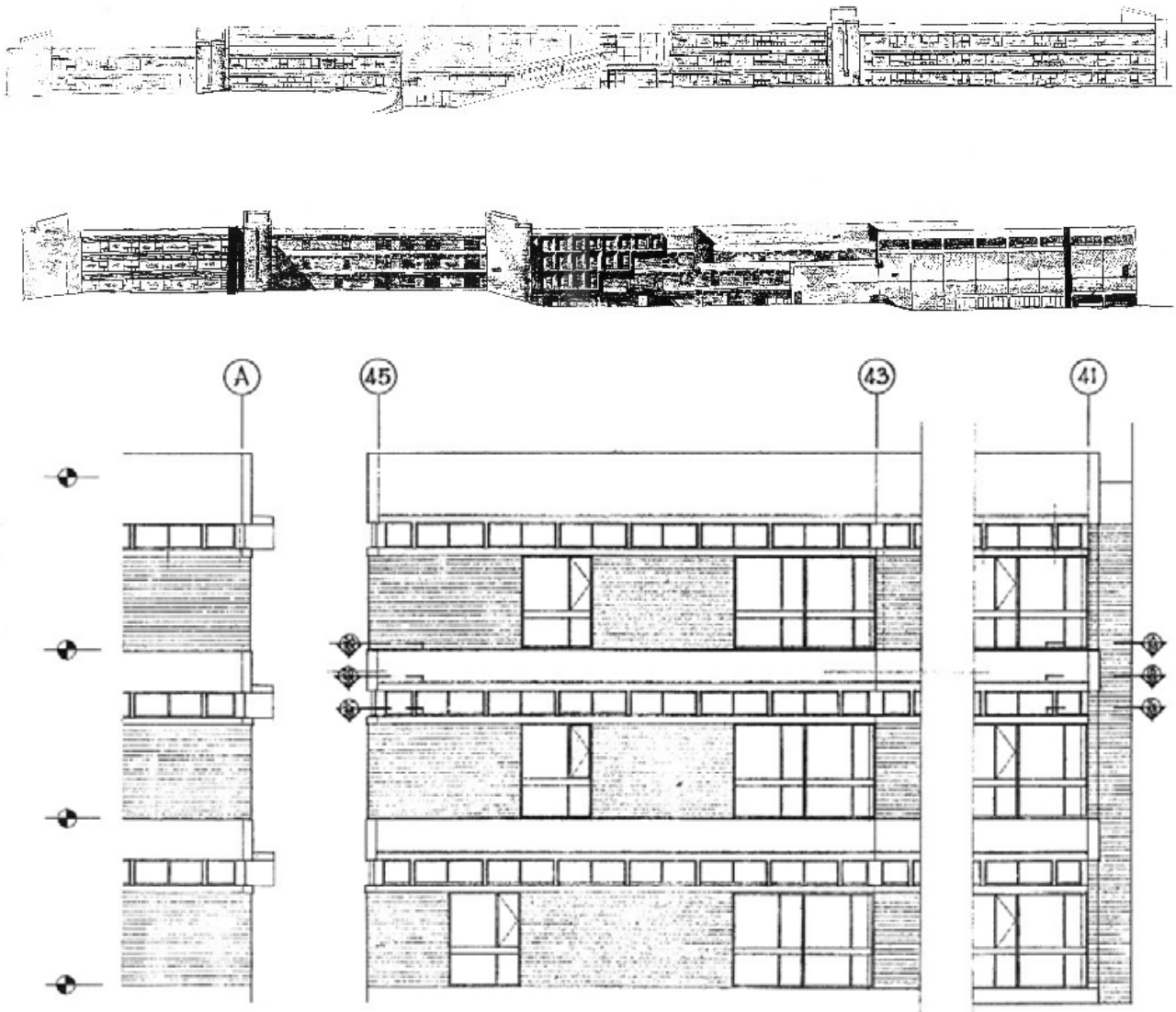
Fig. 3
Jerzy Sołtan, charcoal-made elevations of the Salem High School (1970-1976).

Fig. 4
Jerzy Sołtan, technical elevation drawing of the Salem High School (1970-1976).

approach was not limiting the use of drawing utensils to those preferred by Le Corbusier during the whole design process, but it was specific to the initial conceptual design, as later stages of development of these same projects normally did involve using more technical drawings (fig. 4).

Teaching Le Corbusier and "soft media"
The influence of Le Corbusier was not although limited to Sołtan's own design workshop: he did refer to the same approach and to the importance of visual research when he was teaching, and many amongst his students from Harvard still remember it from the design studios. Some claim that their interest in art and artistic work were nourished by Sołtan's influence at the school (Holtz 2019). Indeed, he was much interested in his students' artistic production – as is shown in his letter to his former student at Harvard, Michael Graves, where he states, «I personally want to compliment you particularly warmly in relation to your paintings» (1974). His contact and correspondence with former student and artist Jacek Damięcki on his work equally point to the importance of visual research for the development of an architect's mind according to him (2019). These contacts suggest therefore the existence of a thread of continuity of artistic method, coming from Le Corbusier, channelled through Sołtan and his teaching, and then passed on to the latter's students.

In general, these exchanges illustrate how much Sołtan's vision of architecture was drawings-driven and it implies how much the design process relied on drawing, painting, and graphical exploration. In his design studios at Harvard, specific drawings would become key features to students' projects. While some students remember working with plans, for others the focus was put on sections: the choice of drawings could have been then tailored to the specific needs of a given design or a given student (Davis 2021, Lombard 2020, Wattenberg 2020). However, regardless of the focus on a specific type of drawings, artistic expression was more important. Visual research was in fact helpful in defining the *parti* (a small drawing, which in the 1970s was a common reference in the design process at Harvard) and in defining the main concept idea coming from different layers of single problems. In addition, in theoretical modules at Harvard, Sołtan was both illustrating to the students Le Corbusier's daily routine and underlining the importance of painting for Corbusian architecture, reinforcing thus his suggestions for more artistically skilled students. «I want them really to know, to be able (if they wish) to apply [Le Corbusier's design method]», he mentioned in a note from his theoretical seminar.

Along with illustrating the importance of the visual research in the design process, Sołtan tried to propose the students to use similar drawing techniques while designing. The suggestion to use "soft media" – soft pencils, charcoal, clay – completed Sołtan's contribution to extending Le Corbusier's influence on his students. They were aimed to facilitate exploration of ideas and leaving the possibility for the imagination to complete a more generic drawing. The words «don't be so painfully precise», as he told one of his students, illustrate well this approach (Holtz 2019). According to Sołtan, only afterwards, after having worked with those more malleable techniques, more practical questions related to functionality, technology, and construction appeared, and more detailed drawings were of use. His former student and architect Karl Fender recalls his words from the first studio day (2020):

I want you all […] to buy clay, I want you to buy charcoal, and I want you to buy butcher's paper […]. We are going to explore ideas through these mediums, because you are going to get filthy hands, and you are going to have filthy drawings and rough lumps of clay to explore your thinking – and this will focus you on the essence.....you will be confronting the essence of the search for a truthful architecture. With these tools, you will not fall in love with your handicraft. You will have models that honestly and basically test your options and your explorations.

Through getting hands dirty, through drawing these undefined lines, there was more space left for exploring the essentials, the basics of architecture. In some assignments, he suggested the students to submit freehand drawings, and some students recall that their tendency to draw in a less precise manner, using charcoal or very soft crayons (fig. 5), was due to Sołtan's influence (Holtz 2019). As in his accounts from Paris, imprecise drawing during the first phase of design was a tool to find the ideas and to understand the poetics underlying the design. It was to detach the students from drawing beautifully something that was not enough cross-examined, making a direct connection between the design work, the concept (the *parti*), and critical thinking and questioning – referred by some as a constant element of Sołtan's reviews and discussions (Wesley 2006). Another student and architect Christopher Benninger explains this adding (2021), «his
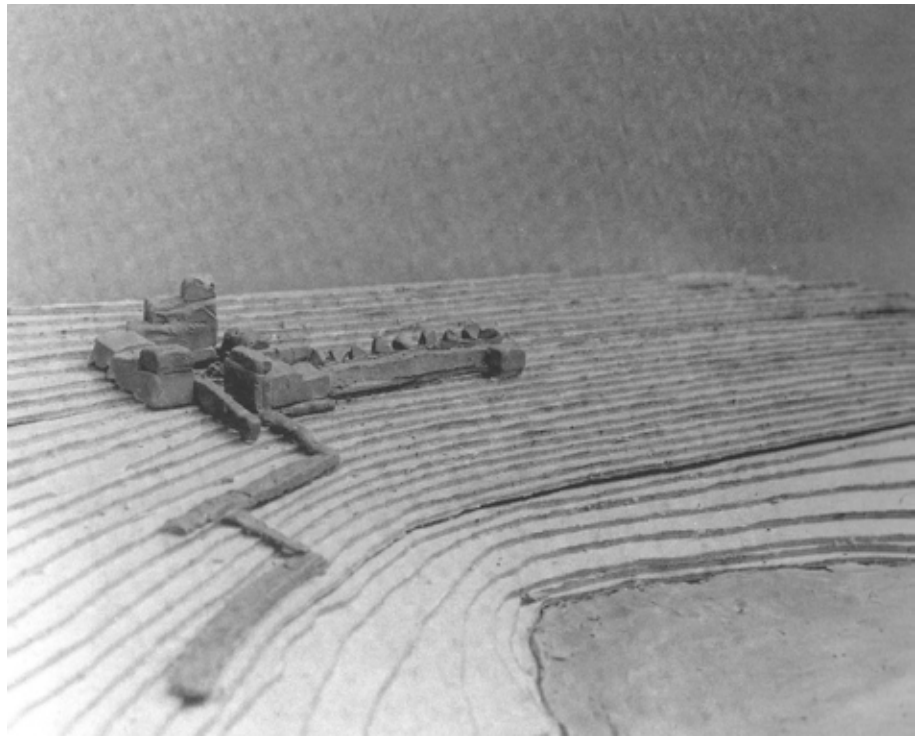
Fig. 5
Thomas Holtz, clay model of a 'space of spiritual retreat' design for Jerzy Sołtan's studio (1976).

technique was to ask the student a question that needed analysis to answer, and often it would be that there was no possible answer. That silence was the conclusion». Along with the drawings, constant questioning was then another tool, which helped the students to work at the core of their design decisions and push their ideas further.

Legacy: between Sołtan and Le Corbusier

Sołtan's teaching was widely recognised by his students. «I have won the lottery», commented David Parsons referring to him having Sołtan as thesis advisor (2016, p. 54). Amongst direct testimonies from his students, a number of them refer to passion, help, and intensity in teaching, and only a couple remember him as less sympathetic. In 2002, twenty-three years after his retirement from the professorship at Harvard, Sołtan was awarded with the Topaz Medallion, the highest recognition the American Institute of Architects and the Association Collegiate of Architecture Schools can give to an architecture educator. Although the award came years after he was teaching at Harvard, the backing was impressive, including support letters from Charles Gwathmey and Michael Graves, from Kenneth Frampton, and from architecture professors and deans from Harvard, MIT, and Berkeley. They all pointed to his contribution to architectural education by teaching modernism: «Jerzy Sołtan has brought to Harvard, and to other schools and forums, a sense that Le Corbusier, his own mentor and friend, has been alive for an extra generation» (Chermayeff 1989). It would have not been possible to keep Le Corbusier alive without the importance of visual art, without charcoal, and without getting hands dirty. As to whether his approach is still of value, one can refer again to Sołtan's former students, who admit to use their experience of being taught by him when teaching and designing themselves, even nowadays.

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Marco Moro
The Auckland Drawing School.
On the margins of architectural representation

Abstract
In the early 1980s, the School of Architecture of Auckland already known as "Drawing School" was operating on the far fringes of architectural debate and was experiencing the *theoretical turn* in the context of its teachings. One of the most influential theories on the possibilities of *deconstruction* of architectural discourse travelled with great success between the two hemispheres, shortly after Mark Wigley left the school upon completing his doctoral studies on the subject. What remains unnoticed, however, is the complicity between the affirmation of that theoretical thought and the well-established tradition of the school in the field of representation. Starting from an axonometric composition produced in those years, this contribution aims to examine the tense relationship between drawing as mental and material space, by revealing the unexpected possibilities of insinuating a real counter-argument within the same theoretical apparatus from which that composition seemed to derive.

Fig. 1
Eisenman Architects, analitical drawing (from Lateness, Princeton 2020).

One of the most recent written works by Peter Eisenman, undisputed champion of analytical drawings as applied to architecture and its theoretical contents, is edited with Elisa Iturbe under the title of *Lateness* (2020). This is a concept that, as the authors argue, goes far beyond the attempts of chronological framing of styles or of the *late* individual production of artists. On the contrary, this concept appears as a unique condition ambiguously suspended in time: «a late work can break historical narratives and cause time to become discontinuous» (2020, p. 19). In the perfect tradition of Eisenman's investigations, the concept of *lateness* is explored through the medium of axonometric drawings able to further magnify the «analytic frame devoid of function, technology, or social purpose» (2020, p. 4)[1]. The proposed axonometric analyses, in this case applied to the work of three authors united by an alleged *subconscious lateness* – Loos, Rossi and Hejduk – aim to reveal the formal structure behind the theory of fragmentation, with its well-known and canonized version pervading the late-1980s architectural discourse under the impetus of *deconstruction*. (Fig. 1) A decidedly less known aspect concerns the circulation of this theory between the two hemispheres, with Eisenman himself personally involved as external examiner of the doctoral project developed by a young Mark Wigley at the School of Architecture of Auckland, New Zealand: *The Deconstructive Possibilities of Architectural Discourse* (1986), conceived in a remote periphery of cultural interests, would be travelling from one hemisphere to the other very soon becoming one of the most influential architectural theories of contemporary times. Starting from this episode, this paper intends to investigate the agency of architectural representation within a peculiar context, the *theoretical turn* at the School of Architecture of Auckland,
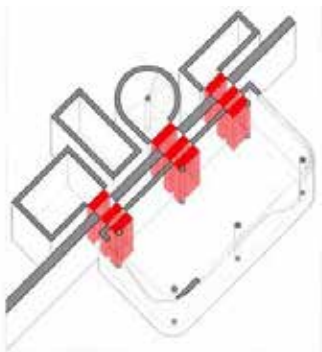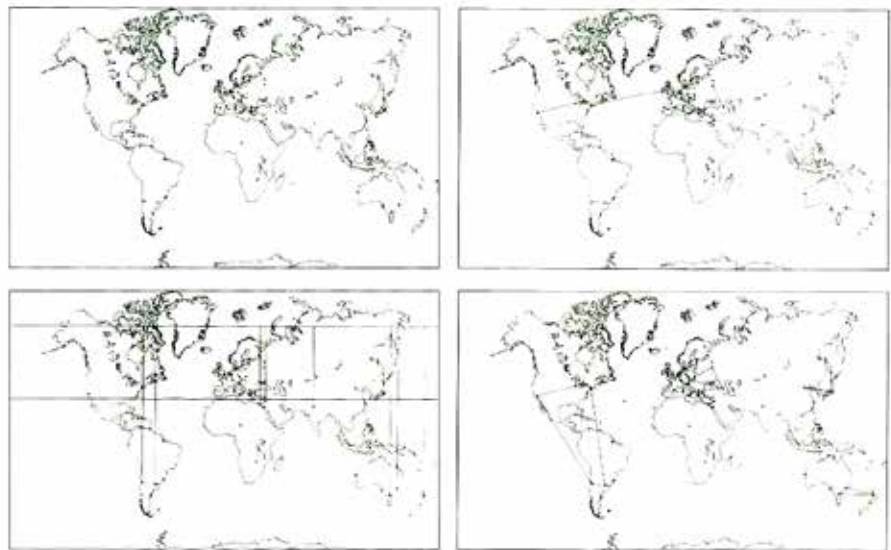
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Fig. 2
Exhibition The Auckland School, Centenary of the University of Auckland School of Architecture and Planning, Gus Fisher Gallery, 8 September – 4 November 2017. Photo by Samuel Hartnett (Courtesy of the University of Auckland School of Architecture).

Fig. 3
Mapping of the 43 architecture schools competing for the Venice Prize at the Fifth Architecture Biennale (from «Lotus International» 73, 1992).

already known as "Drawing School" in the South Pacific area.

The Drawing School. Opportunities and limits

Celebrated in 2017, the School's centenary was an opportunity to evoke its epithet earned over time. A warmly received exhibition and related publication (Gatley and Treep 2017) put on stage the extraordinary production of drawings held in the archives and premiered as the School's distinctive trait progressively refined over the hundred years of teachings in Auckland[2]. (Fig. 2) The Venice Prize at Quinta Biennale di Architettura (1991) stands out among the first international recognitions in this trajectory, awarded to a group of students that unexpectedly excelled with their work on the 43 schools of architecture in competition (Purini 1992). (Fig. 3) At the same time, a certain amount of self-criticism arises from the accounts of Auckland's former students confessing their immoderate fascination with the effects of representation, that is, complex geometric compositions with delicate shadings, transparencies, and hatches, so meticulously executed that the conceptual-argumentative fundamentals of their projects were obscured[3].

Among the various astonishing examples that confirm this tradition, a bare and discreet axonometric drawing finds a small space. This was produced

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Fig. 4
Axonometric drawing made by New Zealand architect Craig Moller, as a student of the design studio directed by Mark Wigley in 1985 in Auckland, New Zealand. (Courtesy of Craig Moller).
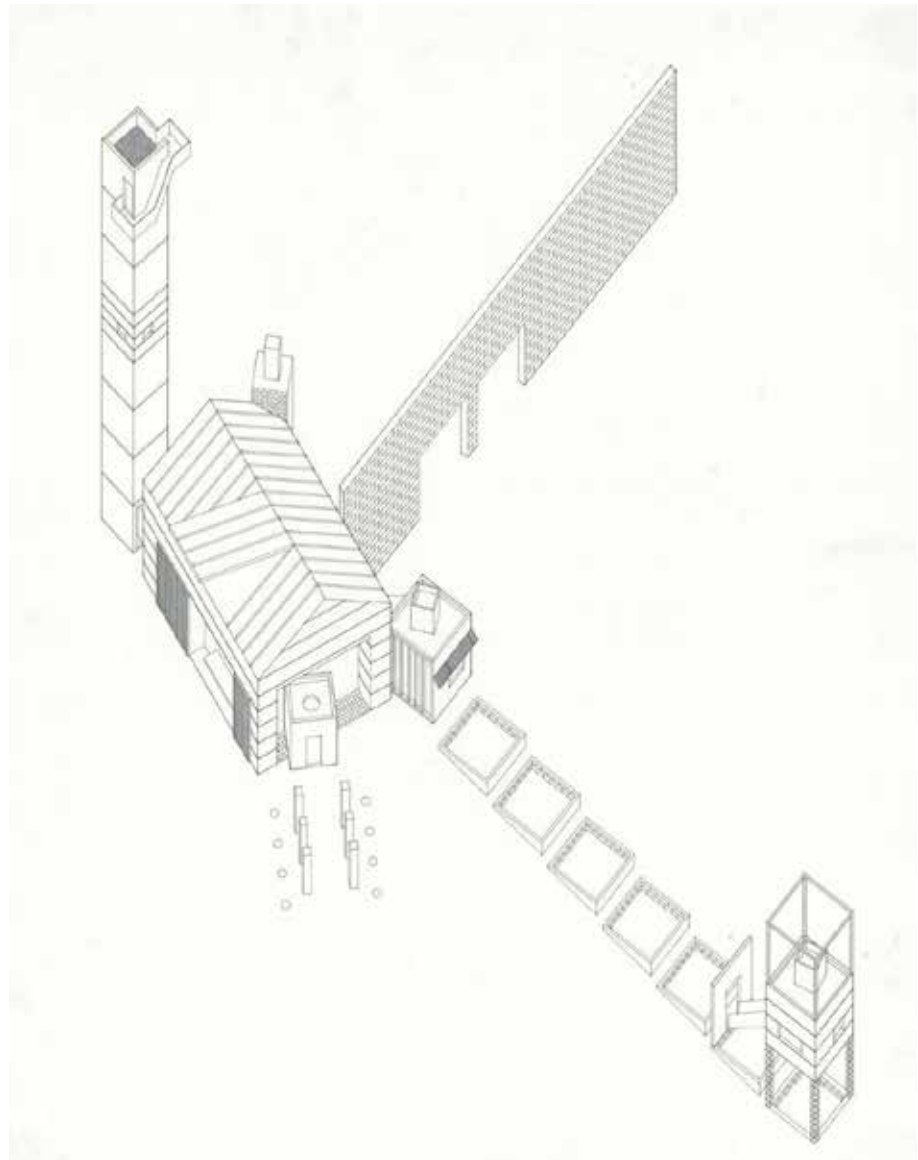
as a result of a design studio taught by Mark Wigley in 1985, that is, during the final stages of his doctoral studies. The author of the drawing is Craig Moller – currently director of Moller Architects that designed Auckland's iconic Sky Tower in the early 1990s – at the time involved in the School's complex transition from the obsessive production of «Caran d'Ache pastel drawings to hard-line analytical drawings»[4]. (Fig. 4) Indeed, this bare and discreet axonometric was part of a larger movement since a School's internal current began working to affirm the relevance of theoretical thought underlying architectural projects, supported but not dominated by those forms of representation that made a thought conveyable. It is important to note that Mark Wigley belonged to the first generation of students from the School moved by such an ambition, handed down to them by a small group of young teachers. His thesis supervisor Mike Austin was in the group along with other well-recognized figures – such as Ross Jenner and David Mitchell – though they weren't alone[5]. (Fig. 5) Sarah Treadwell, the first woman to be permanently integrated into the school staff, offered a crucial contribution towards a full-fledged *theoretical turn*. With her essay-manifesto *Architecture Drawing: A statement of Position* (1986), Treadwell claimed the potential of drawing in informing the most critical, speculative and argumentative dimension of architectural thought[6]. However, it is

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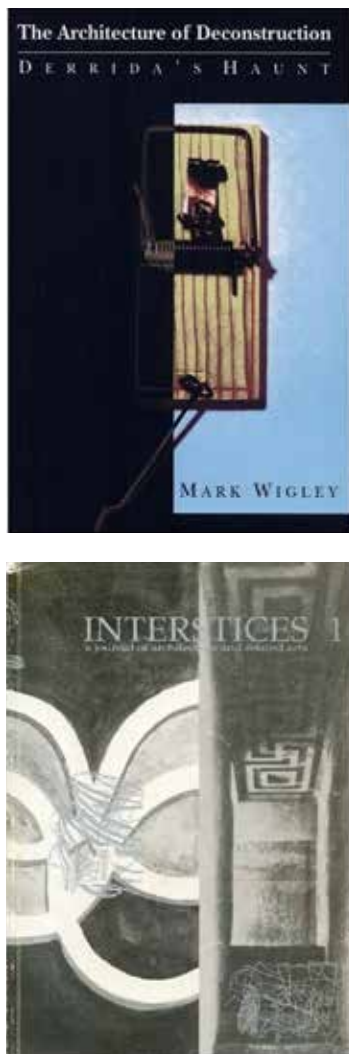On the margins of architectural representation

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Fig. 5
The Architecture of Deconstruction (1993) and cover of the first issue of the New Zealand journal «Interstice» (1990).

through a close analysis of Moller's axonometric – apparently marginal if compared with the restless period – that one can interrogate the complicit relationship between the solid affirmation of a theoretical thought and drawing as a penetrating tool to convey that same thought. This bare and discreet axonometric, hence, is not simply reconsidered to document the complicity playing in favour of *deconstruction* as one of the most influential theories of contemporary architectural discourse. In fact, scrutinized in its materiality, the drawing reveals unexpected possibilities of insinuating a counter-argument within the same theoretical apparatus from which it seems to derive.

The brief. On the pedagogy of analytical drawing
Moller's drawing is the result of a short-term design studio, at the second professional year in Auckland. It lasted about three weeks, at the end of which there was a dedicated time for the preparation of the drawings to be submitted for the final crits. The studio *brief* did not seem to be particularly informed by theoretical issues on *deconstruction* that Mark Wigley was deeply investigating. As Moller himself recalls, «there were no seminars on Derrida's philosophical thought to inspire our design proposals»[7]. It does confirm the main argument behind Wigley's work, that is to problematize the relationship between architecture, representation, and deconstruction by resisting the superficial appropriation of concepts from other disciplines (*bad borrowings*) and the simplified translations from theory to practice (*bad translations*). In an attempt to reverse this relationship by stimulating the contribution of architecture to the powerful deconstructionist theoretical framework, students were required to put into action a collision between two architectures arbitrarily chosen by each of them, that is to say, by resorting to one's own reference field inherent with the discipline as derived from one's own innermost memories. The explication of the collision process in the final composition was entrusted to a specific representation technique: «each drawing had to be axonometric […] We weren't allowed to draw in plan, or in section, let alone the perspectival sketches which were fairly dominant in the school at the time». The final draft was thus converted into a proper analytical device which aimed not simply at overcoming the experiential and perceptive approach rooted in the school. But it did so by purging the studio brief of all the information that would assimilate this experiment to a situated object in terms of *construction*, *function*, and *place*.

In the context of lateness. Reference field between Rossi, Judd and Gehry
Apparently, Moller's axonometric composition obeys all the studio brief instructions. It should also be considered that the previously described analytical approach acquires a specific and deeper meaning in the context of New Zealand's marginalization. The construction of a disciplinary field of references suffered the vast distance from the official distribution centers of architecture debate and the consequent impossibility of finding updated information[8]. However, it is precisely this delay in the flow of information – a suspension in time or *lateness* – that the most original recombinations can benefit from, such as the one represented in the axonometric drawing in question. In concrete terms, the potential of analytical approaches seem the more appropriate in order to evade the passage of time in a context of isolation such as that of New Zealand, rather than making choices based
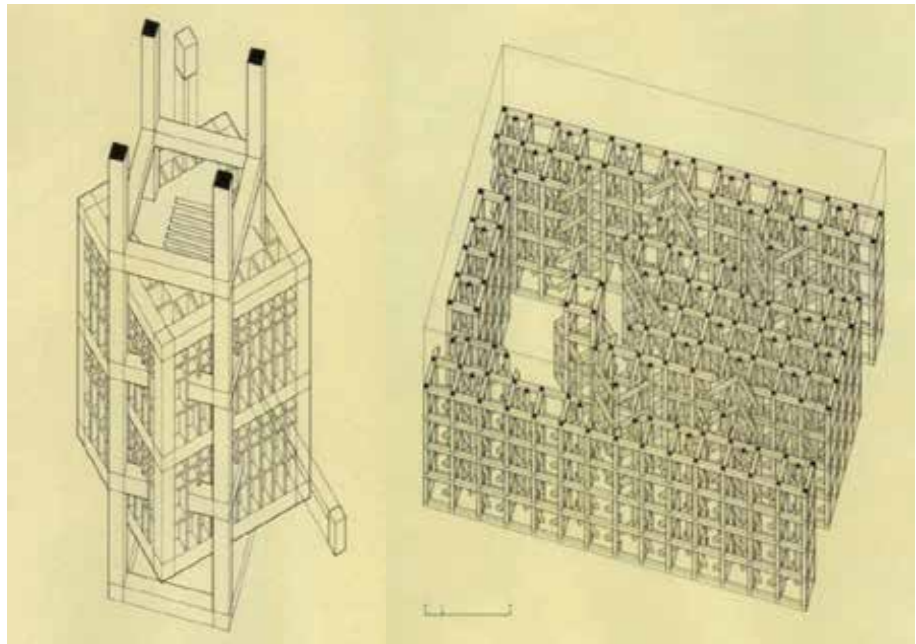
Fig. 6
Stanley Tigerman, axonometric drawings for the Formica company, 1986.

on the updatedness of a given architectural language. (Fig. 6) It should be emphasized that, by admission of its own author, the compositional process elaborated by Moller was to some extent influenced by Aldo Rossi's thoughts: «I was certainly aware that the hay barn at the center of the composition was the *archetype* of New Zealand […] and besides Rossi's typological intuitions I was incredibly fascinated by those late concepts exposed in his *Scientific Autobiography*»[9]. Indeed, analysing the content of the axonometric composition we can easily recognize the typical hay barn surrounded by other fragments: some of them are memories recovered by the author – the imposing block wall – while others derive from his disciplinary field of reference. For instance, the ordered sequence of cubic elements was inspired by Donald Judd's sculptures which started to circulate in the early-1980s art magazines, while the watchtower-like structure that creeps into the lower corner of the composition is extrapolated from the Norton House in Venice, California (1983-84) designed by Frank Gehry.

The sphere of influence of the whole composition appears so complete, as for Wigley's intent of «exporting the qualities of architecture» (2002, p. 92) using drawing as a textual and argumentative practice in the field of deconstruction. In addition to this, the Rossi-inspired paratactic configuration of 'pieces' and 'parts' – in the terms expressed by Ezio Bonfanti (1970) – might suggests the repositioning of this drawing scattered across the extreme periphery of architectural debate as an excellent example of the time. What goes unnoticed, however, is the tense relationship between drawing as a mental space for formulating architectural thoughts and its material consistency resulting from the method of representation which has been adopted as an agent to impact the design process itself. In other words, this tension makes the agency of drawing explicitly operational by insinuating a counter-argument into the initial *brief* and calling into question all those aspects that were intentionally left out.

Between lines. Construction, function, and place
While the rapidographer's geometric and sharp trait enhances the required analytical approach, the varied treatment scrupulously applied to the drawing's textures betrays the author's intention to convey a piece of information on the constructive aspects of the architectural fragments that participate in

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Fig. 7
Enlargement of Craig Moller's drawing which highlights the material qualities and the domestic character of the fragments represented.
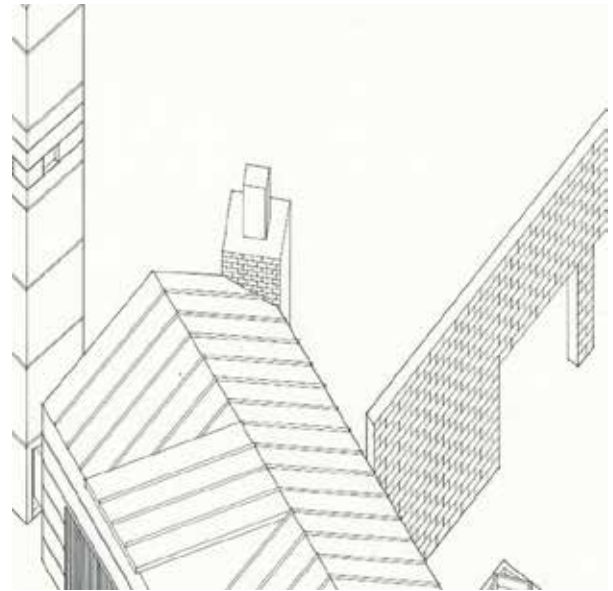

Fig. 8
Manifesto of the Group Architects, "On the necessity for architecture", 1949 (Courtesy of Special Collections, Libraries and Learning Services, University of Auckland).

the axonometric composition. The size of the blocks is easily measured in the slanting wall and in the cubic elements inspired by Judd's sculptures, as well as for the cross-hatching as applied to the cladding: «I was obviously aware of how to describe the New Zealand hay barn, and how to put all the constituents of its materiality on paper: light timber frame, metal cladding, wide openings and sliding doors often mounted on the outside […] I'm pretty sure that all this knowledge about construction wasn't part of the studio. But it was definitely part of the *two architectures* I chose for the drawing, and of all the other fragments that compose it». This revelation sounds quite interesting when compared with a certain obsession with those constructive aspects typical of Kiwi architectural culture, which for Wigley had represented the greatest obstacle to the development of radical architectural thinking in the country (Wigley 1986; Barrie 2013). In this sense, *function* was also seen as a limiting attribute to the point of being neglected in the studio brief. The detail of the brick chimney scratching a corner of the hay barn, however, insinuates a sense of domesticity in the use of the space with the archetype of the barn suggesting alternative ways of living (Fig.7). Moller recalls that, although no function was initially established, «the final result is an inhabited space made up of three autonomous elements that define three different areas/functions»[10]. It must be said that, however generic, the act of declaring a residential function offered a contingent response to the New Zealand context, in the constant search for alternatives to the settlement model of detached-houses. This lively and rich debate dates back to the Group Architects' manifesto (1949)[11], (Fig.8) later reinterpreted and radically applied by New Zealand architect Ian Athfield on the Wellington hills. Although it was not explicitly included in the reference field of Moller's axonometric composition, the Athfield House-and-Office (1965) stimulated collective forms of living and working in a built complex made of *pieces* and *parts* as a result of an incremental process – still in progress – which explored the housing topic on a large-scale in a completely unprecedented way[12]. (Fig. 9) The large-scale is that of the *landscape*, the third element inextricably connected with New Zealand architectural culture and subtly insinuated into Moller's axonometric composition through a nearly imperceptible detail. The analytical approach enhanced by a rigorous line drawing did not prevent the author from signalling the inclination of the lines that define the orderly disposed sequence

Fig. 9
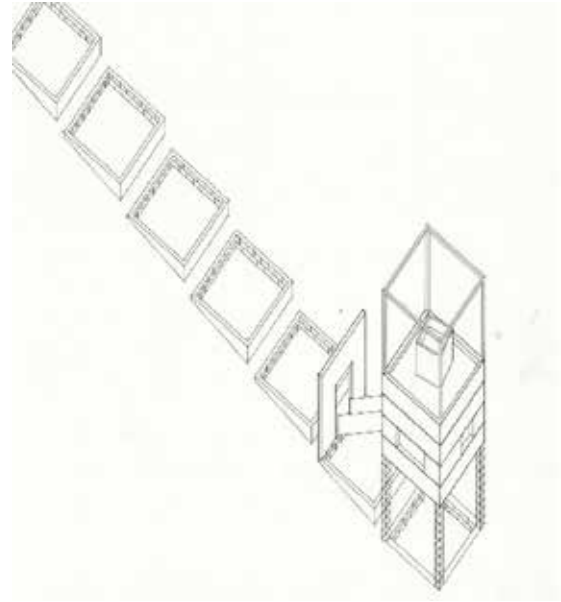Athfield House-and-Office (re-design by the author).

Fig. 10
Enlargement of Craig Moller's drawing showing the natural slope of the ground.

of cubic elements. This simple gesture provide us with more information on the slope of the ground above which the composition is arranged, and its specific location (Fig. 10): «I well remember that those kind of architectural investigations weren't *site-specific*. However, when I did my final submission that included this drawing, I did select a site». The composition suddenly becomes a situated object in the Chatham Islands, that is the easternmost point of New Zealand. Apart from the mostly uncontaminated hilly landscape that inspired the author's choice, the geographical position is that of a place suspended in space, but especially in time, since a gap of 45 minutes on Aukland makes the Chatham Islands the first inhabited land to inaugurate a new day every day: «The Islands are, if you like, between New Zealand and the rest of the world. That was also the same principle according to which I positioned my proposal for Mark's studio, namely between the New Zealand hay barn and the Judd's sculptures, or the other fragments from my memory. I believe the same was true for the architectural theory discourse that informed this drawing, I mean, not necessarily a theory of New Zealand architecture, but a theory about architecture which embraced New Zealand for the first time».

In conclusion, leaving in the background the long conflict between adherence and resistance towards different representation techniques, this apparently peripheral episode brings to the center the crucial role of drawing in the formulation of architectural thought. Not only as an instrument to legitimize a theory as such, but as a privileged territory of contestation as happened in the case of one of the most influential theories that have travelled between the two hemispheres.

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Notes

[1] Eisenman is certainly not the only exponent in the use of axonometric drawing, but he is certainly among those who have enhanced its analytical function in complicity with theoretical thought. This analytical approach, Eisenman recalls, dates back to the time of his doctoral research *The Formal Basis of Modern Architecture* (1963), deeply conditioned by Colin Rowe's teachings in representing what is *missing* in architecture rather than what is already clearly visible.

[2] The publication edited by Julia Gatley and Lucy Treep (2017) contains a dedicated section entitled *100 Years of Drawings*.

[3] Andrew Barrie, currently professor at the School of Architecture and Planning of Auckland, reports in detail on the students' approach at the time: «They would hunch obsessively over a few sheets of mylar or expansive watercolour for weeks, clutch pencils and fanatically 6H leads in hand. This could go to extremes […] students would skip straight from conceptual thinking to presentation drawings to allow more time to draw» (Barrie 2017, p. 108).

[4] Craig Moller, interviewed by the author on 13/11/2020. In general, this contribution is structured on the basis of the author's on-site studies, that is, visits, archival research, and conversations with the protagonists of the local debate.

[5] Ross Jenner obtained his PhD on Italian Modernism at the University of Pennsylvania under the supervision of Joseph Rykwert, then he founded the New Zealand magazine «Interstice» to promote the theoretical discourse on architecture. In the same years, David Mitchell was co-author of *The Elegant Shed: New Zealand Architecture since 1945* (and of the homonymous television series).

[6] Sarah Treadwell, who currently continues to work as a New Zealand-based artist, obtained her first teaching appointment in the field of drawing and representation in 1981, as a result of the heated protest of the activist group *Woman in Architecture* formed in 1979.

[7] This is also confirmed by Wigley himself: «In my own teachings, I have never asked students to read a single text by Derrida, despite having devoted a decade of my life thinking about his work» (2002, p. 93).

[8] In a recent conversation with Julia Gatley (*Fast Forward lecture series* - Spring 2021), Wigley traces his first intuitions on deconstruction in the architectural field to the brief encounter with Stanley Tigerman who occasionally visited New Zealand at the invitation of the Formica company (1984). In fact, his visit was highly anticipated since Tigerman was among those who were literally manipulating the late modernist architectural discourse (the *Titanic* collage depicting the sinking of Mies' iconic architectures was already famous), but the inability of the school to hold the guest for a reasonable period of time sparked a student revolt against the limitations of isolation. That same year, isolation was mitigated through the foundation of SAHANZ (Society of Architectural Historians, Australia and New Zealand).

[9] Moller deepened these studies in his two years of Masters at Yale, where the English translation of Rossi's *Scientific Autobiography* published by «Oppositions» was circulating since 1981.

[10] Reference is made to the barn as a living area, the raised structure of the watchtower as a studio space and the bathroom located on the ground floor of the back tower.

[11] From the Group Architects' manifesto, the first expression of New Zealand modernism, we can read: «New Zealand must have its own architecture, its own sense of what is beautiful and appropriate to our climate and conditions […] We New Zealanders live in a chaos of unplanned speculative building under an unthinking, self-seeking system of land sub-division». On this subject see Gatley (2010).

[12] The Athfield House-and-Office came to house 40 residents and 25 workers.

M. Moro, The Auckland Drawing School.
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M. Moro, The Auckland Drawing School.
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Michele Valentino
**Figuration before form, diagrams and form drawing
in the work of Louis I. Kahn**

Abstract
Through exploring some of Kahn's works, the essay aims to demonstrate the deep connection between drawing-diagrams and the realized work, where form materializes through the figuration of its simple patterns.
To clarify this potential for listening, the essay addresses the dimension of drawing in the work of Louis I. Kahn. In his design research, the architect understands and uses the interpretive power of diagrams, which, in the book *Louis I. Kahn: Conversations With Students* (1998), calls "form drawing". A thought-form considered fundamental to the Estonian architect, who from the 1960s onward would use this diagrammatic tool as a measure for investigation in defining potential forms of architecture.

Drawing and process
Regardless of the system of representation used, architectural drawing can never fully collimate with the experience of the built reality. Drawing, whether in its expressive dimension – the sketch – or in its descriptive dimension – the technical and digital representation – can exclusively identify a foreshadowing of the possible.

The materiality of drawing opens up new possibilities of representation to identify the potentialities connected with it. As Tomás Maldonado argued in his book *Critica della ragione informatica* [Critique of informatics reason] (1999): we need to overcome the rhetoric of 'technophobia' and 'technophilia', seeking to make the foundational statutes of the disciplines dialogue with the evolutions and dynamics of society, building a living and open environment capable of constructive co-evolution.

To identify the most appropriate tool to represent architectural design, one cannot operate in a predetermined manner but opt for a choice that is open to the many variations that arise from time to time. In this framework, besides being a collective and symbolic language, drawing also expresses a subjective dimension.

As Francesco Cervellini reminds us, drawing constitutes the main place of design formation, «the irreplaceable place of design formation»[1] (2016, p. 759) that offers an answer to the questions that architecture poses. A few years earlier, Roberto de Rubertis also reminds us that drawing is: «something more than a tool external to the designer, something other than an autonomous 'tool'. On the contrary, it becomes an integrated 'peripheral' of him [...] It becomes a temporary archive of memory»[2] (1992, p. 2).

It is continuing in the words of Paolo Giandebiaggi (2019), who defines

Fig. 1
Louis I. Kahn, St Mark's Basilica, Venice, 1951, pastel on paper, 31.7 x 39.4 cm. Sue Ann Kahn / Art Resource, NY. (Mansilla, 2001, p. 30).

Fig. 2
Louis I. Kahn, Parthenon's Interior, Athens, 1951, pastel on paper, 28.6 x 35.6 cm. Architectural Archives of the University of Pennsylvania - Stuart Weitzman School of Design. (Mansilla, 2001, p. 83).

drawing as an «intersection of reflection and memory [that] is expressed in the course of ideation in four phases: preparation, incubation, lighting and verification» (2019, p. 98). An incubation (the sketch) precedes the more purely descriptive phases of the project (preliminary, final and executive design) and often follows the moment of preparation (the survey). A moment, that of the sketch, which intuitively gathers the information and stimuli that the project will potentially develop.

The drawing for Luis I. Kahn
As it is easy to imagine, for Louis Isadore Kahn (1901-1974), all the stages involved in drawing as a design process are well defined and present in his work. Suppose the more operational and descriptive stages of design

drawing are neglected. In that case, it can be said that the relationship that the Estonian architect established with drawing is an intimate one and, at the same time, one of potential research.

As evidenced by Jan Hochstim's (1991) catalogue of most of Kahn's paintings and drawings, the investigative dimensions of Kahn's drawings are multifaceted. One example is the influences of Louis Lozowick's 1930s lithographs in determining his early style of representing reality. This phase of his formation highlights the restlessness that characterized his early years of training and forced him to draw on different sources of inspiration (Montes Serrano & Galván Desvaux 2016). Also, considerable interest is his carnet de voyage and various drawings on board that testify to his travels in Europe from 1928 to 1929 and to Italy, Greece, and Egypt from 1950 to 1951 (Mansilla 2001) (Figg. 1, 2).

In these notebooks, the watercolour, pastel, and pencil drawings reveal rapid style changes, testifying to the simultaneous process between an evolving way of drawing and an understanding of the architectural shape of the individual objects represented. Reflections later reformulated in Kahn's subsequent architectures, showing how the work on the sketches achieved an extreme synthesis between modernism and the historical form that distinguishes his work (Johnson et al. 1996).

This second phase of his, related to travel drawing, provides us with an amazing body of work. Far from the rigour of his buildings, these sketches are veiled by an air of romanticism that closely resembles the work of artists who strongly inspired him, such as Henri Matisse (1869-1954) and Pablo Picasso (1881-1973).

With this experiences-drawing, Louis Kahn laid the foundation for what will be a close connection to his design experience. A potential for listening, between drawing and design, continually fed by practice, in an attempt, on the one hand, to define a style of his own in the making and, on the other, to identify a way of researching what will be new architecture.

Only from the 1960s onward does the search for the 'form' of architecture for Kahn become a requirement. In the text Beginnings: Louis I. Kahn's philosophy of architecture (1984) by Alexandra Tyng – the architect's daughter – the development of Kahn's thought is also chronologically illustrated in relation to previously unpublished correspondence and notes.

In this regard, a diagram-scheme (Fig. 3) explains the architect's position very well. This manifests as the result of two opposite desires, the 'Feeling' and the 'Tought'. Its realization, as a union of 'Realism' and 'Philosophy', leads to 'Form', as a 'Measurable Project.' A dream that becomes reality that needs to translate all the mental images of inspiration into tangible reality (Desvaux & Tordesillas 2017).

Concerning the form search, the dimension of drawing assumes a key role in interpreting his work. On the one hand are the drawings for 'Feeling', like the previously illustrated ones made in the early phase of his training and travels. On the other side are the drawings for 'Tought'. A thought that manifests itself through drawing, or as Franco Purini reminds us, «drawing is thought itself, indeed it is the fundamental form-thought of the architect, the elective place in which form appears, and in its purest and most enduring essence»[3] (2007, p. 33).

The words chosen in his diagram are not used symbolically, but almost as theoretical constructs they are meant to represent. 'Form' is not strictly related to the physical configuration of the represented object, but indicates a guiding tool within which the project can unfold. Similarly, 'Realization',
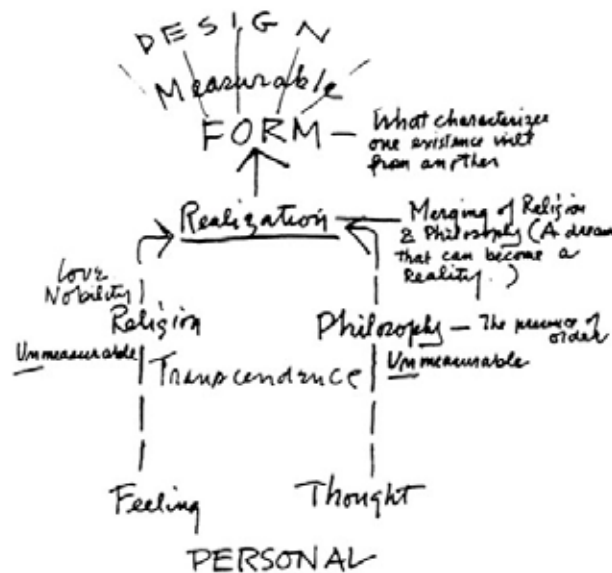
Fig. 3
Louis I. Kahn, On the creation of Form, 1960. (Tyng, 1984, p. 30).

which precedes 'Measurable Project', does not indicate the physical restitution of something in the world of the real; but is limited to the meaning that allows a drawing to be transformed into something approaching an enlightened concept. Kahn's definition of 'Realization' is closer to the sense of revealing something that was previously hidden and unknown.

Kahn clarifies the relationship between 'Form', as a guiding concept operated through drawing, and 'Design', which emerged most clearly in the early 1960s. In the second period of his design research, Kahn understood and used the interpretative power of diagrams, which, in the book Louis I. Kahn: *Conversations With Students* (1998), calls "form drawing".

'Form' becomes impersonal, an inexpressible source, underlying the subordinate order that in the project is transfigured into the determination to want to be what architecture requires.

The architect's habit of resorting to diagrams as 'form-drawing', or with form-thinking makes clear his desire to arrive at figuration through a series of steps, not consequential, that accommodate a series from time to time of problems internal to the project. With these diagrams, he interrogates architecture, asking it what it wishes to become.

'Form drawing' as form-thinking

Clarifying the use of *Form drawing* is the two examples cited in an interview published in 1961 in issue seven of *Perspecta* journal published by the Yale School of Architecture. On the one hand, a project that was never built, the *Goldberg House* (1959) in Rydal, Pennsylvania, and on the other, the events of the *First Unitarian Church* (1959-1969) in Rochester, New York State.

Using simple geometric shapes accompanied by textual annotations allows him to explore the layout of the various rooms. The example of the house diagrams appears symbolic of the project's development, which foreshadows the space's nature even before its form is fixed. The comparison between the square and the dynamic tension of the diagonal challenges the orderly system of the regular form.

Similarly, at the first meeting with the congregation, Kahn presented his famous *Form drawing* diagram illustrating the concept he had developed for the spatial configuration and functional diagram of the building. It im-
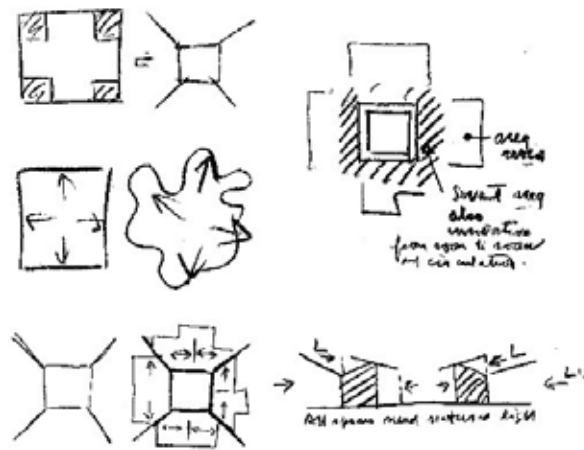
Fig. 4
Louis I. Kahn, Form drawing of the Goldberg House, 1959, Pencil on paper. Louis I. Kahn, University of Pennsylvania and Pennsylvania Historical and Museum Commission. (Kahn, 1961, p. 13).

pressed the assembly so much that, given its expressive and persuasive power, it succeeded in realizing the initial concept.

As is also evident in the drawings, the design of the First Unitarian Church had several evolutionary stages. The first began in July 1959 moment of the commission, and ended in December 1959 when Kahn presented his first diagram drawing, entitled by the architect himself "First Design" (Fig. 5). In the act of describing it, the architect himself tries to give the reasons for its conception and first draft: «A square, the sanctuary, and a circle around the square which was the containment of an ambulatory. The ambulatory I felt necessary because the Unitarian Church is made up of people who have had previous beliefs» (Kahn 1961, pp. 14-15).

In the second phase, after the rejection of the first design, Kahn considered separating the school buildings from the church (Fig. 6). The third phase began from the spring of 1960 until June 1961 (Fig. 7), when the congregation approved Kahn's final solution (Dogan & Zimring 2002).

Despite the different spatial solutions identified, it seems puzzling how faithful the final design (Fig. 8) is to that concept identified at the beginning.

Both cases examined show the synthetic ability to prefigure form before identifying the final form of the building.

As László Mérö states in his essay *I limiti della razionalità. Intuizione, logica e trance-logica* [The limits of rationality - Intuition, logic and trance-logic]: «in Western culture, a purely rational form of intelligence, based on logic, has gained a dominant role [...] this kind of thinking [...] has undoubtedly proved its raison d'être and power»[4] [Mérö, 2005, p. 8]. Likewise, however, it can be said that there are other forms of knowledge.

In the drawing, the descriptive and prescriptive dimension, as a privileged quality, has predominated in our society. Whereas, the investigation of the characteristics of indeterminacy of form, which allow us to move in reading realities oscillating between what is and what could be and which are not governable only through predetermined rules or given prescriptions, has often been sidelined.
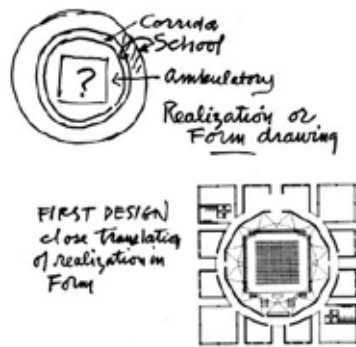
When associated with the qualities of indeterminacy, drawing – or rather than the project sketch – allows one to participate in that abstraction of form that shows the potential of the architecture that will be or can be (Valentino 2020).

**The value and purpose of the sketch for the project**

As illustrated above, in the first period of research and education, from 1931 to 1960, Kahn focused on the potential of drawing as a thought-form

Fig. 5
Louis I. Kahn, Realization or form drawing and FIRST DRAFT, 1959. Pencil on paper. Louis I. Collection. Kahn, University of Pennsylvania and Pennsylvania Historical and Museum Commission. (Dogan & Zimring, 2002, p.50).

Fig. 6
Louis I. Kahn, Spatial alternatives, 1959. Pencil on paper. Louis I. Kahn, University of Pennsylvania and Pennsylvania Historical and Museum Commission (Dogan & Zimring, 2002, p.50).
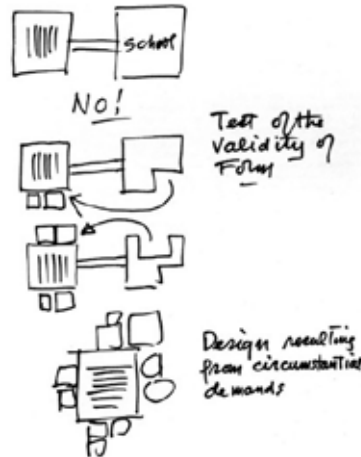
Fig. 7
Louis I. Kahn, Explanatory diagram of the relationship between spaces, 1961. Pencil on paper. Louis I. Kahn Collection, University of Pennsylvania and the Pennsylvania Historical and Museum Commission.
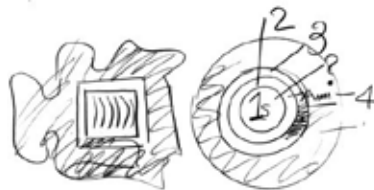

that makes the ontology of architecture tangible; in the second phase, from 1960 to 1974, he investigated the more spiritual aspect of drawing for design.

The same author in *The Value and Aim in Sketching* (Kahn 1931) reminds us of the importance of sketches in addressing design problems. They do not constitute a crystallization of thoughts on paper but are to be understood as questions awaiting answers for design action.

In the last phase, Louis I. Kahn makes instrumental use of the sketch. That is, he translates it into a device of inquiry. An instrument that starts from what might be called a design process and proceeds by diagrams. Diagrammatic drawings are very far from the theory of diagrams that has always belonged to the culture of the Modern Movement, where the design of space is resolved through functional diagrams. Instead, Kahn's diagrams – *Form drawings* – become a procedure for graphing spatial relationships between parts. An ongoing interrogation of the potential of architecture.

Reading through the sketches of the architect's two works-the – the Goldberg House (1959) and the First Unitarian Church (1959-1969) –enables us to demonstrate the deep connection between the use of drawing-diagrams and the completed work, where form materializes through the figuration of its simple patterns.

Form drawing is, for all intents and purposes, a fundamental thought-form
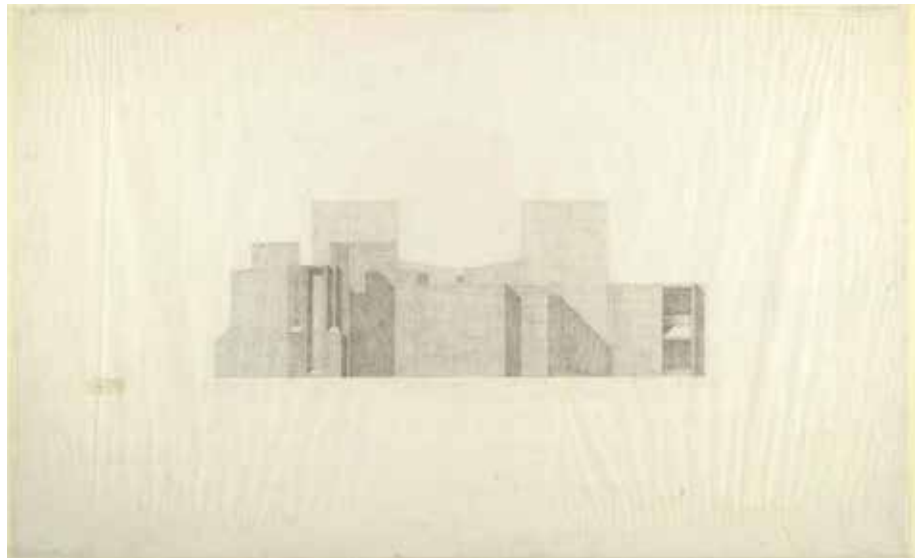
Fig. 8
Louis I. Kahn, First Unitarian Church and School, Rochester, New York, Final version: elevation, pencil on paper, 1961, 41 x 69.9 cm. MoMa New York (407.1964). Last accessed October 20th, 2021 <https://www.moma.org/collection/works/565>.

for the Estonian architect who takes on the operational dimension to investigate potential forms of architecture. A primal condition immediately brings a figuration, which in the later stages of drawing allows a gradual approach to the final shape.

Today, in an age heavily influenced by the representation of architecture through computer tools, the device of the sketch still opens up possibilities for investigation. As Kahn's lecture shows us, some occasions should be sought to increase the spectrum with which the potential of drawing dimensions unfolds.

Note

[1] The text is a translation by the author, the original one in Italian is as follows: "il luogo insostituibile di formazione del progetto" (Cervellini 2016, p. 759).

[2] The text is a translation by the author, the original one in Italian is as follows: "qualcosa di più che uno strumento esterno al progettista, qualcosa di diverso da un 'utensile' autonomo. Diventa al contrario una sua 'periferica' integrata […] Diventa un archivio temporaneo della memoria" (de Rubertis 1992, p. 2).

[3] The text is a translation by the author, the original one in Italian is as follows: "il disegno è pensiero esso stesso, anzi è la forma-pensiero fondamentale dell'architetto, il luogo elettivo nel quale la forma appare, e nella sua essenza più pura e durevole" (Purini 2007, p. 33).

[4] The text is a translation by the author, the original one in Italian is as follows: "nella cultura occidentale, una forma puramente razio¬nale dell'intelligenza, basata sulla logica, ha conquistato un ruolo dominante […] questo tipo di pensiero […] ha senza dubbio dimostrato la sua ragion d'essere e la sua potenza" [Mérö 2005, p. 8].

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Giuseppe Di Benedetto
Space, shape, material, context
The perpetual lesson of Távora

Author: *Fernando Távora*
Edited by: *Carlotta Torricelli*
Title: *Dell'organizzazione dello spazio*
Language: *italian*
Publisher: *nottetempo srl, Milano*
Characteristic: *24x14 cm, 192 pages, paperback, black and white*
ISBN: *978-88-7452-915-5*
Year: *2021*

Fernando Távora is certainly the initiator, the founder and the creator of what is recognized as the School of Architecture of Porto. A School that is the expression, today, of a palingenesis of contemporary Portuguese architecture and, perhaps without exaggeration, of a worldwide architectural neo-renaissance at the turn of the 20th and 21st centuries. The *magister* par excellence, the one who traces the first furrow of the road that will be, later on, travelled by the Descendants – the architects Alvaro Siza Vieira and Eduardo Souto de Moura - but with the dual and antithetical vision of one who knows that the goal is reached by constantly looking forward and, at the same time, backwards, to his own formative experience and to the legacy of the perpetual lesson of the Master.

All these topics makes Carlotta Torricelli's curatorship particularly interesting, allowing, for the first time in Italy, the translation (by Torricelli herself) and publication of Fernando Távora's 1962 essay *Dell'organizzazione dello spazio* (*Da Organização di Espaço*) in its first printed edition of 1982. And despite the warning expressed to the reader by Nuno Portas, in his preface to the 1982 edition itself, not to consider Távora's essay as the expression of the outcome of "a research work" or "the systematization of a didactic modality" or, even more so, "the moment of maturation of the theoretical and practical aspects of the profession", it certainly cannot be reduced to a text "of circumstance", linked to the mere contingency of an academic competition, or the «dissertation for the competition for associate professor in the Higher School of Fine Arts in Porto»[1].

It is not a coincidence that from the title chosen for her introduction to Távora's book, "The Encounter between Life and Form in Architecture. Actuality of Távora's thought', Carlotta Torricelli intuits the 'Maieutic' role of the Portuguese master's work. A maieutic, that of Távora, which, however, rather than Socratic and unidirectional appears marked by that reciprocity approach later defined by Danilo Dolci[2]. A posing of questions generated by self-knowledge and the contextual reality that surrounds and pervades the individual. The pedagogical value of Távora's writing, appears, as repeatedly emphasized by Carlotta Torricelli, evident and aimed at the transmission of the logic of making architecture, according to a conception of architecture itself in its only possible dimension: that of a "humanistic" and "holistic" expression, in the broadest sense. In this meaning,
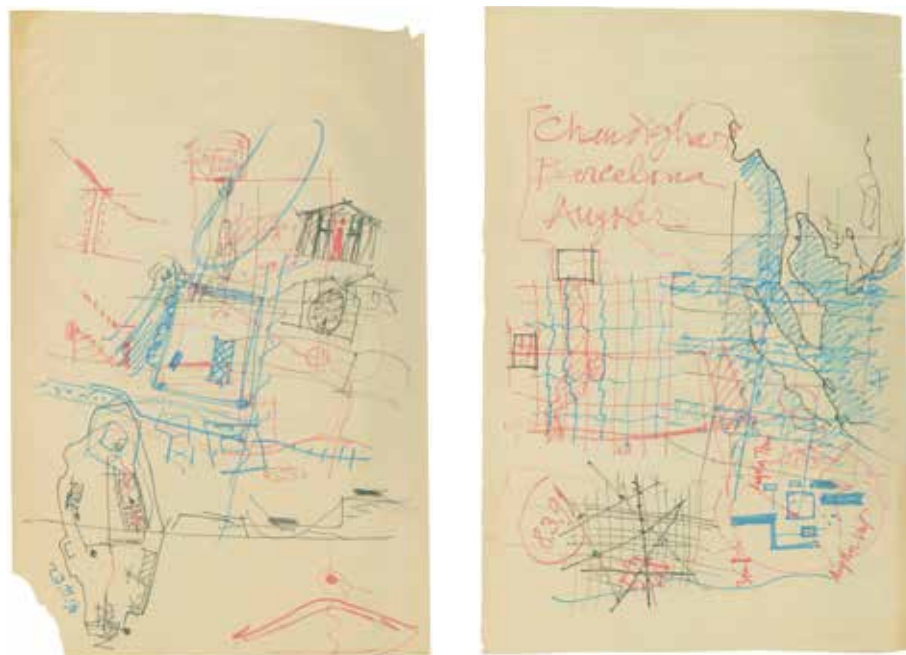
Fig. 1
Fernando Távora, Three sacred places: Delphi, Acropolis of Athens, Olympia. Sketch elaborated during the *Teoria Geral da Organização do Espaço* course, FAUP, 23/11/1990. [FIMS/FT/A 00026] ©Fundação Marques da Silva, Arquivo Fernando Távora

Fig. 2
Fernando Távora, The spontaneous city and the designed city; historical references. Chandigarh, Barcelona, Angkor Wat, Sketch elaborated during the *Teoria Geral da Organização do Espaço* course, FAUP, 08/03/1991, [FIMS/FT/A 00035] ©Fundação Marques da Silva, Arquivo Fernando Távora.

Távora's educational action seems to be aimed at encouraging an active attitude towards knowledge, according to a method that does not impose its thinking, but predisposes others to think autonomously and, above all, to search for answers in themselves.

As Carlotta Torricelli points out in her introductory essay, Távora's work, from its structuring in four parts - 1. *Dimensions, relations and characteristics of organized space*; 2. *Contemporary man and the organization of his space*; 3. *The organization of contemporary Portuguese space*; 4. *Around the role of the architect* - is profoundly marked by the idea of a theoretical reflection that, starting from an overall vision, ends up entering the merits of the architectural culture that that reflection, in inductive terms, generates. And this also with the intention of unhinging the isolation, with respect to the international scenario, that the condition of the dictatorial regime in Portugal in those years imposed. Távora highlights, through the assumption of an evaluative, propositional and connective role, his ability to critically, analytically and operationally penetrate the relations between the different aspects of theoretical reflection and the action of building through the "organization of space". And, in this, never neglecting the role of influence exerted on the present by history and the physical, cultural and social contexts of intervention. It is no coincidence that Souto de Moura has stated how Távora, a forerunner, in his own way, of the "critical regionalism" of Framptonian memory, succeeded in founding «a Portuguese school based on the foundations of modern architecture, but using elements from the past»[3].

There are then two other central aspects dealt with by Távora in his writing - almost in terms of 'oracular' prescience - in relation to the organization of space: the dimension of time and the emergence, as early as the 1960s, of the "barbarism of specialism", as Távora himself defines, borrowing the words of Ortega y Gasset[4], the emergence, in architectural design, of a tendency towards sectorialisms and disciplinary specialisms that in fact prevent «the organization of space from taking place, but rather its pure and simple occupation»[5].
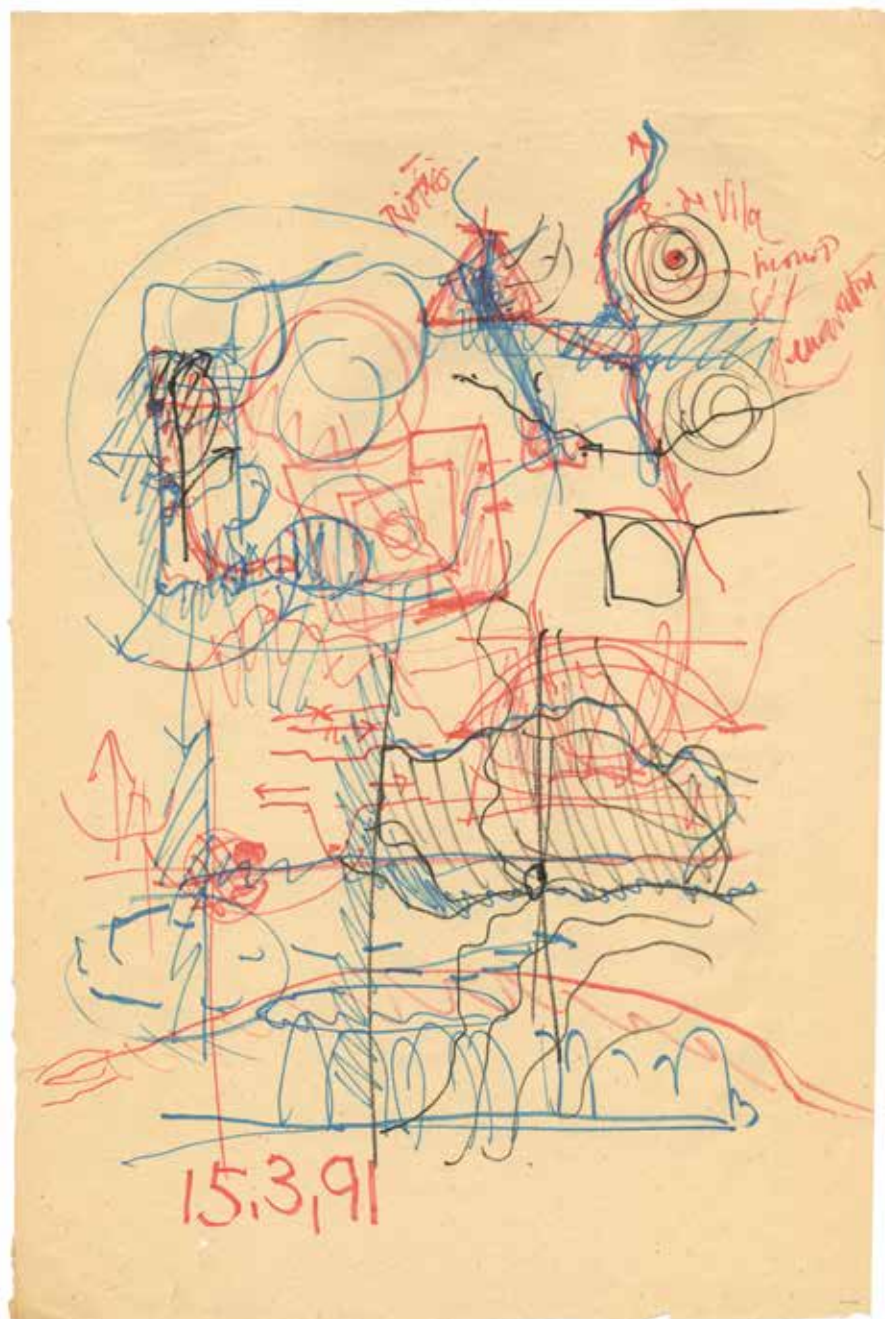
And "since space is continuous and time is one of its dimensions, space is also irreversible. Reason being [...], an organized space can never go back to being what it has already been and therefore we can say that space is in constant becoming»[6].

The "time" to which Távora refers is the "time" that in architecture is by not means innate, but the object of learning and elaboration processes that occur in parallel with those of space. And by analogy - albeit with all the caution that analogy requires - it can be said that the temporality of architecture, does not coincide with the condition of the work itself, but springs from it, from its form, of which temporality is an integral part and helps to define it.

Távora even writes: «space itself is form, because what we call space is also made up of matter [...]. This often forgotten notion [...] is a fundamental notion, since it allows us to become fully aware of how we do not give isolated forms and how there is a relationship, either between the forms we see occupying space or between them and space itself»[7].

Fig. 4
Fernando Távora, Barcelona, 1998, [FIMS/FT/Foto0029].
© Fundação Marques da Silva, Arquivo FernandoTávora.

This reflection on the 'genesis' of form and its organization described by Távora is what traces, as Vittorio Ugo would say, the «relationship between history and bioσ constituting a *principium individuationis*»[8].

But to fully understand the fundamental importance of this inescapable relationship, Távora reminds us how, the term 'shape' designates the fundamental element that, united with material, determines the organizational existence of space. But "shape" is also the "figure" or "exterior appearance" of something, it is a particular way of expressing oneself in an artistic activity such as architecture, it is architecture's own exterior way of being and appearing "in relation to human existence" that constitutes its main purpose. In any case, it denotes a tangible mode of existence, that is, it expresses a "property" in the sense of what is proper, specific, appropriate. In even deeper terms, 'shape' may not even refer to the image of a thing, but may be 'idea' (*eidos*), structure, mode. Architecture itself, as Távora states, will consist, then, in being 'shape' and the architect's task will have to be the ability to give 'shape' to material in relation to the complexity of the ontological processes of relationships established between physical, historical and social events.

Is it perhaps this often current inability to "be shape" of space and to "give a shape" to space that connotes the cultural *impasse* of our times? The answer to this question - of existential value for contemporary architecture - is provided, indirectly, by Carlotta Torricelli at the conclusion of her introduction to Távora's book when she states how reading the Porto architect's essay «exhorts us to the ethics of taking a position, to recognize the values that characterize the organization of space and to commit ourselves collectively - as men, and not only as architects - to their survival and full affirmation»[9].

Notes

[1] Távora F. (2021) – *Dell'Organizzazione dello spazio* (tit. orig. *Da Organização di Espaço,* 1962) edited by Torricelli C., nottetempo, Milan, p. 47.
[2] Danilo D. (1996) – *La struttura maieutica e l'evolverci*. La Nuova Italia, Scandicci.
[3] Esposito A., Leoni G. (2005) – *Fernando Távora. Opera completa*, Mondadori Electa, Milan.
[4] Távora F. (2021) – *Op. cit.,* p. 96.
[5] *Ibidem*, p. 93.
[6] *Ibidem*, p. 94.
[7] *Ibidem*, p. 81.
[8] Ugo V. (1991), *I luoghi di Dedalo. Elementi Teorici dell'architettura*, Dedalo, Bari, p. 37.
[9] Torricelli C. (2021) – "L'incontro tra la vita e le forme in architettura. Attualità del pensiero di Távora". In Távora F. (2021) – *Op. cit.*, p. 37.

Marco Marino
**A right way of looking at things**

Author: *Alberto Bologna*
Title: *Chinese Brutalism Today*
Sottotitolo: *Concrete and Avant-Garde Architecture*
Language: *English*
Publisher: *ORO Editions*
Characteristic: *format 21x30 cm, 298 pages, paperback in colour*
ISBN: *978-1-943532-38-4*
Year: *2019*
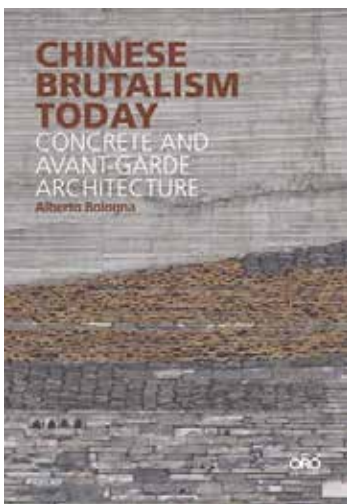
Since 2016 Alberto Bologna has been monitoring the situation on a group of new buildings built in China in the last 20 years, through the two main social networks Instagram and Facebook. Starting from the fascination aroused by the images he finds online, the author constructs an organic, in-depth and original story in: "Chinese Brutalism today", published by ORO Editions in 2019.

The text index immediately clarifies the approach adopted by Bologna. The author tone down the attention towards individual offices, "atelier" of architecture, and instead prefers to enhance the individual creations by highlighting the most original aspect of Chinese projects that is hardly grasped by surfing the net, namely the material aspect. The construction phase, the construction site, are the most interesting aspect of Chinese architecture for Bologna because the true innovation of the individual projects can be traced in the material execution. The skill of the Chinese workers was to adapt Béton Brut, the exposed concrete, a construction technique born and developed in the West, to the Eastern world. Alberto Bologna's text proposes a collection of drawings, renderings and photographs - often made in the field by the author himself - which serve to build an inventory of unique details and texture, which would be impossible to see, or in any case difficult to interpret from photographs on the net.

Alberto Bologna's book shows all its readers that there is a positive way to use the web as a way of studying and analyzing architecture. Internet and related platforms, first of all nowadays Facebook and Instagram, represent one of the broadest forms of knowledge of things. Those who study and design architecture can continuously keep track of changes in a building, from design to construction site, from construction to wear, from inauguration to change of use. By way of example, it will be necessary to open the Instagram app on a smartphone, search for "Long Museum" of the Atelier Deshaus (building to which Bologna also dedicates a part in its text) in the "places" section, and "scroll" on the images to see how the building has changed over time, what events are taking place inside it, how the light changes over the seasons or how the material is wearing out.
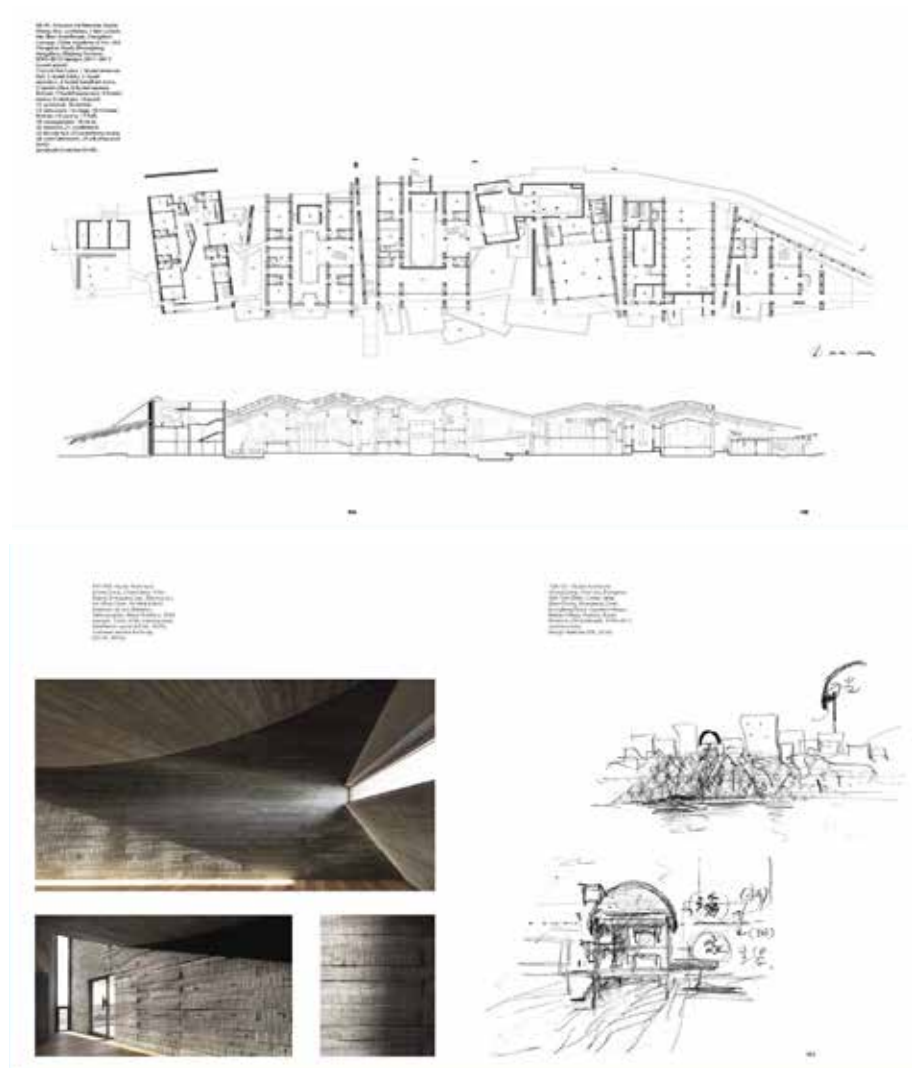
Bologna's book leaves many paths open towards the knowledge of contemporary Chinese architecture, indeed it motivates us to observe, study, analyze individual projects also through the network.

Chinese brutalist architecture is a going on phenomenon, many construction sites have yet to start, and many new studios are adopting exposed reinforced concrete as a construction technology, and perhaps only by monitoring this phenomenon through the network will it be possible to see the results in time. real. The difference from the past is that today by opening a smartphone we can see how an architecture is born, grows and transforms in real time, and by extension how a phenomenon such as Chinese brutalist architecture is evolving.

However, online research remains a virtual, two-dimensional and abstract knowledge, and the same text by Alberto Bologna would be unthinkable and unachievable without long periods of comparison and observation from life.

Alberto Bologna seems to suggest a new approach to research and study. The websites, the two most important social networks of the moment, Instagram, Facebook, and the Pinterest and Flickr platforms, today take on not only the function of an archive where design references can be traced, but they serve as new sources of knowledge and reflection complementary to the traditional ones.

Nicoletta Faccitondo
Twenty-four built thoughts
A tool for investigating the space between form and structure

Il modello come sineddoche is a book that starts from the collection of the results developed in four didactic sessions – within the Architectural Design ateliers of the dICAR department of the Polytechnic University of Bari, altogether by teachers Anna Bruna Menghini and Carlo Moccia, with Giuseppe Resta, Tiziano De Venuto and Giuseppe Tupputi as teaching assistants – that however expands beyond the horizon of the single course experience. Configuring itself as a moment of necessary synthesis, by the authors Tiziano De Venuto and Giuseppe Tupputi, it constructs the opportunity to focus on some points, in a research path that starts before its formation, and that, as can be seen from reading the volume, intends to proceed in subsequent phases of study and critics. A question not so obvious, that certainly arises from the posture of the authors: young architects who are also involved in teaching activity, and who therefore, as Carlo Gandolfi recalls in the *Appunti* at the end of the book, «study architecture together with their students»[1].

The crucial point of the research is the investigation around some remarkable examples of modern and contemporary architecture, elaborated in a critical interpretation with a clear trajectory, taking as parameter the relationship between the conception of space and its constructive order, in a constant dialogue, referring to the comparison between architecture and the «art of structures»[2].

The clarity of the decision of the research perspective does not hide, but rather explores with conviction, the problems underlying the chosen thematic core: the relationship in architecture between spatial ideals and constructive logics in the «generative process, or we could say genetic, of its form»[3], supporting the undertaken path by the *synecdoche* produced in the ateliers.

The material produced over the years of work with the students is in fact precisely defined: synthetic drawings on 1:200 scale, with an effort on the careful selection on representation, constantly looking for correspondence between sign and meaning. And above all a panorama of models, all in 3D printing of the same resin, which choose to represent the analysed building by making a reduction to *a part for the whole*, capable of unveil, reducing the architecture to the essential, those «hierarchical relationships interior to every single architectural organism»[4] crucial for the critical node of this study, and aimed at understanding the «syntactic unit endowed with the
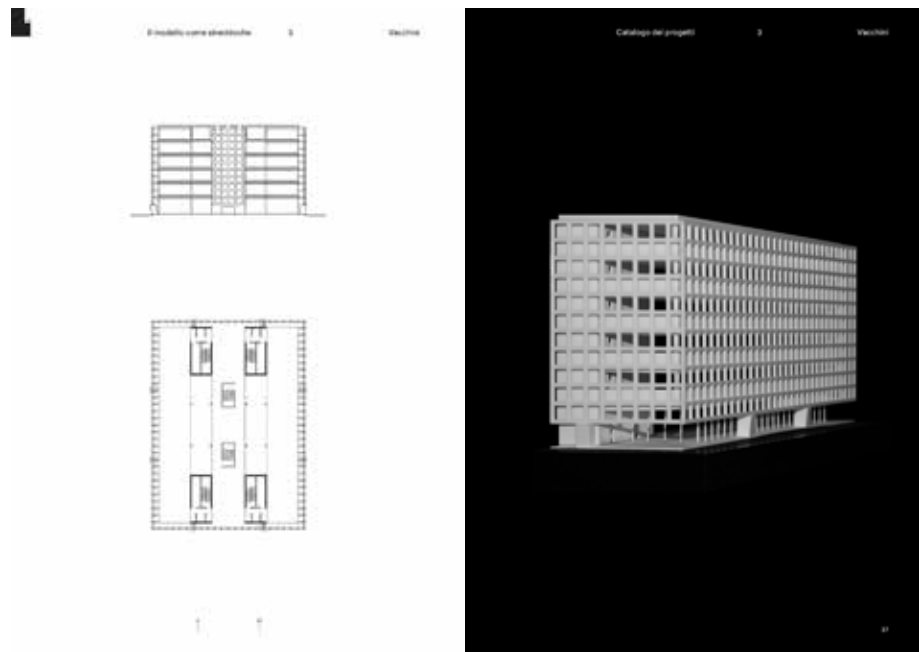
Fig. 1
Pages of the book. First sheet of the toolkit, about Livio Vacchini's Ferriera in Locarno.

complexity and autonomy necessary to represent the spatial concept of the entire building»[5]. Furthermore, the choice of homogenization of drawings and models brings the whole study back to an ideal worktop which constitutes a basis where is possible to compare the examples with each other, through their *synecdoche*.

The figure of speech underlines the desire not to reproduce the buildings in their integrity and formal conclusion, but rather to follow the experimental search for expression of the «relationship that is created between the architectural organism and the structural organism, between the character of the space and the forms of the building, according to an anatomical tension»[6]. The decomposition operation proves to be fundamental if, mentioning Martì Arìs, «what characterizes the structure is its relational dimension, the essential factor of which are neither the elements nor the whole, but rather the relationships [...] that allow the formalization of the whole»[7].

The works investigated in the volume are twenty-four, all architectures developed - not always built - by modern and contemporary Masters, from 1929 to 2015; chosen as a part of a historical process of consolidation of the collaboration between architectural and engineering disciplines, which is fundamental for the desired outcome: the shaping of forms that are the expression of a spatial concept materialized through a specific relationship with construction techniques. So that they can therefore be enclosed in a «constructed thought»[8]. And, moreover, they are all architectures that unfold as variations on the same functional theme: the large collective building. It is in fact here that the research underlying the book identifies the possibility of investigating the intrinsic potential of the great structural bay, which summarizes the relationship between form and structure.

The teaching method adopted in the ateliers has therefore built over the years a clear correspondence between the theoretical principles on which it was intended to investigate and the praxis of the assigned exercise. The examples are arranged in a catalogue that can be consulted in the central part of the book, easy to consult thanks to the precious editorial work that assembles the volume, and to a practical synoptic table. Each example is presented with a synthetic plan associated with the elevation, and then subsequently a possible second plan, and the section. The sheet ends with a
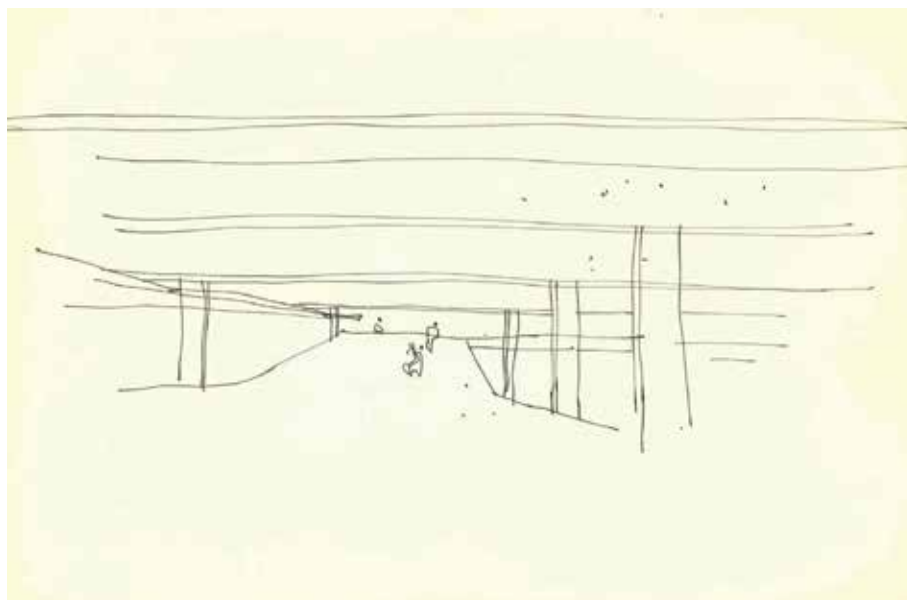
Fig. 2
Image from the book, perspective of the entrance of Paulo Mendes da Rocha's MAC USP, drawing from the Archive © Acervo Paulo Mendes da Rocha

photographic image, also structured as an investigation tool, which allows the eye to overturn the two-dimensional drawing in the sculptural plasticity of the built work, and virtually navigate the physical model. In an economy of representative gestures, the origin and elementary relationship between form and structure of each work is made clear. The sequence of the architectures studied and presented does not proceed in chronological or classificatory order: the itinerary proposed by the authors is also the result of the continuous questioning posed by the underlying problem of the relationship between the formal quality and the construction, choosing to arrange the examples by chaining them in a succession created step by step, «through the recognition of some *structural* analogies of some types of space»[9].

The catalogue is presented as a *toolkit*, underlying the authors' intent not to crystallize the collected results, but rather to put them back on the worktop. Its position in the centre of the pages of the book is also perhaps metaphorically a reference to the central position in the debate that the two authors carry out between the lines. The decision to alternate themselves in the writing of the chapters reflects indeed the constant dialogic dimension recalled by De Venuto and Tupputi in the texts. The themes and the method are introduced in the chapters before the "booklet" of the catalogue of, while the chapters that follow it implement the methodology and extensively analyse four works extrapolated from the toolkit. They go deeper into the question, staging a close comparison between the chosen examples, extracting their ability «not to flaunt the audacity and structural effort as a value in itself»[10], but rather they're being the source of a process where «even the structural logics and the construction techniques are intended in a compositional sense»[11].

But to get to the root of the question in the reading of the architectures, the role played by the model in this study is preponderant and effective, restoring a use of the maquette in the didactic of architecture not linked to the pre-vision of the project, but, on the contrary, to the study that follows it. Bringing the students back to that sensory experience typical of the practice of the maquette, «constructed by an infinite series of different particular views and panoramic overviews of the same physical object, which are able to provide a *representation* of reality that is not anchored to the *depiction* placed on the support»[12]. And this takes place in the full

awareness of those who guide the educational path: in fact, referring to the use of the model that precedes the project, the authors declare that «in an inverse process, these *synecdoche* would rather represent the principles, the paradigms contained in our master works, building a wall of tools and techniques useful for the experience of *making* in the didactic of the project»[13]. Through a peculiar use of the model that allows to understand «therefore the construction as a poetic act, through which the thought underlying the space is made manifest»[14]. And thus, sharing not the results treated as finite data, but rather an ongoing process, part of a necessary debate on the addressed issues.

Notes

[1] Gandolfi C. (2022) – "Appunti sulla didattica della costruzione in architettura". In: De Venuto T., Tupputi G., *Il modello come sineddoche. Spazio, Struttura, Forma per un'idea di architettura collettiva*. Libria, Melfi, p. 197.

[2] Muttoni A. (2006) – *L'arte delle strutture*. Mendrisio Academy Press, Milan.

[3] Gandolfi C. (2022) – "Appunti sulla didattica della costruzione in architettura". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 195.

[4] Tupputi G. (2022) – "Il modello e la sineddoche". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 13.

[5] *Ibidem*.

[6] De Venuto T. (2022) – "La forma dello spazio come tema per la struttura". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 24.

[7] Martì Arìs C. (1990) – *Le variazioni dell'identità. Il tipo in architettura*. CittàStudi edizioni, Milan.

[8] De Venuto T. (2022) – "La forma dello spazio come tema per la struttura". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 23.

[9] *Ibidem*.

[10] Tupputi G. (2022) – "Sollevare/Sospendere". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 136.

[11] *Ibidem*.

[12] Braghieri N. (2020) – "Piccoli strumenti per grandi progetti". In: Maillard N., Veillon C. (ed.), *Isle of Models. Architecture and Scale.* Triest Verlag, Zürich, p. 123.

[13] De Venuto T. (2022) – "La forma dello spazio come tema per la struttura". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 24.

[14] Tupputi G. (2022) – "Il modello e la sineddoche". In: De Venuto T., Tupputi G., *Il modello come sineddoche* op. cit., p. 16.